



Beneficial Ground Water Use Determination

Open Space Tracts B and E Elk Ridge Development

Former Landfill
Northeast of Hankey Road and
Barrick Lane
St. Helens, Oregon 97051

August 5, 2015

Prepared for:

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This **Beneficial Water Use Determination** for:

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has been prepared for:

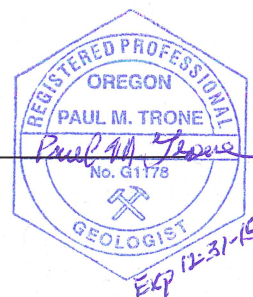
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1 Summary of Water Wells Identified in the Area of Study

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- 1 Site Vicinity Map
- 2 Site Plan
- 3 Zoning Map
- 4 Hydrogeologic Area of Study
- 5 Well Location Map
- 6 Water Rights Map

Attachments

- A Water Well Logs
- B Water Rights Documents

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1.0 INTRODUCTION

At the request of St. Helens Assets LLC (client), EVREN Northwest (ENW) has prepared this beneficial ground water use determination for ground water in the vicinity Elk Ridge subdivision, St. Helens, Oregon (subject site; Figure 1).

The approximately 72-acre Elk Ridge development site is located north of the intersection of Hankey Road and Barrick Lane, in a rural farm and woodland setting west of St. Helens, Oregon, as shown on Figure 1. The majority of the site has been re-graded, streets and utilities installed, and 120 building lots have been developed with or are in the process of being developed with single-family residences for Phases 1, 2, 4 and 6 of the Elk Ridge residential housing development (Figure 2).

1.1 Background

The former owner of the site indicated that the City had hauled household trash to the site and disposed of it in the gully north of Barrick Lane over a 20-year period in the 1950s-1970s. In 2010 approximately 7,000 cubic yards of buried solid waste was excavated under the direction of the former owner and developer of the property. The removed solid waste was screened, and the portion that passed the screen was placed back in the excavation. Part of the solid waste that did not pass the screen was disposed of at Hillsboro Landfill (822 tons), while the remainder of the solid waste was placed in an unlined cell within the Bonneville Power Administration (BPA) easement located on the northern part of the site (Tract E).

Drawing upon limited information in Columbia Inspection's waste sampling results, ENW implemented a scope of work to characterize the landfill by completing a test pit exploration in September 2012, sampling surface water in October 2012, and conducting a follow-up test pit exploration and a soil gas/ landfill gas survey in November 2012 as summarized in ENW's Technical Memorandum.¹ These investigations determined the character and approximate lateral and vertical extents of the historical landfill, separated solid waste body, and solid waste disposal cell. Results of these investigations showed that soil and soil gas impacts were indicated in the Tract B open space, southern portions of building lots 1 through 7, and Tract E open space. ENW

¹ ENW. November 30, 2012. Technical Memorandum: Limited Surface Water and Subsurface Investigations North of Hankey Road and Barrick Lane.

submitted to Oregon Department of Environmental Quality (ODEQ) supplemental site information along with a summary of prior investigations in a Background Information Letter dated January 31, 2013.² ODEQ reached a determination of “no further action” and approved regulatory closure of the first 55 building lots based on the absence of buried solid waste and its associated hazards in these areas:

- Phase 1: Parcel #3 - Lots 11 through 14 (4 lots),
- Phase 2: Parcel #4 - Lots 23 through 60 (46 lots), and
- Phase 4: Parcel #5 - Lots 62 through 66 (5 lots).

However, due to potential soil gas, soil, and surface water impacts, ODEQ required further investigation of building lots 1 through 7, the Tract B Open Space consisting of unplatted land along the southeastern boundary of the site, and the Tract E Open Space consisting of unplatted upland area surrounding the solid waste disposal cell.

ENW has prepared a report characterizing soil at several of the proposed lots³ and is completing a report further characterizing surface soil, subsurface soil, sediment, and soil gas on Open Space Tracts B and E. Based on preliminary results, ENW recommended performing a beneficial water use determination and developing a conceptual site model such that risk can be further characterized in Tracts B and E.

1.2 Purpose

This beneficial ground water use determination evaluates the occurrence and beneficial use of surface and ground water in the vicinity of the subject site, to support an assessment of potential risk to human and ecological receptors.

1.3 Scope

The scope of this evaluation includes the following:

- Review of regional and site geology and hydrogeology and site zoning (site characterization).
- Development of a Conceptual Hydrogeologic Model and identification of a preliminary area of potential concern to be screened for ground water beneficial uses.
- Review of public water supply sources and distribution.
- Review of available water well data, including a well log database search.
- Review of water rights and permits in the vicinity of the site.
- Identification of other beneficial uses of water in the vicinity of the site.

² ENW. January 31, 2013. Letter to ODEQ: Background Information.

³ ENW. July 25, 2013. Additional Soil Characterization, Lots 1 through 7

2.0 SITE SETTING

2.1 Description and Location

The approximate 72-acre Elk Ridge Development site is located north of the intersection of Hankey Road and Barrick Lane, in a rural farm and woodland setting west of St. Helens, Oregon, as shown on Figure 1. The majority of the site has been re-graded and infrastructure (streets, vehicle turn-outs, medians, curbs, and sidewalks) installed for the future residential housing development. At the time of this investigation, several building lots had been graded and footings installed for houses in Phase 2 of the development on the southeast part of the site (see Figure 2).

2.2 Township, Range, Section and Quarters

The subject property is located within:

Township	Range	Section	Quarter	Quarter/Quarter
5 North	1 West	32	SW	NE, SE
5 North	1 West	32	SE	NW, SW

2.3 Climate

St. Helens, Oregon has a temperate climate with warm, dry summers and cool wet winters and transitional spring and fall seasons. Average rainfall is approximately 38 inches per year, with most of it falling in liquid form in November through May. Average temperatures range from 40°F to 70°F; however with summer high temperatures getting as high as 90°F and winter lows near 30°F.

2.4 Topography

The subject site is located within the United States Geological Survey (USGS) St. Helens 7.5-minute quadrangle. The topography rises from an elevation of approximately 190 feet above mean sea level (amsl) at the site's southern reach, to an elevation of approximately 430 feet amsl at the site's northern edge (see Figure 1).

2.5 Cultural Setting and Land Use

St. Helens is located 30 miles north of Portland, Oregon, with a population of approximately 12,990 (2014)⁴. The city is within Columbia County, Oregon, on the Columbia River. A zoning map is presented in Figure 3. The Elk Ridge Development are located in an R7 Suburban or Moderate Residential land use zone, just inside the Urban Growth Boundary⁵.

⁴ <http://www.ci.st-helens.or.us/our-community/>

⁵ <http://www.ci.st-helens.or.us/landuseplanning/files/2012/12/2015-Zoning.pdf>, last revised April 30, 2015.

2.6 Regional Geologic Setting

The site and surrounding area are located within the northern part of the Portland Basin, which is the northernmost of several sediment-filled structural basins that comprise the Willamette Valley segment of the Puget-Willamette Lowland⁶. This lowland is a complex structural and topographic sediment-filled trough that lies between Puget Sound to the north, west-central Oregon to the south, the Cascade Range to the east, and the Coast Range to the west. Geologic mapping in the site area indicates that the south and northwest portions of the site are underlain by Miocene tholeiitic basalt lava flows of the Sentinel Bluffs member of Grande Ronde Basalt, of the Columbia River Basalt Group; the north-central portion of the site is mapped as underlain by Miocene Sandy River Mudstone; and the northeast portion of the site is mapped as Quaternary landslide deposits. These units are described below.

2.6.1 Sentinel Bluffs Basalt Flows

The Sentinel Bluffs basalt flows are as much as 295 feet (90 meters) or more thick, are exposed in the highwall of the quarry along Hankey Road west of the site⁷, and are likely the basalt that is exposed in the bank and bed of Milton Creek southwest of the site. As such, the Sentinel Bluffs basalt flows are assumed to underlie the site. Saprolite derived from intense weathering of basalt was encountered in test pits and borings on the southern portion of the site. Competent basalt bedrock may have been encountered in a test pit attempted on the southeast part of the site (south of TP03). Basalt cobbles/fragments were encountered in test pits completed throughout the site.

2.6.2 Sandy River Mudstone

The Sentinel Bluffs basalt flows are unconformably overlain by highly weathered and poorly exposed claystone, mudstone, siltstone, and minor pebble conglomerate beds of the Sandy River Mudstone⁴. These varicolored beds are tuffaceous, contain carbonized wood, are intensely weathered to clay, and are limonite stained and cemented. The Sandy River Mudstone occupies a small channel cut into laterized Sentinel Bluff basalt flows. Claystone, mudstone, and/or siltstone were encountered in several test pits completed on the north and south-central portion of the site. Also, driller's logs of 66- to 504-foot-deep domestic water wells are indicated to have penetrated up to: 10 feet of clay in a well 0.3 miles to the west (at quarry)⁸; 180 feet of clay in a domestic well adjacent to the western site boundary⁹; 52 to 84 feet of clay or sandy clay in a group

⁶ Evarts, R.C., 2004, Geologic Map of the Saint Helens Quadrangle, Columbia County, Oregon, and Clark and Cowlitz Counties, Washington: U.S. Geological Survey Scientific Investigations Pamphlet and Map 2834, 23 p., and map.

