



State of Oregon Department of Environmental Quality Solid Waste Orphan Site Account Application Form

DEQ's Solid Waste Orphan Site Account program provides funding and low-interest loans for investigation and cleanup of contamination at solid waste disposal sites owned or operated by a local government. The first \$100,000 requested for eligible site expenses does not require repayment and can be provided under a funding agreement with DEQ.

Please fill out a separate statement of interest form for each solid waste disposal site that may be eligible for funding. Applicants may provide answers on a separate piece of paper or by attaching documents. DEQ will use information from this form to prioritize solid waste orphan site account funding and loan requests made by local governments. After reviewing the information on this form, DEQ may request additional information.

Please contact your Regional DEQ contact for guidance on this form:

Heather Kuoppamaki, kuoppamaki.heather@deq.state.or.us, 503-229-5125

Northwest Region and Eastern Region

(Baker, Clackamas, Clatsop, Columbia, Crook, Deschutes, Gilliam, Grant, Harney, Hood River, Jefferson, Klamath, Lake, Malheur, Morrow, Multnomah, Sherman, Tillamook, Umatilla, Union, Wallowa, Wasco, Washington, and Wheeler Counties)

Mary Camarata, camarata.mary@deq.state.or.us, 541-687-7435

Western Region

(Benton, Coos, Curry, Douglas, Jackson, Josephine, Lane, Linn, Lincoln, Marion, Polk, Yamhill Counties)

1) Local government contact information:

Yamhill County Planning Department- Solid Waste
525 NE 4th St
McMinnville, OR 97128

Director: Ken Friday (503)434-7516, Solid Waste Coordinator: Ashley Watkins (503)434-7516

2) Identification information for the disposal site:

Newberg Landfill, DEQ Permit #97
Waterfront St, Newberg, OR 97132
Yamhill County Taxlot # R3230-1600
Easement for neighboring parcel Taxlot #R3230-1400 (for GP-3 well)

3) List hazardous substances and other waste present at the disposal site:

The old Newberg Landfill operated from 1965 to its closure in 1985. The contents are mixed refuse covered with ash from the nearby defunct paper mill.

Methane gas levels are detectable at GP-3. In addition, samples taken by Yamhill County's consultant has detected hazardous substances in low concentrations, including metals and volatile organic compounds (VOCs) in landfill leachate seeps at the site. Specific compounds include metals antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, nickel, selenium, silver, thallium, vanadium, and the VOC chlorobenzene.

SWOSA Statement of Interest Form

- 4) Provide information on the sort of investigation or cleanup needed at the site. Describe the anticipated work, associated costs, and the basis of the cost estimates. Specify any indirect costs (such as administration and overhead associated with the investigation or cleanup activities), and legal costs included in the cost estimates.

a) Investigation and evaluation of cleanup alternatives:

As proposed by our current consultant & Tim Spencer, Project Manager DEQ NWR Solid Waste: Phase I- site and install six (6) new gas monitoring probes at three (3) preselected locations based on their proximity to structures. Two (2) probes will be installed at each site; one at shallow depth and one at intermediate depth. Approximate cost: \$18,766.00
Phase II- once the new wells are installed they will be sampled quarterly for one year, in addition to the current wells on site. Approximate cost: \$4843.00
Monitoring results will be sent to the City of Newberg, Chehalem Park & Recreation District (CPRD), Del Boca Vista LLC, Weatherly Properties LLC (property owner), & other surrounding property owners. Total estimated cost: \$23,609.00.

b) Cleanup:

As there have been no structures in the past for methane to accumulate under and only one well (GP-3) has had presence of methane gas, there has been no clean-up implemented. If the newly installed gas monitoring wells indicate a presence of methane, Yamhill County, with our consultant, will confer with DEQ to determine the next steps for remediation based upon the location and level of methane detected.

- 5) Describe investigation or cleanup work already performed at the site:

Based on a sampling schedule per DEQ permit #97 requirements, Yamhill County has hired a consultant to collect surface water, ground water, methane gas, and leachate seep samples. Currently, onsite there are two (2) sets of groundwater wells and three (3) methane gas monitoring probes. GP-3 (gas monitoring probe) indicates the presence of methane. The NE corner and the western edge of the landfill along the berm both indicate areas of leachate seep surfacing. The leachate seeps are monitored and sampled by Yamhill County's current consultant.