⁷ ODEQ, 2007, Memorandum, Site Visit – Elk Ridge Estates Development Site: DEQ NW Region Site Assessment, 3 p., dated August 6, 2007.

⁸ State of Oregon Water Supply Well Report COLU 50725, completed May 16, 1998.

⁹ State of Oregon Water Supply Well Reports COLU 1228 and COLU 52680, completed February 8, 1988 and March 24, 2005, respectively.

of five (5) residential wells approx. 0.2 miles to the southwest¹⁰; 120 feet of clay in a well 0.2 miles to the south¹¹; and 134 to 138 feet of clay in a couple of domestic wells 0.4 miles to the northeast⁹. This clay zone is cased off in all of these wells, and the targeted water-bearing zone is in basalt. Water well logs are included in Attachment A.

2.6.3 Landslide Deposits

Landslide deposits mapped in the northern area of the site are described as unsorted, angular mixtures of surface material (soil) and bedrock that has been transported downslope en masse⁴. Therefore, these deposits would consist of basalt, Sandy River Mudstone bed materials, and surficial materials. The landslides were formed by failure of clay-rich laterized basalt and sedimentary deposits and may have been caused by Missoula flood-induced undercutting and/or undercutting of steep creek banks⁶. The landslide deposits mapped at the site are suggested by topography.

2.7 Hydrogeologic Setting

2.7.1 Surface Water

Topographic mapping by the USGS indicates that the subject site slopes toward the south to the drainage located on the southern boundary of the site adjacent to Barrick Lane (Figure 1). A small storm water pond located in the drainage is recharged by storm-generated surface water. During a precipitation event, storm water captured by the development storm sewer system at the site outfalls to the storm water pond. An impoundment structure at the southwest end of the pond controls the elevation of water retained, and ultimately overflow to a culvert that passes under Hankey Road to the west (Figure 2). Storm water that passes through the culvert discharges into Milton Creek to the west of Hankey Road.

Perry Creek's confluence with Milton Creek is a short distance southwest of the site. Milton Creek flows just over 3 miles southeast to a point where it discharges into the north end of Scappoose Bay, near the side channel west of the north end of Sauvie Island and the Columbia River.

2.7.2 Ground Water

The following information is available regarding ground water at and near the subject site:

- The maximum depth of exploration to date is 20 feet.
- A shallow, localized water-bearing unit was encountered at a depth of four (4) feet in a test pit (TP36) and boring B26 recently completed at the site. Both of these locations are located in the solid waste fill area located in the BPA right-of-way, and both are located

¹⁰ State of Oregon Water Supply Well Reports COLU 3248, COLU 3249, COLU 3250, COLU 3255, and COLU 3256 completed April 10, 1965, March 21, 1964, May 7, 1964, April 12, 1960, and August 27, 1959, respectively.

¹¹ State of Oregon Water Supply Well Report COLU 3246, completed September 9, 1989.

near the toe of the fill depression. Therefore, the occurrence of the shallow water-bearing unit is likely related to trapped water within this fill feature.

- The estimated depth to regional ground water at the site ranges from approximately 178 feet below ground surface at the north end of the property to 97 feet bgs at the south end of the property¹².
- The depth of first-encountered water recorded in water wells completed in the site area ranged from 10 feet (COLU 50725) to 461 feet (COLU 52680).
- Static regional water levels recorded in water wells completed in the site area ranged from 8 feet (COLU 50725) below top of casing (BTOC) to 210 feet BTOC.
- Seasonal shallow (perched) ground water was encountered at a depth of five feet in soil-gas probes (SG03 and SG07) located on the slope above the gully on the southern part of the site¹³.
- Perched ground water was also encountered on Tract B, near the pond in soils just under the fill material (approximately 2.5 to 10 feet bgs). Shallow ground water occurring within 1 foot of the ground surface was encountered along the axis of the gully in borings SS03 and SS03B.

2.7.3 Conditions Specific to Open Space Tracts B and E

Soil and ground water conditions encountered at Tract B and Tract E during previous investigations are summarized below.

2.7.3.1 Tract B

Surface Soil/ Cap. ENW's eight soil borings on Tract B encountered a range of cap material described as sandy-silty gravel, silty sand, silt, clayey silt, and silty clay ranging in thickness from just a few inches to four feet. Broken glass, melted glass, and charcoal occur in this surface soil/cap.

Solid Waste. Solid waste consisted of silt and gravel mixed with broken glass, melted glass, plastic, metal, paper, and wood debris. The solid waste / native soil interface was encountered in most borings at depths ranging from 8 to 20 feet, with the exception of boring location B22, which was advanced to refusal at 20 feet bgs and was still in solid waste.

Ground Water. Perched ground water was encountered an inch or so below the ground surface next to the axis of the drainage 60 to 90 feet northeast of the storm water pond; and at depths of 6 feet to 14 feet bgs further from the axis of the drainage.

¹² U.S. Geological Survey (USGS) and Oregon Water Science Center, Estimated Depth to Ground Water in the Portland, Oregon Area. website: http://or.water.usgs.gov/projs_dir/puz/

¹³ The soil-gas survey was conducted on November 14, 2012.

Native Soil. Native soils below the solid waste was described as a red or brown clay, silty clay, and weathered bedrock (saprolite).

2.7.4 Tract E

Surface Soil/ Cap. ENW's three soil borings on Tract E encountered cap material consisting of sandy silt, silty clay, and clay ranging from 0.5 feet to 4 feet thick. The cap was not entirely free of solid waste.

Solid Waste. Solid waste was consisting of brick fragments, charcoal, and glass was encountered in a silty gravel matrix in one of the three borings (B26). The solid waste extended to a depth of approximately 7.5 feet bgs in this boring.

Ground Water. Perched ground water was encountered at 4.5 feet bgs in the southern portion of the fill area, within the solid waste fill.

3.0 HYDROGEOLOGIC AREA OF STUDY

The Locality of the Facility (LOF) is defined as any point where a human or an ecological receptor is reasonably likely to come into contact with facility-related hazardous substances. The LOF takes into account the likelihood of the contamination migrating over time and may be larger than the facility's property boundaries. The hydrogeologic area of study described in this section incorporates information on the local topography and hydrogeology, as well as the distribution of impacts across the site described in earlier sections. This information is key to identifying and delineating the LOF. Note that the LOF will be identified and delineated in the Risk Assessment to be completed under separate cover.

3.1 Key Factors Used

The key factors used to identify and define the hydrogeologic area of study are as follows:

- **Chemical Impacts** – are associated with solid wastes occurring in surface and subsurface soils in the historical landfill and separated solid waste disposal area on the southern portion of the site (Tract B), and subsurface soils in the upland disposal cell on the north-central portion of the site (Tract E). These wastes are capped with clean soil, with the exception of the portion of the historical landfill centered in the drainage on the southern part of the site.
- **Soils** – containing chemical impacts are predominantly clays with some silt, which are deeply weathered remnants of Sandy River Mudstone. These clay soils are underlain by more clay soils which are laterized (saprolitic) Grande Ronde Basalt of the Columbia River Basalt Group. Clay soils such as these are expected to have very low hydraulic conductivity, and hence permeability, as indicated by the absence of water wells completed in these materials (see Section 4.1).
- **Shallow Perched Ground Water** – is locally perched within clay and silt soils. Perched ground water occurs in discontinuous lenses which are not expected to be productive

enough to support a domestic well. Shallow ground water is expected to flow southward in accordance with topography toward the drainage at the south part of the site, where ground water seeps have been observed. Perched ground water may come into contact with soil impacts.

- **Deep Regional Ground Water** – occurs in basalt aquifers at depths ranging from 100 feet to over 500 feet bgs. With two exceptions (wells 3257 and 3248, see Table 1), domestic use water wells in the area are all completed in these deep basalt aquifers (Section 4.1). Regional ground water is expected to flow east-northeastward toward the Columbia River. It is very unlikely that chemical impacts encounter regional ground water given the thick sequence (100s of feet) of low permeability clay soils.
- **Surface Water** – runs overland and/or is captured by the storm water system at the site, and the storm water is discharged to the drainage at the southern part of the site. Storm water collects in a retention pond, where particulates drop out and settle as pond sediment. The water continues to flow over the lip of the impoundment structure when it reaches capacity and through a culvert under Hankey Road before discharging to Milton Creek.

3.2 Boundaries Defined

On this basis, the **hydrogeologic area of study** is conservatively defined:

- As an area bounded to the north by the northern tip of the upland disposal cell; to the south by the southern property boundary and drainage; to the east by the eastern property boundary; and to the west by the western property boundary and Hankey Road (see Figure 4).
- The depth of occurrence corresponds to the deepest occurrence of solid waste impacts, which is estimated at 25 feet (approximately 20 feet of impacts at B22 plus an additional 5 feet).

This information will serve as the area of focus for this beneficial ground water use determination.

4.0 WATER WELL RECORDS

4.1 Oregon Water Resources Department (OWRD) GRID Database

The OWRD maintains the GRID (Ground Water Information Database) consisting of logs for borings and wells in the State. The following should be noted with regard to the logs within the database:

1. Over the years the well report form has changed several times, and the filing of well logs has only been required since 1955;
2. Older wells are frequently undocumented;

3. Well logs are completed and filed by well drillers and well locations are commonly poorly described;
4. Older wells have the names of the original property owners which are not updated with changes of title;
5. Drillers also have no training in materials descriptions, and their lithologies described in the well logs should be considered carefully during review.

Therefore, this beneficial use survey is very conservative in considering database-listed water wells, as discussed below.

Well Identification. As previously stated, the site is located in the northwest and southwest quadrants of the southeast quarter and the northeast and southeast quadrants of the southwest quarter of Section 32, Township 5 North, Range 1 West of the Willamette Meridian. Based on the hydrogeologic area of study, Sections 32 and 33 of Township 5 North, Range 1 West, and all of Sections 4 and 5 of Township 4 North, Range 1 West were researched to determine location of wells within these sections and their uses (see Figure 5; see Table 1 for well logs).

- In Section 32, eleven (11) water wells were identified in the GRID database, and sufficient information was available to map the well address at four (4) of the locations (Figure 5).
- In Section 33, thirteen (13) water wells were identified, and sufficient information was available to map six (6) of the well locations.
- In Section 5, nineteen (19) wells were identified in the GRID database, and sufficient information was available to map fourteen (14) of the well locations.
- In Section 4, two (2) water wells were identified in the GRID database, and sufficient information was available to map one (1) of these wells.

Of the twenty-five (25) mapped wells, eight (8) wells are located 0.75-mile or greater away from the project site, and six (6) wells are indicated to have been abandoned. These fourteen (14) abandoned and distally located wells will not be discussed further. The remaining eleven (11) mapped wells are briefly described below; well logs are included in Attachment A. Table 1 presents a summary of the OWRD Grid Database for the twenty-five (25) mapped water wells in Sections 32, 33, 5, and 4 (see Figure 5 for approximate well locations).

4.1.1 Section 32 Water Wells

Columbia County 1228: The well log indicates this domestic use well is located at 36047 Liberty Hill Road, which is approximately 0.75 miles northeast (hydraulically cross-gradient) of the southernmost tip of the property where the on-site unnamed creek leaves the property and passes through a culvert which drains to Milton Creek. The well is drilled to 302 feet bgs, with a perforated screen set into a decomposed shale from 220 to 301 feet bgs. Since the well produces from bedrock units, has a pressure-grouted surface seal to 134 feet depth, and is located over $\frac{3}{4}$ of a mile from the subject site, given the nature of the impacts at the subject site and the fact that this

well is located nearly 0.75-mile from the subject property, this well is unlikely to be impacted by any contaminants associated with the historical landfill on the subject property.

Columbia County 53730: The address of this domestic use well is 61424 Perry Creek Road. There is not enough information to place the well accurately in the section; however, based on aerial photograph interpretation, this well is likely located adjacent to the western site boundary and approximately 0.2 miles hydraulically up-gradient of the southernmost tip of the subject property where the culvert is located. The well was drilled to 200 feet bgs, with casing installed to 200 feet bgs, within a claystone encountered at 180 to 200 feet bgs. The well casing is slotted from 160 to 200 feet bgs and appears to obtain ground water from the claystone. Since the well produces from bedrock units, has a bentonite surface seal to a depth of 100 feet, and is likely located up-gradient from the drainage at the subject site, given the nature of the impacts at the subject site and the fact that this well is probably located hydraulically up-gradient from the subject property, this well is unlikely to be impacted by any contaminants associated with the historical landfill on the subject property.

Columbia County 50725: This domestic use well's address is 35091 Hankey Road, which is approximately 0.5 mile west-northwest (potentially hydraulically up-gradient from the southernmost tip of the subject site. The well drilled to 100 feet bgs, with 6-inch casing set at 40 feet depth and a 4.5-inch casing set at 100 feet bgs. The casing is perforated from 60 feet to 90 feet, within a basalt, where the lower ground water-bearing unit is encountered. Since the well produces from bedrock units, has a bentonite surface seal to a depth of 40 feet, and is likely located 0.2 mile from the subject site, given the nature of the impacts at the subject site and the fact that this well is probably located hydraulically up-gradient from the subject property, this well is unlikely to be impacted by any contaminants associated with the historical landfill on the subject property.

4.1.2 Section 33 Water Wells

Section 33 water wells within the area of study are briefly discussed below (see Table 1 for a summary of water wells discussed below):

Columbia County 52680: This domestic well is located at 36047 Liberty Hill Road, which is approximately 0.75 miles northeast (cross-gradient) of the southernmost tip of the subject site. The well was drilled to 504 feet bgs, with 6 inch casing set in clay and basalt at 146 feet bgs, and a 4.5 inch casing was set in basalt from 104 to 504 feet bgs. The surface seal was installed to 145.5 feet bgs, and the casing was perforated from 464 to 503 feet bgs in basalt rock with slight red mud (an interflow zone). Since the well is cross-gradient from the subject site, and based on the depth of this well and its production from a bedrock aquifers, given the nature of the impacts at the subject site and the fact that this well is located over 0.75-mile from the subject property, this well is unlikely to be impacted by any contaminants associated with the historical landfill on the subject property.

4.1.3 Section 5 Water Wells

Section 5 water wells within the area of study are briefly discussed below (see Table 1 for a summary of water wells discussed below):

Columbia County 183: This domestic well was determined to be located at 59994 Hilltop Drive, which is approximately 0.24 miles south of the southernmost tip of the subject site. This well is also on the opposite side of Milton Creek than the subject site, which forms a drainage divide for shallow ground water. The well was drilled to 205 feet bgs, and a surface seal was set to 66 feet bgs. The well log indicates the well is uncased through black boulders which were indicated to be porous. Since the well draws from deep bedrock aquifers, is on the opposite side of Milton Creek drainage than the subject property, and given the nature of the impacts at the subject site, this well is unlikely to be impacted by any contaminants associated with the historical landfill on the subject property.

Columbia County 3246: This domestic well is located at 395 N Vernonia Road, which is approximately 0.5 miles south-southwest, on the opposite side of Milton Creek than the subject site, which forms a drainage divide for shallow ground water. This well is also on the opposite side of Milton Creek than the subject site. The well was originally a 120-foot-deep well, but it was deepened to 240 feet bgs. The well is uncased in a basalt production zone. Since the well draws from deep bedrock aquifers, is on the opposite side of Milton Creek drainage than the subject property, and given the nature of the impacts at the subject site, this well is unlikely to be impacted by any contaminants associated with the historical landfill on the subject property.

Columbia County 3248: This domestic well was determined to be located at 59959 Hilltop Drive, approximately 0.24 miles southwest, on the opposite side of Milton Creek than the subject site, which forms a drainage divide for shallow ground water. It is also located on the opposite side of the Milton Creek drainage as the subject site. The well is completed at 66 feet depth, and it is cased to 52 feet bgs. The uncased hole is indicated to draw water from soft boulders occurring from 52 to 66 feet bgs. The well is indicated to be fitted with a surface seal to 19 feet bgs. Since the well draws from a bedrock aquifer, is on the opposite side of Milton Creek drainage than the subject property, and given the nature of the impacts at the subject site, this well is unlikely to be impacted by the release on the subject property.

Columbia County 3249: This domestic well was determined to be located at 35975 Spence Street, approximately 0.2 miles southwest, on the opposite side of Milton Creek than the subject site, which forms a drainage divide for shallow ground water. It is also located on the opposite side of the Milton Creek drainage as the subject site. The well is completed at 205 feet depth, and it is cased to 66 feet bgs. The uncased hole is indicated to draw water from black boulders indicated to be porous and occurring from 75 to 205 feet bgs. The well is indicated to be fitted with a surface seal to 20 feet bgs. Since the well draws from a bedrock aquifer, is on the opposite side of Milton Creek drainage than the subject property, and given the nature of the impacts at the subject site, this well is unlikely to be impacted by any contaminants associated with the historical landfill on the subject property.