- 6) Describe the site's risk to public health and the environment. Include reasons, if any, why there is a need for immediate removal or remedial action to protect public health or the environment:

The parcel directly north of the landfill has been approved for development by the City of Newberg for an 80 unit multi-family dwelling in addition to an existing full time occupied farmhouse on the NW corner of the landfill. Methane gas is present at GP-03. If methane gas migrates, it has the potential to collect; methane is a reactive substance and can explode in the right conditions. The potential for methane gas to collect in dwellings has not been a concern in the past due to the lack of structures. For this reason, new gas monitoring probes will need to be placed as soon as possible to track and measure methane gas migration for safety purposes (please see the enclosed map in the Parametrix Scope of Work and Cost Estimate Report).

SWOSA Statement of Interest Form

7) Why are you interested in solid waste orphan site funding?

Yamhill County Solid Waste budgets yearly for a consultant to complete the required DEQ permit sampling, for basic maintenance/mowing on the landfill and for worst case scenarios based upon the "Post Closure Maintenance Cost Analysis" Document. Based on past land use around the landfill, the construction of additional wells & monitoring was not needed until the recent construction was proposed.

8) What are current and proposed land uses for the disposal site?

Under the ownership of Yamhill County, the closed landfill has been left to recover as a green area, managed as a private property with no public access.

Chehalem Park and Recreation District (CPRD), with whom Yamhill County is in current title transfer negotiations with over the old Newberg Landfill property, has proposed a dog park, a paddle launch, nature trails, a sports complex and/or an amphitheater on site.

9) Are you interested in using DEQ contractors for the proposed work? If your local government would like DEQ to perform the investigation and/or cleanup activities, the local government and DEQ can enter into an Intergovernmental Agreement (IGA). Local governments can also chose to perform the contracting themselves.

Yamhill County would prefer that DEQ perform the investigation and cleanup activities. This property is in current title transfer negotiations with CPRD. DEQ has informed Yamhill County should the property title be transferred to CPRD, the grant would be transferred as well. Therefore, to make things more streamlined, we would prefer DEQ to take the lead on this.

10) Describe other sources of funding:

a) From owners or operators of the site and other parties who may be responsible for site contamination. What efforts have been made to seek their contribution to site costs:

The old Newberg landfill was privately owned until its closure in 1985; its ownership was then transferred to Yamhill County. Yamhill County has maintained the DEQ permit, collection of samples and maintenance since the ownership transfer.

b) Insurance or accounts established for funding site closure?

Yamhill County Solid Waste has \$800,000 set aside for worst case scenarios based on the "2009 Post-Closure Maintenance Cost Analysis for the Whiteson and Newberg Landfills" by Parametrix. An Environmental Impairment Insurance Policy for \$10 million has been purchased- valid through 2020.

c) Are there opportunities to partner with other entities on this site?

There is a limited partnership with the land developer Del Boca Vista LLC. Based on recommendations from DEQ, Del Boca Vista LLC placed gas monitoring probes and conducted sampling rounds to determine if methane gas has migrated onto the parcel where 80+ apartments are proposed to be built. Once the additional monitoring probes are installed on the landfill, Yamhill County plans to provide reports of gas monitoring results to the City of Newberg, Chehalem Park and Recreation District (CPRD), Del Boca Vista LLC, Weatherly Properties LLC (property owner), Oregon Department of Transportation (ODOT) and other surrounding property owners.



Oregon

Kate Brown, Governor

Department of Environmental Quality

Northwest Region

700 NE Multnomah St. Suite 600

Portland, OR 97232

(503) 229-5263

FAX (503) 229-6945

TTY 711

November 8, 2018

Ms. Ashley Watkins, Solid Waste Coordinator
Yamhill County Planning & Development
525 NE 4th Street, McMinnville, OR 97128

Re: Newberg Landfill SWP # 97 -- Proposed residential subdivision near the landfill site

Dear Ms. Watkins:

At the County's request, DEQ has reviewed documents related to the proposed Riverrun Subdivision in Newberg, Oregon. As proposed, portions of this residential development would be located near the closed Newberg Landfill. Yamhill County owns the landfill property and provides the landfill's long term post-closure maintenance and monitoring in accordance with DEQ closure permit # 97. DEQ's review considered the following: 1) Landfill-related health and safety concerns that may pose future risk to residents of the subdivision, and 2) Details of the development's design and construction that might adversely affect environmental conditions at the landfill.