Columbia County 3250: This domestic well is located at 60020 Hilltop Drive, which is approximately 0.2 miles southwest, on the opposite side of Milton Creek than the subject site, which forms a drainage divide for shallow ground water. This well is also on the opposite side of Milton Creek than the subject site. The 170-foot-deep well was fitted with a 78-foot casing and an 18-foot surface seal. The well is uncased below 78 feet in soft brown and black boulders. Since the well draws from bedrock aquifers, is on the opposite side of Milton Creek drainage than the subject property, and given the nature of the impacts at the subject site, this well is unlikely to be impacted by any contaminants associated with the historical landfill on the subject property.

Columbia County 3255: This domestic well was determined to be located at 60058 Hilltop Drive, which is approximately 0.2 miles southwest of the southernmost tip of the subject site. This well is also on the opposite side of Milton Creek than the subject site, which forms a drainage divide for shallow ground water. The well was drilled to 130 feet bgs, and a casing was set to 76 feet bgs. No surface seal is indicated. The well log indicates the well is uncased through porous rock and basalt rock. Since the well draws from bedrock aquifers, is on the opposite side of Milton Creek drainage than the subject property, and given the nature of the impacts at the subject site, this well is unlikely to be impacted by any contaminants associated with the historical landfill on the subject property.

Columbia County 3256: This domestic well was determined to be located at 59964 Hilltop Drive, approximately 0.2 miles southwest (hydraulically cross-gradient) of the subject site. This well is also on the opposite side of Milton Creek than the subject site, which forms a drainage divide for shallow ground water. The well is completed at 183 feet depth, and it is cased to 84 feet bgs. The uncased hole is indicated to draw water from basalt rock and porous rock occurring from 84 to 183 feet bgs. No surface seal is indicated. The boring log noted the surface seal will be made after landscaping. Since the well draws from a bedrock aquifer, is on the opposite side of Milton Creek drainage than the subject property, and given the nature of the impacts at the subject site, this well is unlikely to be impacted by any contaminants associated with the historical landfill on the subject property.

Based on the findings of the water well database review, mapped GRID database-listed water wells are considered unlikely to be impacted by any releases from the subject property.

4.2 Municipal Water Supplies

St. Helens obtains its drinking water from two water wells located on the banks of the Columbia River in Columbia City, Oregon, approximately one (1) mile north of St. Helens. The water is treated at a treatment facility located in Columbia City. A backup water supply well, used in emergencies, is located near the Scappoose Bay Marina. Residences within the hydrogeologic area of study receive drinking water from the City of St. Helens.

5.0 REVIEW OF OWRD'S WATER RIGHTS, PERMITS, AND CLAIMS

The waters of Oregon collectively belong to the public and cannot be owned by any one individual or group. Instead, individuals or groups may be granted rights to use them. A water right is a

legal authorization to use a predefined quantity of public water for a designated purpose. Any use of surface water (e.g., lakes, ponds, rivers, streams, or springs) and any use of ground water requires a water-right permit or certificate.

ENW accessed OWRD's Water Rights Database and Mapping Tool to research water rights, permits, and claims in the vicinity of the subject property (see Attachment B).

5.1 Surface Water Rights

Surface water rights for Milton Creek exist immediately upstream (Certificate 76380) and several downstream from the site. The one upstream and two of the four downstream water rights are for irrigation only. There are two water rights that were for primary domestic water use, each for 1 house or family.

Table 5.1 Surface Water Rights

Water Certificate	Right	Date	Use	Point of Diversion
22694 F. W. Bond		4/25/1951	Domestic use 1 house	Milton Creek - SE1/4, NE1/4, Sec 5, T4N, R1W
22695 Clarence R. Wagner		5/9/1951	Domestic Use 1 family	Milton Creek – NE1/4, NE1/4, Sec5, T4N, R1W
19602 R. R. Hankins		6/16/1944	Irrigation	Milton Creek – NE1/4, NE1/4, Sec 5, T4N, R1W
15164 Ralph R. Butts		1/31/1944	Irrigation	Milton Creek - SE1/4, NE1/4, Sec 5, T4N, R1W
76380 Francis Edward McGilvra		1/20/2000	Irrigation	Milton Creek – Lot 4, SW1/4, SE ¼, Sec 31, T5N, R1W.

Unlike in 1951, today the location of the two domestic use water rights is heavily residential. The description of place of use for the water rights is now occupied by not just one house but several. St. Helens constructed city water lines in this neighborhood in 1964 through 1972 and homes are likely connected to the city water supply. It is unlikely that these water rights are still in use.

5.2 Ground Water Rights

Oregon Water Law exempts the following ground water uses from permitting and water rights regulations:

1. Stock watering.

2. Lawn or noncommercial garden: watering of not more than one-half acre in area.
3. Single or group domestic purposes: not exceeding 15,000 gallons per day.
4. Single industrial or commercial purposes: not exceeding 5,000 gallons per day.
5. Down-hole heat exchange uses.
6. Watering school grounds: ten acres or less, of schools located within a critical ground water area.

Figure 6 indicates all ground-water rights points of diversion (i.e., water wells) in the vicinity of the subject property. A single ground water well was located in the area, approximately 2 miles to the northeast, on the other side of the hills and in another drainage.

6.0 DISCUSSION OF OTHER BENEFICIAL USES OF WATER

Geothermal Heating and Cooling. Ground water may be used as a geothermal heating and cooling resource. In most applications, geothermal heating and cooling entails return of ground water to the resource through re-injection. No reviewed well logs or water rights indicated/suggested use of ground water for geothermal heating and cooling; however, these beneficial uses should not be impacted by the residual impacts at the subject property.

Surficial Vegetation. Shallow (perched) ground water levels were encountered at varying depths within the drainage area located in Tract B and the within the toe of the fill that was placed in Tract E. However, no distressed vegetation was observed in any of these areas.

Recreation and Aesthetics. The vicinity of the site is residential, and the immediate vicinity of the site does have recreational and aesthetic resources.

Wildlife (Ecological). The property and its neighbors are residential properties. Ecological receptors may be present, especially near the pond area. The dense residential development would discourage most wildlife from the immediate vicinity, especially since there is more desirable forested habitat to the north and east.

7.0 CONCLUSIONS

ENW evaluated beneficial water use in a conservative Hydrogeologic Area of Study that was developed based on location, ground-water flow direction, and geologic/hydrogeologic literature. A review of Oregon Water Resources water well and water rights databases showed:

- Most properties in the vicinity of the Hydrogeologic Area of Study are connected to the City of St. Helens water system. The water system is sourced from water wells on the banks of the Columbia River, in Columbia City, Oregon, a distance of one mile north. The water is treated at the facility in Columbia City before distribution to users.
- Water wells located within Section 33 (located in another drainage and other side of the hills from the site) and Section 5 (other side of Milton Creek from the site) are hydrologically separated from the site; therefore, they are unlikely to be impacted by the release on the subject property. Wells within Section 32 are cross- or up-gradient,

completed in deep basalt aquifers, and constructed with a surface seal; therefore they are unlikely to be affected by site impacts.

- Existing ground-water right holders are unlikely to be impacted by the impacts at the site due its location in another drainage to the northeast.
- Existing surface water right holders down-gradient exist in an area that is currently heavily residential. Domestic water use is unlikely since the City of St. Helens has supplied this area with city drinking water since at least 1972.
- Other beneficial uses for the surface water may be ecological habitats. Forested land to the north and east of the site may be wildlife habitats; however, given the dense residential use of the subject site, wildlife would be discouraged to use Open Area Tracks B and E. The on-site pond is storm water pond treats surface runoff from up-gradient areas of the site prior to discharge to Milton Creek.

8.0 LIMITATIONS

The scope of this report is limited to observations made during on-site work, interviews with knowledgeable sources, and review of readily available published and unpublished reports and literature. As a result, these conclusions are based on information supplied by others as well as interpretations by qualified parties.

The focus of this survey does not extend to the presence of the following conditions unless they were the express concerns of contacted personnel, report and literature authors or the work scope.

- Naturally-occurring toxic or hazardous substances in the subsurface soils, geology and water.
- Toxicity of substances common in current habitable environments, such as stored chemicals, products, building materials and consumables,
- Contaminants or contaminant concentrations that are not a concern now but may be under future regulatory standards.
- Unpredictable events that may occur after our site visit, such as illegal dumping or accidental spillage.

ENW have performed services for this project in accordance with our agreement and understanding with the Client. This document and the information contained herein have been prepared solely for the use of the Client.

ENW performed this study under a limited scope of services, per agreement. It is possible, despite the use of reasonable care and interpretation, that we may have failed to identify regulation violations related to the presence of hazardous substances other than those specifically mentioned at the closure site. We assume no responsibility for conditions that we did not specifically evaluate or conditions that were not generally recognized as environmentally unacceptable at the time this report was prepared.