DEQ's review comments:

1. **General.** DEQ is concerned that the documents prepared in support of the proposed subdivision, including an environmental assessment, made no mention of the Newberg Landfill or the potential public health and safety and environmental risks associated with it.
2. **Methane Gas.** The decomposition of organic material within the landfill produces methane gas, carbon dioxide, and trace levels of other gasses. Methane is explosive at certain concentrations and both methane and carbon dioxide are asphyxiates. DEQ rules and permits regulate methane concentrations such that levels must be protective of human health and safety and the environment. Regular monitoring of gas concentrations provides verification. The DEQ Closure Permit requires Yamhill County to monitor the methane levels in subsurface soils at the landfill property boundaries. To accomplish this, the County installed seven landfill gas-monitoring probes at three different locations along the landfill property boundary. One of those monitoring installations, gas probe GP-01 is located near Waterfront Street and the proposed subdivision. GP-01 is a multi-depth probe array consisting of three separate probes, each constructed to a discrete depth, one shallow, one intermediate and one deep.

Many years of monitoring have not detected significant levels of methane in these probes near Waterfront Street (at the landfill's north boundary). However, the proposed development with dense-packed residences raises questions about the adequacy of the current methane-monitoring program and its reliance on only one monitoring station near Waterfront Street. Heretofore, the neighboring properties of potential concern along and near Waterfront Street have been open space and Filbert orchards, a low-risk scenario. Addition of the proposed residences, though, could increase the potential risk of human exposure to methane. DEQ's concerns about methane relate to Phase 2 of the development, given its close proximity to the landfill but not to Phase 1.

3. **Storm-Water Ponds.** The developer has proposed two storm-water detention ponds for the Phase 2 portion of the development. They are designated Pond B and Pond C. Considering their

close-proximity to the landfill, as proposed, and the hydrogeological conditions near the landfill site, DEQ is concerned about the potential impact of subsurface seepage on the landfill.

4. **Storm-Water Routing.** The Storm-water Report (Exhibit E) Section 7, page 3 includes the following statement: if pond capacity is exceeded for a greater storm event (than 25-year) overflow from the Pond B will flow into a new public storm drain to the south along E. where it will eventually discharge into Chehalem Creek. The next page of the report (page 4) includes an identical statement about Pond C. DEQ finds that the report lacks adequate detail describing precisely where the storm-water overflow will go on its route to Chehalem Creek and we are concerned about potential impacts to the landfill.

Recommendations.

1. **Methane.** Considering the potential risks to public health and safety, DEQ recommends that the responsible local agencies require the developer to conduct an investigation of the Phase 2 portion of the Riverrun property to determine if methane is present in subsurface soils before proceeding with final design and construction. The presence of significant methane may not preclude this property from future development but would prompt design and construction changes and engineering controls to mitigate the health and safety risks associated with methane.
2. **Storm-Water Ponds.** DEQ recommends that the responsible local agencies require the developer to line the ponds (B & C) with impervious geomembrane lining systems or otherwise evaluate potential seepage rates from the ponds and demonstrate that the intended design is protective of the landfill.
3. **Storm-Water Routing.** DEQ recommends that the responsible local agencies require the developer to describe storm water routing in sufficient detail to demonstrate no impacts to the landfill.

Please contact me at 503-229-5826 or by email at spencer.tim@deq.state.or.us if you have any questions or concerns about the content of this message.

Respectfully,



Tim Spencer, Project Manager
DEQ NWR Solid Waste Program

Cc: Audrey O'Brien, DEQ NWR Manager

May 30, 2019

Ms. Ashley Watkins
Yamhill County Planning & Development
525 NE 4th Street
McMinnville, Oregon 97128

Subject: **Proposed Scope of Work and Cost Estimate
Additional Soil Gas Probe Installation & Monitoring
Newberg Landfill Site**

Dear Ms. Watkins:

Parametrix is pleased to present this scope of work and cost estimate to install and monitor additional soil gas probes at the Newberg Landfill site (NL). The need for installation of additional soil gas probes at the NL is in response to proposed development of property north of the closed landfill. Due to proximity of the proposed residential development to the permitted closed municipal landfill, the Oregon Department of Environmental Quality (DEQ) has expressed concerns regarding adequate landfill gas (i.e., methane) monitoring to protect future potential residents from risks associated with methane sourced from the landfill site.