TABLE

TABLE 1
Water Well Logs

Well No.	Township	Range	Section	Qtr	Qtr/Qtr	Tax Lot	Location Description	Est. Distance (Miles)	Street of Well	Depth 1st Water (feet)	Depth Drilled (feet)	Completed Depth (feet)	Top Water-Bearing Zone Depth (feet)
3245	4 N	1 W	4	SW	NW		Black Highway Addition No. 1, 040104CB	>1		0	320	320	300
52031	4 N	1 W	5	SW	NE	10	SSE	>0.76	NEAR 35587 ALDERWOOD DR, SAINT HELENS		20	0	
52125	4 N	1 W	5	NW	NE	500	SSW	>0.2	WINDY RIDGE DR		160	0	
51289	4 N	1 W	5	NW	NW	100	S to SSW	>0.75	N VERNONIA RD, SAINT HELENS		300	0	
52472	4 N	1 W	5	NW	SE	302	SSW	>0.45	445 N VERNONIA RD, SAINT HELENS		21	0	
53486	4 N	1 W	5	SW	SE	2503	SSW	>1.2	2682 GABLE RD, SAINT HELENS			0	
3257	4 N	1 W	5	SE	SW		SSW; 733 Rockwood Drive	>1		0	37	37	37
183	4 N	1 W	5			100	SW	0.24	59994 HILLTOP DRIVE	333	363	363	322
3246	4 N	1 W	5				SSW	0.5	395 N VERNONIA RD	120	300	300	200
3248	4 N	1 W	5				59959 Hilltop Drive; SW	0.24		0	66	66	56
3249	4 N	1 W	5				35975 Spence Street; SW	0.2	LOT #2	0	205	205	66
3250	4 N	1 W	5				60020 Hilltop Drive; SW	0.22	LOT 7	0	170	170	78
3255	4 N	1 W	5				60058 Hilltop Drive; SW	0.2	LOT 6	0	130	130	76
3256	4 N	1 W	5				59964 Hilltop Drive; SW	0.2	LOT 5	0	183	183	84
52687	4 N	1 W	5			900	WSW	0.73	35020 PITTSBURG; ST HELENS	NP	120	NP	NP
1228	5 N	1 W	32	NE	NW		NE	0.74	36047 LIBERTY HILL RD	222	302	302	222
53730	5 N	1 W	32	SE	NW	100	W adjacent?	0.20	61424 PERRY CREEK ROAD SAINT HELENS, OR 97051	190	200	200	190
50725	5 N	1 W	32	SW	SW	500	W, across Perry Creek	0.53	35091 HANKEY RD	10	100	100	10
191	5 N	1 W	32				N to NW	>1	N PERRY CREEK RD	256	380	380	256
51916	5 N	1 W	33	NW	NW	200	NE	0.75	36083 LIBERTY HILL	95	120	120	95
52635	5 N	1 W	33	NW	NW	200	NE	0.75	36083 LIBERTY HILL RD	95	180	180	95
52680	5 N	1 W	33	NW	NW	100	NE	0.76	36047 LIBERTY HILL RD	461	504	504	461
53864	5 N	1 W	33	NW	NW	200	NE	0.75	36083 LIBERTY HILL RD	260	300	300	260
51388	5 N	1 W	33	SW	SW	1300	ENE	0.8	COLUMBIA RIVER HWY, SAINT HELENS	300	320	320	300
53633	5 N	1 W	33	SW	SW	1300	ENE	0.8	60371 HWY 30 ST HELENS OR		320	0	

Upgradient location

Up- to cross-gradient

Cross-gradient

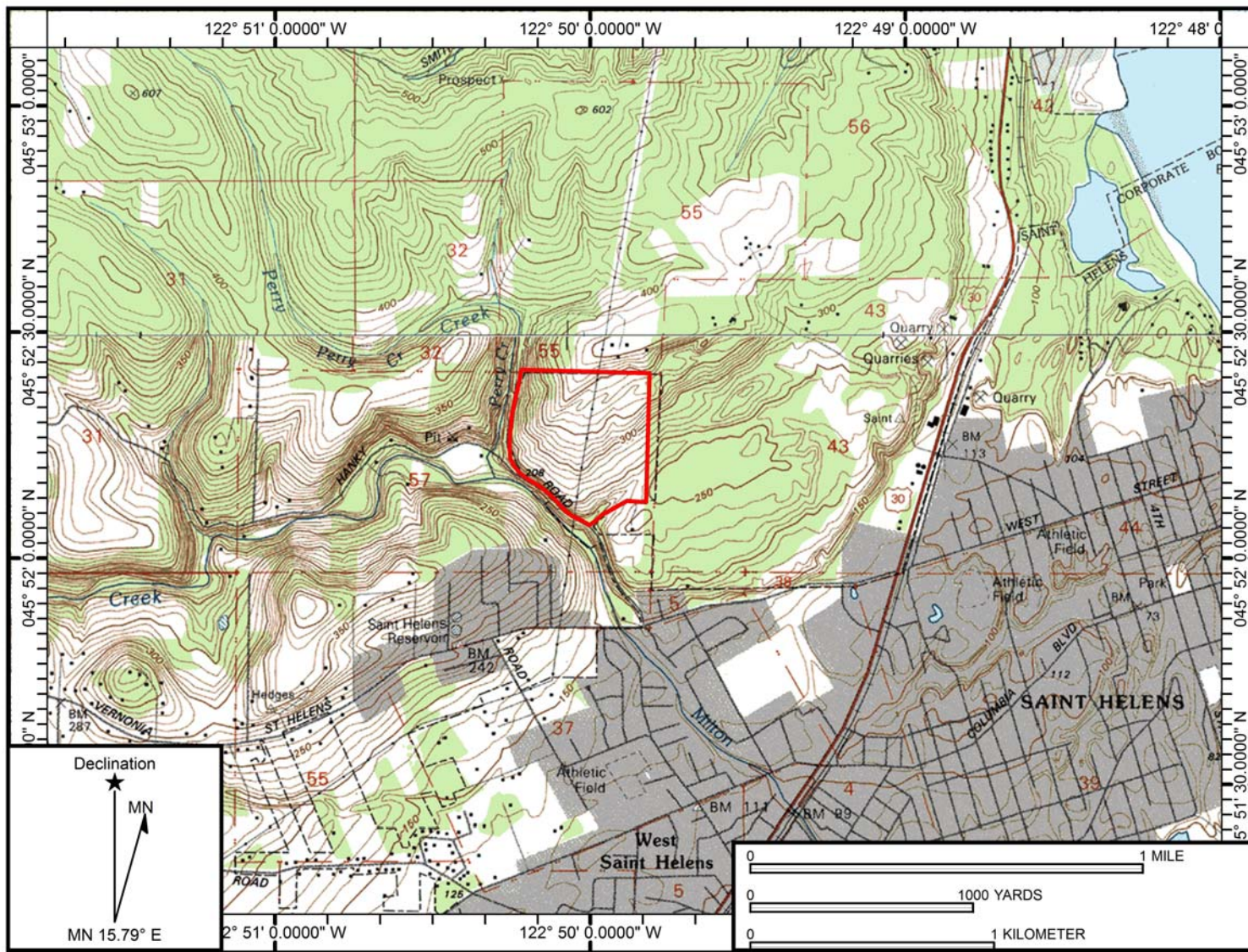
Down-gradient

Abandoned

TABLE 1
Water Well Logs

Well No.	Bottom Water-Bearing Zone Depth (feet)	Static WL Depth (feet)	Aquifer Rock Description	Probable Formation	Well Yield (gpm)	Max. Yield (gpm)	New Well	Abandonment	Deepening	Alteration	Domestic
3245	320	200	no description provided	---			X				
52031		8						X			X
52125		100						X			X
51289		100						X			X
52472								X			X
53486		16						X			X
3257	NP	14	clay, rock	Tsrm - Sandy River Mudstone or QTc - unnamed conglomerate			X				X
183	362	210	basalt	Tgsb - Sentinel Bluffs Mbr of Grande Ronde Basalt	27	27			X		X
3246	220	100	basalt	Tgsb - Sentinel Bluffs Mbr of Grande Ronde Basalt	6				X		X
3248	66	26	boulders, soft brown	QTc - unnamed conglomerate	12	12	X				X
3249	165	20	boulders, black, porous	Tgsb - Sentinel Bluffs Mbr of Grande Ronde Basalt	12	12	X				X
3250	170	48	boulders, brown and black, soft	Tgsb - Sentinel Bluffs Mbr of Grande Ronde Basalt	12	12	X				X
3255	130	0	basalt, porous rock, basalt	Tgsb - Sentinel Bluffs Mbr of Grande Ronde Basalt	5	5	X				X
3256	183	142	basalt, porous rock	Tgsb - Sentinel Bluffs Mbr of Grande Ronde Basalt	10	10	X				X
52687	NP	NP	no description provided	---							
1228	242	132	medium soft, shale decomp red&blue, med soft, rock blue medium	Tbsb - Sentinel Bluffs Mbr of Grande Ronde Basalt	5	5	X				X
53730	200	100	claystone, grey	Tgsb - Sentinel Bluffs Mbr of Grande Ronde Basalt	15	15	X				X
50725	12	8	basalt, caving brown	Tgsb - Sentinel Bluffs Mbr of Grande Ronde Basalt	7	12	X				X
191	380	230	broken rock, clay and rock, broken rock	Tgsb - Sentinel Bluffs Mbr of Grande Ronde Basalt	5	5				X	
51916	110	40	clay, basalt	Tgsb - Sentinel Bluffs Mbr of Grande Ronde Basalt			X				X
52635	180	89	basalt with layers of sandstone	Tgsb - Sentinel Bluffs Mbr of Grande Ronde Basalt					X		X
52680	482	194	clay, sandy clay, basalt rock	Tgsb - Sentinel Bluffs Mbr of Grande Ronde Basalt			X				X
53864	280	89	black basalt	Tgsb - Sentinel Bluffs Mbr of Grande Ronde Basalt					X		X
51388	320	100	basalt	Tgsb - Sentinel Bluffs Mbr of Grande Ronde Basalt					X		X
53633								X			X