Parametrix communicated with Tim Spencer, DEQ's Newberg Landfill project manager, to identify possible locations, depths, and monitoring schedule for additional soil gas probes at the landfill site to enhance the site's landfill gas monitoring network. Specifically, to address concerns regarding the proposed future residential development and an existing residence located northwest of the landfill. Our proposed scope of work reflects this communication in addition to discussion with drilling services on how to most effectively install new gas probes at the landfill site given regulatory changes that have occurred since installation of the existing gas probes.

Our scope of work consists of two phases. The first phase is installation of the proposed additional new soil gas probes, completion of an initial monitoring event, and submittal of an installation report. The second phase is completion of four quarters (representing one year) of landfill gas monitoring that includes both existing and the new proposed soil gas probes. Two of the four quarterly events would be combined with currently scheduled semi-annual landfill gas monitoring at NL. A letter report presenting results of the four quarterly events would then be submitted. Table 1 identifies tasks associated with the two project phases, the estimated cost to complete each task, and a brief description of each task. Total estimated cost for each phase and the total estimated project cost is also presented on Table 1.

Figure 1 shows the location of existing and proposed soil gas probes at NL. A total of six soil gas probes are proposed at three locations. Table 2 presents a construction summary for both existing and new proposed soil gas probes at NL. As indicated on Table 2, existing soil gas probes located adjacent to the north side of the landfill consist of shallow, intermediate, and deep probes

major soil probes, major soil probes, making a stiff soil

constructed in a single boring (i.e., nest construction). The proposed soil gas probes will consist of shallow and intermediate zone probes. DEQ is in agreement that deep zone probes are not needed to address monitoring objectives. The spacing distance between the bottom of the new proposed shallow zone probe and the top of the new proposed intermediate zone probe is also closer (2 feet) compared with the existing probes (5.8 feet and 10.8 feet). The intent of the closer shallow to intermediate zone spacing for the new proposed probes is to focus monitoring of the upper section of the soil zone where landfill gas is most likely to represent a potential risk to existing and future proposed residential structures, if present. It is assumed that the new proposed soil gas probes will ultimately be integrated into the NL's post-closure monitoring program.

The following describes each task of the two project phases identified in Table 1.

Phase 1 – Gas Probe Installation

Installation of six proposed soil gas probes at three locations.

Task 1: Inspect Proposed Probe Locations

Description: Identify, assess, and obtain access approval for the proposed soil gas probe locations shown on Figure 1. An objective is that the proposed probes will be located on NL tax lot 1600. Inspection of the proposed locations is needed to identify specific access issues. Potential issues to be assessed are: 1) should proposed GP-4 location be on the south or north side of the existing landfill chain-link fence; 2) is there a flat accessible area on the landfill site of the chain-link fence at proposed GP-5 location; and 3) is there an accessible location at the proposed GP-6 location that is on tax lot 1600 and can access to the location be obtained.

Assumptions: One site visit to inspect proposed gas probe locations. Prior to site visit obtain permission to access proposed GP-6 location and obtain future access if probe is installed. County will provide assistance in obtaining access approvals.

Product: Field documentation including pictures of proposed soil gas probe locations.

Task 2: Work Plan – DEQ Submittal and Approval

Description: Based on findings from Task 1, develop and submit a work plan to the DEQ that describes the location, design, and monitoring of the proposed soil gas probes. The goal is to obtain DEQ approval for proposed installation and monitoring prior to new probe installation.

Assumptions: A letter work plan providing information and rationale for proposed soil gas probes, a proposed monitoring program, reporting, and implementation schedule. A draft of the letter work plan provided to the County prior to DEQ submittal.

Product: A letter work plan to the County and DEQ.

Task 3: Install Landfill Gas Probes

Description: Install proposed landfill gas probes. Table 2 presents a proposed construction summary. Final construction specifics will be based on Task 1 findings and approval of Task 2 work plan. Oregon Water Resource Department (WRD) no longer allows for nested probe completion utilized at existing probes GP-01 and GP-02. WRD will allow for new probes to be located within six-inches of each other and therefore new proposed shallow and intermediate probe pairs can be protected by one set of required bollards. Probes will be installed using direct push drilling method

and constructed as described on Table 2. A barb fitting with a valve assembly will be installed on each probe to provide a controlled means to monitor the probe for landfill gas similar to the assembly installed on the existing gas probes.