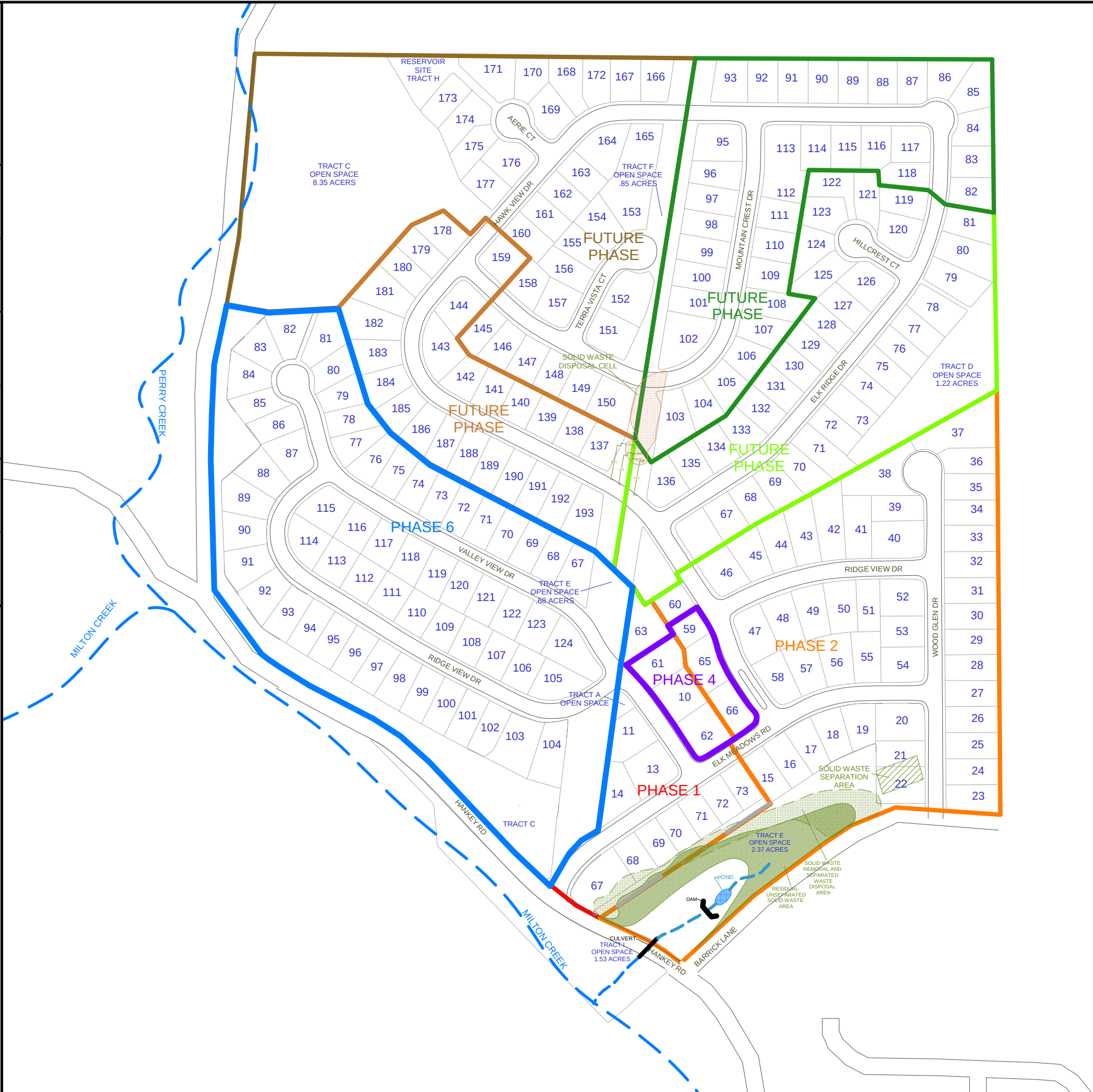
FIGURES



Date Published: 1990
Map Name: ST HELENS

Source: USGS Topographic Map, 7.5-Minute St Helens Quadrangle, 1990

	Date Drawn: 7/20/2015 CAD File Name: 826-12001-08sv_map.doc Drawn By: PMT Approved By: NMW	Elk Ridge Development N 45.8712 Deg / W 122.8321 Deg St. Helens, Oregon	Site Vicinity Map	Project No. 826-12001-08 Figure No. 1
---	---	--	-------------------------------------	---



LEGEND:

APPROXIMATE LOT BOUNDARIES AND LOT NUMBERS

146

APPROXIMATE SUBJECT PROPERTY BOUNDARIES
(COLOR INDICATING VARIOUS DEVELOPMENT AREAS)

HISTORICAL LANDFILL – SOLID WASTE REMOVAL AND
SEPARATED WASTE (INERT MATERIALS) PLACEMENT AREA

HISTORICAL LANDFILL – UNDISTURBED
SOLID WASTE AREA

SOLID WASTE SCREENING AREA

UPLAND SOLID WASTE DISPOSAL CELL

NOTES:

1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP
DATED 2011 AND ENW FIELD NOTES.

APPROXIMATE SCALE

0

300

600

FEET



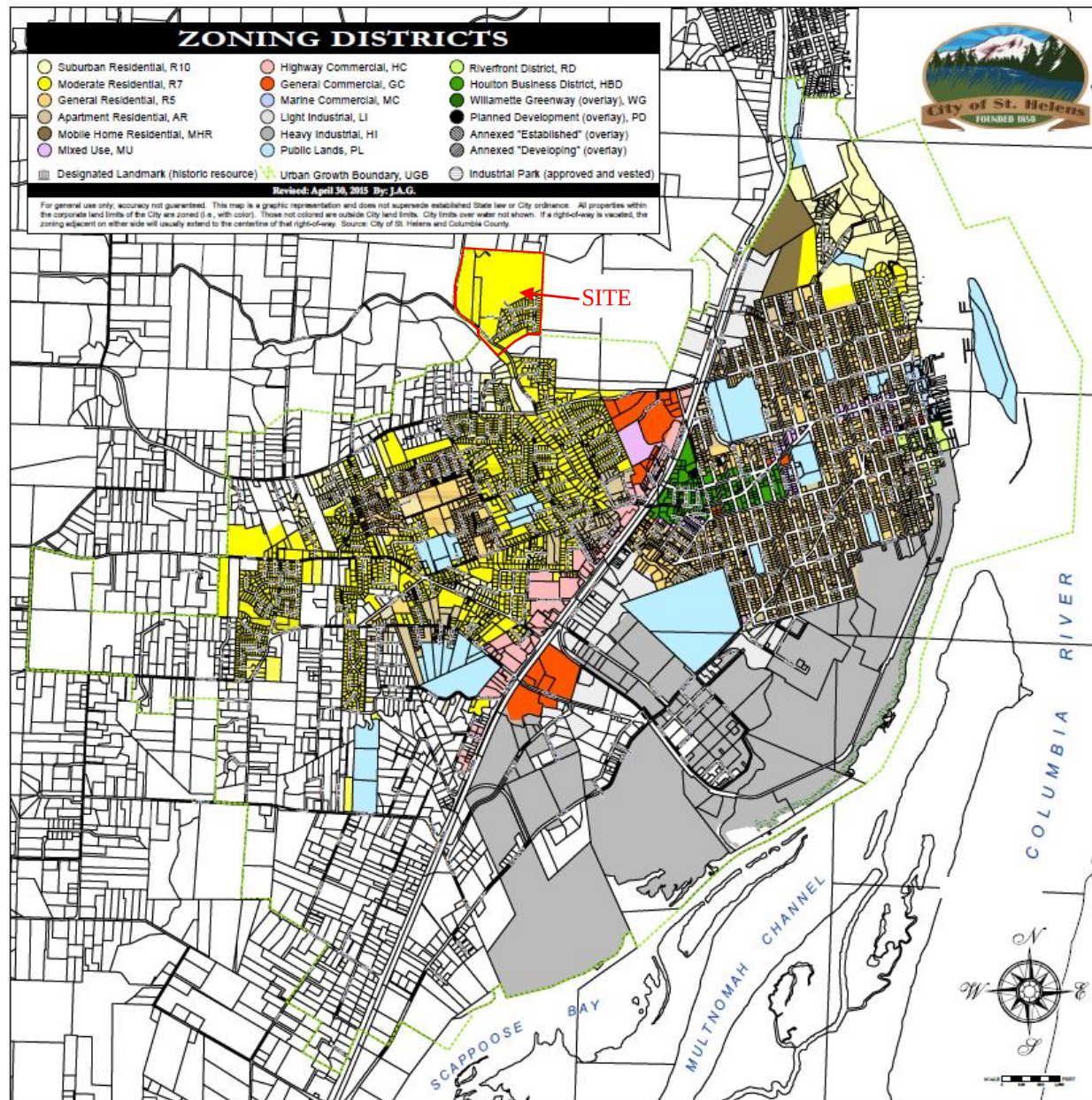
environmental natural resource consultants

PO BOX 14488, PORTLAND, OREGON 97293
P: (503)452-5561, E: ENW@EVREN-NW.COM

FIGURE 2

SITE PLAN

ELK RIDGE SUB DIVISION
ST HELENS, OREGON



Date Drawn: 7/14/2015
 CAD File Name: 826-12001-01_zoning_map-
 fig3(v01).docx
 Drawn By: LDG
 Approved By: NMW

Elk Ridge Development
 N 45.8712 Deg / W 122.8321 Deg
 St. Helens, Oregon

Zoning Map

Project No.
 826-12001-08
 Figure No.
 3



LEGEND:

146

APPROXIMATE LOT BOUNDARIES AND LOT NUMBERS

APPROXIMATE SUBJECT PROPERTY BOUNDARIES
(COLOR INDICATING VARIOUS DEVELOPMENT AREAS)

HISTORICAL LANDFILL – SOLID WASTE REMOVAL AND
SEPARATED WASTE (INERT MATERIALS) PLACEMENT AREA

HISTORICAL LANDFILL – UNDISTURBED
SOLID WASTE AREA

SOLID WASTE SCREENING AREA

UPLAND SOLID WASTE DISPOSAL CELL

HYDROGEOLOGIC AREA OF STUDY

- NOTES:
1. BASE MAP DEVELOPED FROM AN AERIAL PHOTOGRAPH MAP
DATED 2011 AND ENW FIELD NOTES.

2. AERIAL PHOTOGRAPH JULY 2, 2011, TERRAIN NAVIGATOR PRO.

APPROXIMATE SCALE

0

300

600

FEET

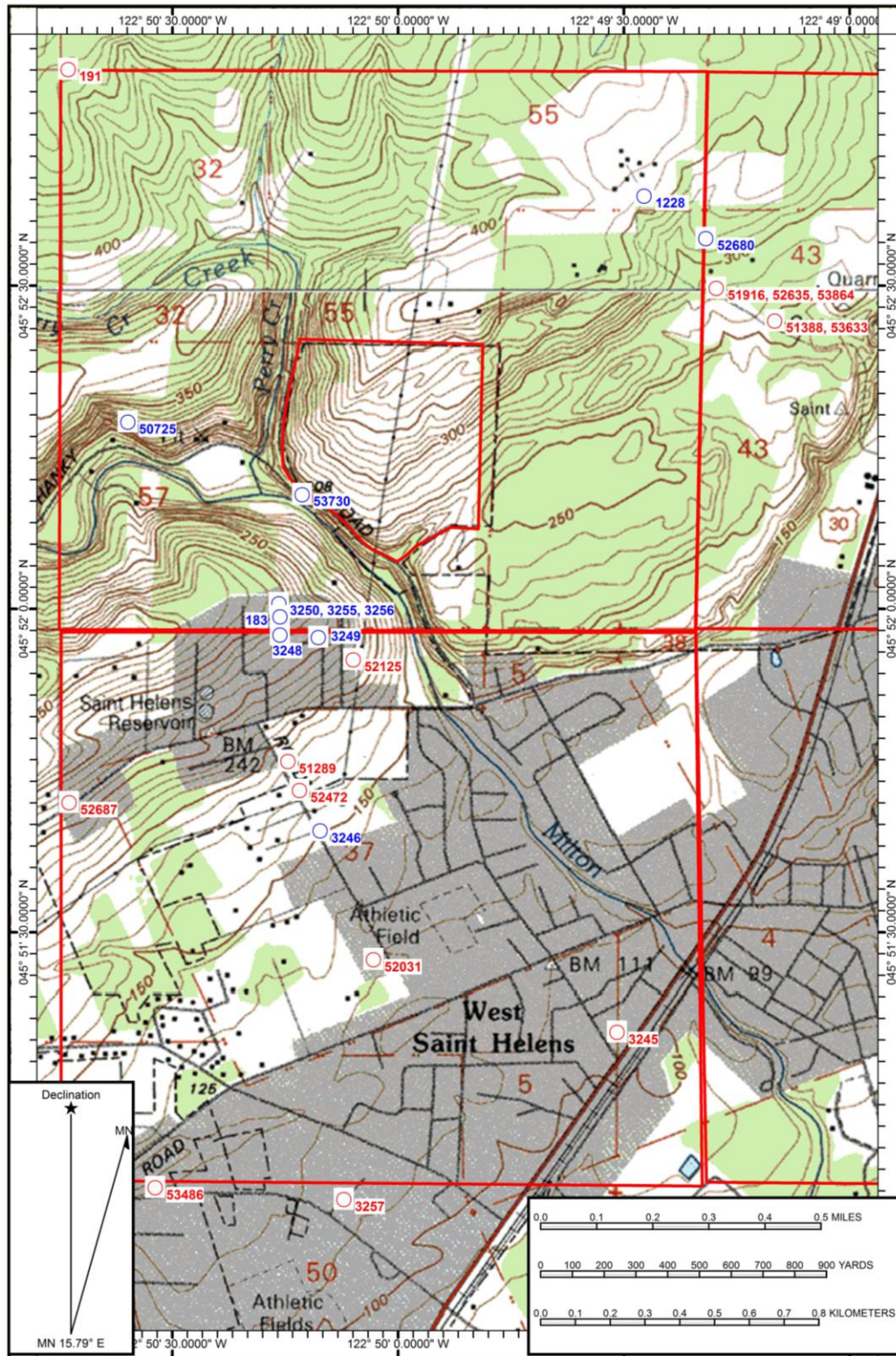
EVRENNORTHWEST INC.
environmental, natural resource consultants