Assumptions: Installation of proposed soil gas probes will require two full days. Access to the proposed locations will be provided. This includes removing a section of chain-link fence at the GP-05 location with a new access gate installed by others following installation. Soil cuttings produced from the new probe borings will be spread on the landfill cover near the NL access gate.

Product: Installation of six soil gas probes as described and summarized on Table 2 at the proposed locations shown on Figure 1.

Task 4: Initial Gas Monitoring Event

Description: Complete an initial monitoring event of proposed and existing soil gas probes. Initial monitoring event will be completed three to five days following completion of new probe installation. Reading of pressure, methane, carbon dioxide, and oxygen volumes will be collected from each new and existing soil gas probe at the NL. Depth to water level will be measured in the new soil gas probes.

Assumptions: Monitoring of the gas probes will be completed using a calibrated landfill gas multi-meter (e.g., Landtech GEM-2000).

Product: Field documentation of monitoring event activities and results.

Task 5: Installation Report

Description: A letter report presenting activities, findings, and work completed associated with installation of the proposed soil gas probes and initial gas monitoring event results.

Assumptions: A draft of the letter report will be submitted to the County. A final report will be submitted to DEQ.

Product: A letter report to DEQ.

Task 6: Project Management

Description: Project management of Phase 1 activities and work.

Assumptions: This task provides budget for miscellaneous communications, maintaining project files, establishing subcontracting agreements, and development of monthly invoices and project status reports.

Product: Monthly invoices that include a project status report and a summary budget.

Phase 2 – One Year Gas Probe Monitoring

Completion of four quarterly landfill gas monitoring events of both the proposed and existing soil gas probes.

Tasks 1 – 4: Fall 2019 through Summer 2020 Events

Description: Complete quarterly monitoring events (every three months) of proposed and existing soil gas probes for a period of one year; total of four monitoring events. Readings of pressure, methane, carbon dioxide, and oxygen volumes will be collected from each new and existing soil gas probe at the NL consistent with current landfill gas monitoring completed at the NL.

Assumptions: Monitoring of the gas probes will be completed using a calibrated landfill gas multi-meter (e.g., Landtech GEM-2000). The first quarterly event is assumed to occur during the fall 2019 (September thru October). The Winter 2020 (January 1 – February 15) and Summer 2020 (July 1 – August 15) events are currently scheduled NL landfill gas monitoring events.

Product: Field documentation of monitoring event activities and results.

Task 5: Monitoring Results Report

Description: A letter report presenting activities and results of quarterly gas monitoring events associated with Tasks 1 through 4.

Assumptions: A draft of the letter report will be submitted to the County. A final report will be submitted to DEQ. Information presented in the letter report will also be included in the NL 2020 Annual Environmental Monitoring Report.

Product: A letter report to the County and the DEQ.

Task 6: Project Management

Description: Project management of Phase 2 activities and work.

Assumptions: This task provides budget for miscellaneous communications, maintaining project files, and development of monthly invoices and project status reports.

Product: Monthly invoices that include a project status report and a summary budget.

Closing

I would function as the project manager, involved with completing the identified project tasks, and available to provide technical and regulatory support as requested and needed. I look forward to having the opportunity to assist Yamhill County with enhancing landfill gas monitoring at the Newberg Landfill to ensure current and future potential residents are protected from potential risks associated with methane sourced from the landfill site.

Please do not hesitate to call (503.416.6112 office direct line) or email (rmalin@parametrix.com) if you have any questions regarding this scope of work and cost estimate or our project experience at other Oregon landfill sites.

Sincerely,



Rick Malin, RG, LHG
Project Manager

**Table 1: Additional Landfill Soil Gas Monitoring Probes - Installation and Monitoring Cost Estimate
Newberg Landfill Site**

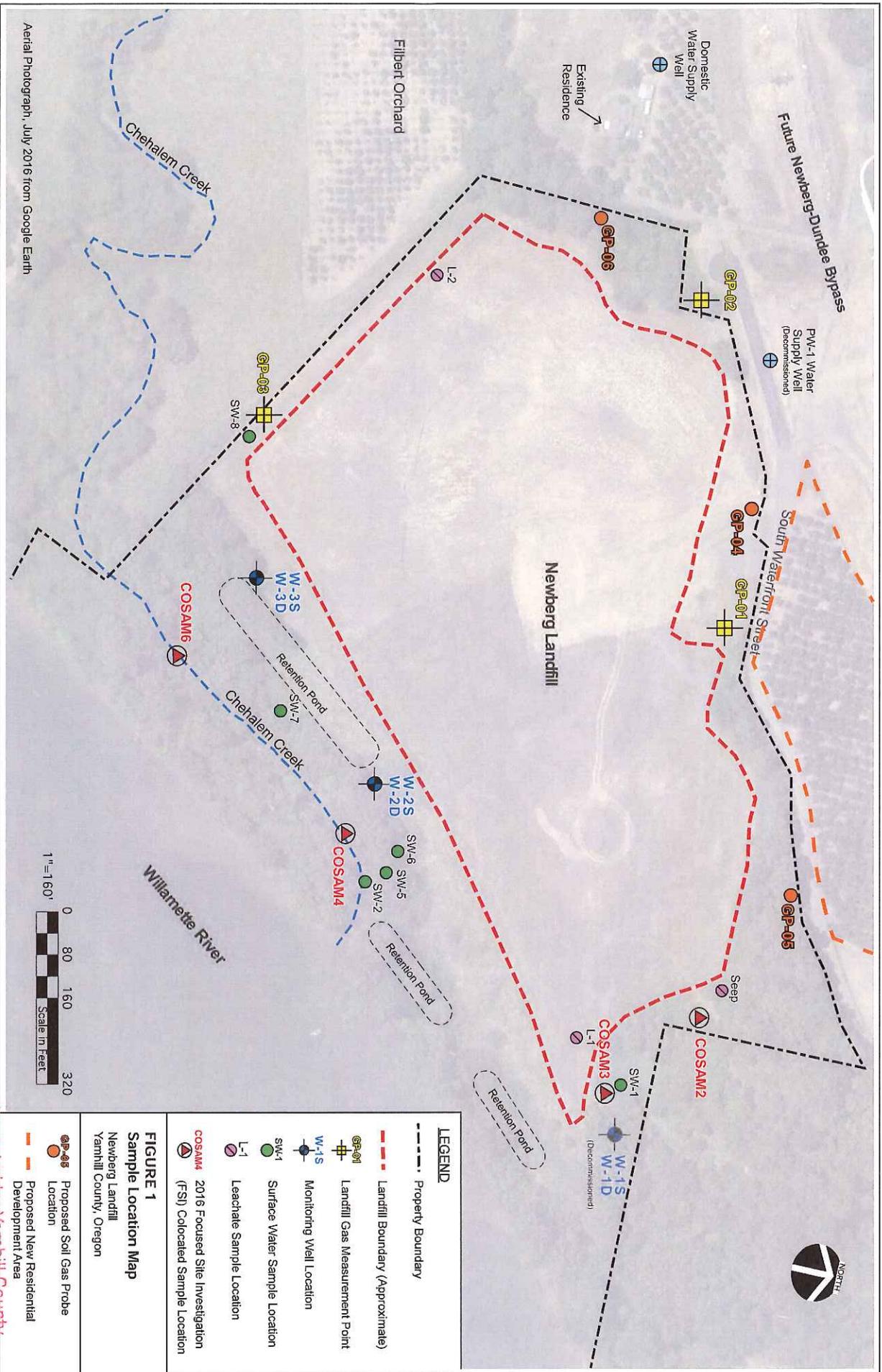
Phase Number	Phase Name	Task Number	Task Elements	Labor Cost	Expenses	Task Total Cost	Task Description
1	Gas Probe Installation	1	Inspect proposed probe locations	\$ 1,143	\$ 29	\$ 1,172	Inspect proposed locations. Obtain permission to access private property west of landfill at proposed GP-6 location.
		2	Work plan - DEQ submittal & approval	\$ 1,191	-	\$ 1,191	Submit work plan for DEQ approval.
		3A	Install landfill gas probes	\$ 4,002	\$ 138	\$ 4,002	2 days assumed to install the 6 proposed probes.
		3B	Install landfill gas probes	\$ -	\$ 7,991	\$ 7,991	Estimated driller cost to install the 6 proposed soil gas probes.
		4	Initial gas monitoring event	\$ 1,143	\$ 130	\$ 1,273	Collect initial round of gas readings from new and existing probes.
		5	Installation report	\$ 2,048	-	\$ 2,048	Letter report presenting activities, findings, and work completed including figures and construction logs.
		6	Project management	\$ 962	-	\$ 962	Miscellaneous project communications, invoicing, and project setup including subcontract agreement process.
			Subtotals	\$ 10,489	\$ 8,288	\$ 18,776	
Total Phase 1 Gas Probe Installation Cost Estimate						\$ 18,776	
2	One Year Gas Probe Monitoring	1	Fall 2019 event	\$ 953	\$ 130	\$ 1,083	Added 1st quarterly event.
		2	Winter 2020 event	\$ 381	-	\$ 381	2nd quarterly event. Combined with scheduled monitoring of existing probes.
		3	Spring 2020 event	\$ 953	\$ 130	\$ 1,083	Added 3rd quarterly event.
		4	Summer 2020 event	\$ 381	-	\$ 381	4th quarterly event. Combined with scheduled monitoring of existing probes.
		5	Monitoring results report	\$ 953	-	\$ 953	Letter report presenting monitoring results and findings.
		6	Project management	\$ 962	-	\$ 962	Invoicing and miscellaneous project communications.
			Subtotals	\$ 4,583	\$ 260	\$ 4,843	
Total Phase 2 Gas Probes Monitoring Cost Estimate						\$ 4,843	
Total Project Estimate Cost						\$ 23,619	

**Table 2: Landfill Gas Probes - Existing and Proposed Soil Probe Construction
Summary Newberg Landfill**

Probe ID	Monitoring Zone	Date Installed	Completion Type	Boring Depth (ft bgs)		Screen Depth (ft bgs)		Screen length (ft)	Ground Elevation ¹ (ft msl)	Screen Elevation (ft msl)	
				top	bottom	top	bottom			top	bottom
GP-01s	shallow	1/14/1994	nested	55.0	3.8	13.5	9.7	156	152.2	142.5	
				55.0	19.3	29.0	9.7	156	136.7	127.0	
GP-01i	intermediate	1/14/1994		55.0	44.5	54.1	9.6	156	111.5	101.9	
GP-01d	deep	1/14/1994		60.0	3.3	13.0	9.7	165	161.7	152.0	
GP-02s	shallow	1/13/1994		60.0	23.8	33.5	9.7	165	141.2	131.5	
GP-02i	intermediate	1/13/1994	nested	60.0	49.1	58.8	9.7	165	115.9	106.2	
GP-02d	deep	1/13/1994		60.0	4.2	13.8	9.6	74	69.8	60.2	
GP-03s	shallow	1/12/1994	single	15.0							
Proposed											
GP-04s	shallow		single	16.0	5.5	15.5	10.0	166	160.5	150.5	
GP-04i	intermediate		single	28.0	17.5	27.5	10.0	166	148.5	138.5	
GP-05s	shallow		single	16.0	5.5	15.5	10.0	165	159.5	149.5	
GP-05i	intermediate		single	28.0	17.5	27.5	10.0	165	147.5	137.5	
GP-06s	shallow		single	16.0	5.5	15.5	10.0	158	152.5	142.5	
GP-06i	intermediate		single	28.0	17.5	27.5	10.0	158	140.5	130.5	

Notes:

- 1 - Ground elevations based on DOGAMI 2007 Lidar data. Ground elevation is approximate.
- Existing soil gas probes installed in 8-inch diameter boring using hollow stem auger method.
- Existing soil gas probe casing and screen constructed with flush threaded 1/2-inch (ID) schedule 80 pvc pipe. Screen perforations = 0.03-inches.
- Existing soil gas probe have pea gravel placed in screen zone.
- Existing soil gas probes are completed with above ground steel monuments with protective bollards.
- Oregon Water Resource Department no longer allows for nested probe completion. Therefore proposed probes will be installed in single boring.
- Proposed soil gas probe depths consider existing probe depths and depth of probes installed at tax lot 401 just north of the landfill.
- Proposed soil gas probes would be constructed using flush threaded 1/2-inch schedule 40 pv pipe. Screen perforations = 0.02-inches.
- Proposed soil gas probes would use 10-20 silica sand place in screen zone.
- Proposed soil gas probes would be completed with above ground steel monuments with protective bollards.



Accepted by Yamhill County
 Board of Commissioners on
 9/26/19 by Board Order
 # 19-365