PO BOX 14488, PORTLAND, OREGON 97293
P: (503)452-5561, E: ENW@EVREN-NW.COM

FIGURE 4

HYDROGEOLOGIC AREA OF STUDY

ELK RIDGE SUB DIVISION
ST HELENS, OREGON



Date Published: 1990
Map Name: ST HELENS

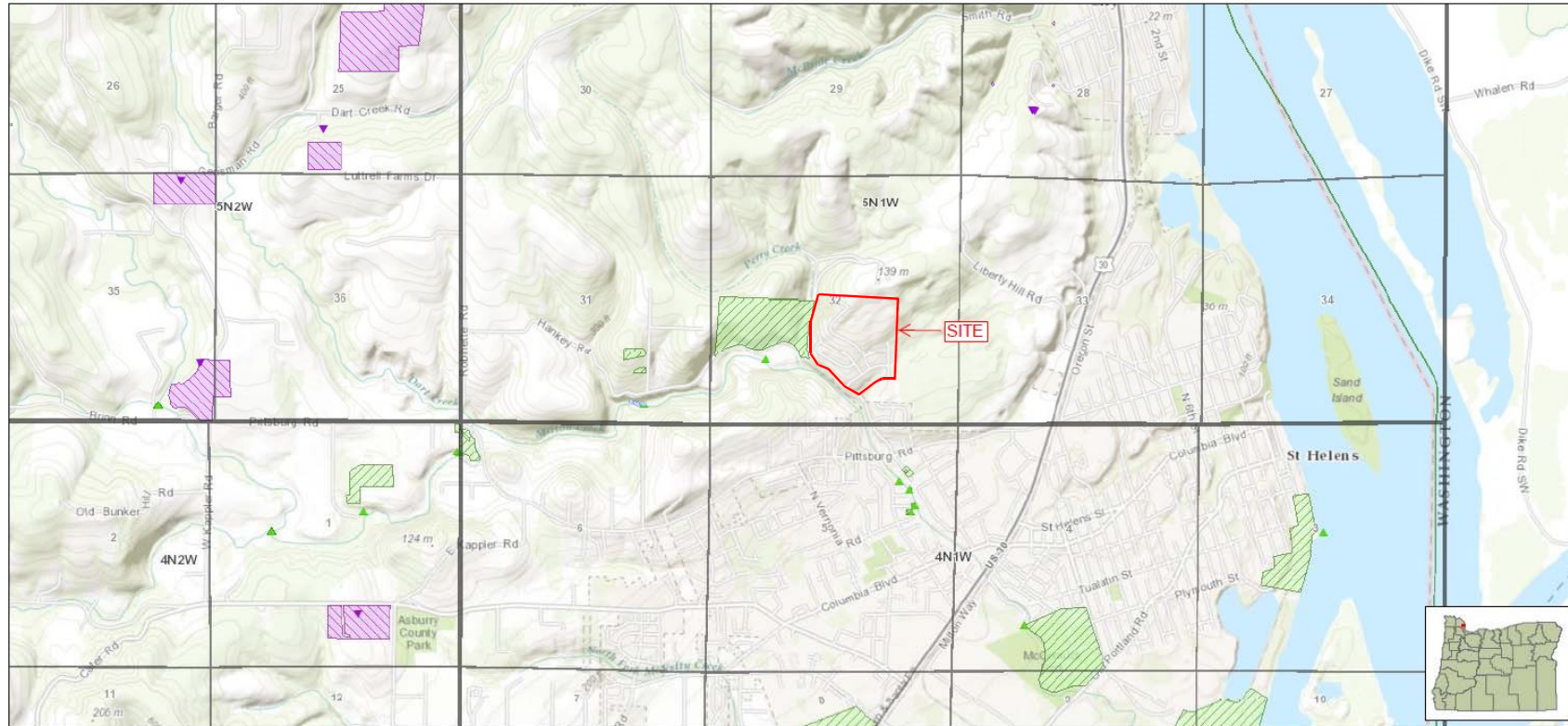
○ 3246 – Well location, < 0.75 mile away ○ 3257 – Well location, ≥ 0.75 mile away or abandoned.

	Date Drawn: 7/29/2015 CAD File Name: 826-12001-08_well_locations-fig5(v02) Drawn By: PMT Approved By: LDG	Elk Ridge Development N 45.8712 Deg / W 122.8321 Deg St. Helens, Oregon	Well Location Map	Project No. 826-12001-08 Figure No. 5
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Oregon Water Rights Map

Printed: May 8, 2015

Oregon Water Resources Department
725 Summer St NE, Suite A, Salem, OR 97301
(503)986-0900



Water Rights by Type

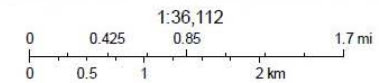
- | | |
|---------------------|---------------|
| Points of Diversion | Places of Use |
| ★ | Storage Water |
| ▲ | Surface Water |
| ▼ | Groundwater |

Water Rights by Use

- | | |
|------------|-------------|
| Recreation | Instream |
| Fish | Misc. |
| Wildlife | Agriculture |

By Primary/Supplemental

- | | | |
|------------|------------|--------------|
| Livestock | Power | Primary |
| Irrigation | Commercial | Supplemental |
| Mining | Domestic | |



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

OWRD

Disclaimer: <http://www.oregon.gov/owrd/pages/MAPS/index.aspx#Disclaimer>



Date Drawn: 7/20/2015
CAD File Name: 826-12001-01_water_rights_map-
fig6(v01).docx
Drawn By: PMT
Approved By: LDG

Elk Ridge Development
N 45.8712 Deg / W 122.8321 Deg
St. Helens, Oregon

Water Rights Map

Project No.
826-12001-08
Figure No.
6

ATTACHMENT A
WATER WELL LOGS

RECEIVED
N2 2606

"START CARD"
NOTICE OF BEGINNING OF WELL CONSTRUCTION
(as required by ORS 537.762)

APR 06 1988

WATER RESOURCES DEPT.
SALEM, OREGON

This form must be completed, signed by both the owner (or authorized agent) and constructor, and the original delivered to the Water Resources Department prior to commencement of construction, alteration or abandonment of each well.

Owner's Name and Mailing Address Emil O. Kantor
59994 Hilltop Drive
St. Helens, Oregon 97051

Proposed Commencement Date March 31, 1988

Proposed Well Depth 183, Diameter 6"

and Use:

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

Proposed Well Location: County Columbia

Township 4 (N or S) Range 1 (E or W) Section 5

At least 2
of these
must be
provided

1. _____ 1/4 of _____ 1/4 of above section
2. street address of 59994 Hilltop Drive
well location St. Helens Oregon
3. tax lot number of well location 100
4. attach approved map with location identified.
(see reverse of this form for approved maps)

We hereby certify that we have read the back of this form, and that to the best of our knowledge the information provided herein is accurate and the well is being properly located from septic tanks and septic drain fields.

x Emil O. Kantor
Owner's Signature

x Dale McGhee
Bonded Water Well Constructor

Title
MARCH 31, 1988
Date

License No. 424

Company Dale McGhee & Sons Well Drilling

Note: This is not a Water Right application. The owner is responsible for obtaining a Water Right through the Water Resources Department if required.

RECEIVED APR 01 1988

WATER WELL REPORT
STATE OF OREGON

COLUMBIA
191

RECEIVED

JUL 6 1983

State Well No. 5N-1W-32

WATER RESOURCES DEPT.
SALEM, OREGON

Reconditioning

(1) OWNER:

Name CLAUDE BROOKS
Address 1 ROBINET RD
City ST HELENS State OREGON

(2) TYPE OF WORK (check):

New Well ☐ Deepening ☐ Reconditioning ☒ Abandon ☐

If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:

Rotary Air ☐ Driven ☐
Rotary Mud ☐ Dug ☐
Cable ☒ Bored ☐

(4) PROPOSED USE (check):

Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐
Thermal: Withdrawal ☐ Reinjection ☐

(5) CASING INSTALLED:

Steel ☐ Plastic ☐
Threaded ☐ Welded ☐

" Diam. from 0 ft. to 0 ft. Gauge

" Diam. from 0 ft. to 0 ft. Gauge

LINER INSTALLED:

" Diam. from 0 ft. to 0 ft. Gauge

(6) PERFORATIONS:

Perforated? ☐ Yes ☒ No

Type of perforator used

Size of perforations in by in.

perforations from 0 ft. to 0 ft.

perforations from 0 ft. to 0 ft.

perforations from 0 ft. to 0 ft.

(7) SCREENS:

Well screen installed? ☐ Yes ☒ No

Manufacturer's Name

Type Model No.

Diam. Slot Size Set from 0 ft. to 0 ft.

Diam. Slot Size Set from 0 ft. to 0 ft.

WELL TESTS:

Drawdown is amount water level is lowered below static level

Was a pump test made? ☒ Yes ☐ No If yes, by whom? DRILLER

Yield: 5 gal/min. with 10 ft. drawdown after 1 hrs.

" 5 " 15 " 1 "

est gal/min. with drill stem at 0 ft. hrs.

ailer test gal/min. with 0 ft. drawdown after 0 hrs.

Artesian flow g.p.m.

Temperature of water Depth artesian flow encountered 0 ft.

(9) CONSTRUCTION:

Special standards: Yes ☐ No ☐

Well seal—Material used Cement

Well sealed from land surface to 18 ft.

Diameter of well bore to bottom of seal 12 in.

Diameter of well bore below seal 6 in.

Number of sacks of cement used in well seal 18 sacks

How was cement grout placed? Pumped

Was pump installed? ☐ Yes ☒ No Type 3/8 HP Depth 320 ft.

Was a drive shoe used? ☐ Yes ☐ No Plugs 0 Size: location 0 ft.

Did any strata contain unusable water? ☐ Yes ☒ No

Type of Water? 0 depth of strata 0

Method of sealing strata off

Was well gravel packed? ☐ Yes ☒ No Size of gravel: 0

Gravel placed from 0 ft. to 0 ft.

(10) LOCATION OF WELL:

County COLUMBIA Driller's well number

1/4 Section 32 T. 5N R. 1W W.M.

Tax Lot # 0 Lot 0 Blk 0 Subdivision

Address at well location: N Penny Cr Rd

(11) WATER LEVEL: Completed well.

Depth at which water was first found 256 ft.

Static level 230 ft. below land surface. Date 6-14-83

Artesian pressure lbs. per square inch. Date

(12) WELL LOG:

Diameter of well below casing 6 ft.

Depth drilled 380 ft. Depth of completed well 0 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
OR Well	0	256	230
Broken Rock	256	310	280
Clay & Rock	310	360	320
Broken Rock	360	380	350

Work started 5-31 1983 Completed 6-14 1983

Date well drilling machine moved off of well 6-14 1983

(unbonded) Water Well Constructor Certification (if applicable):

This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.

[Signed] Morrison McMillen Date 6-14, 1983

Bonded Water Well Constructor Certification:

Bond (number) Issued by: Hartford

Surety Company Name

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Name McMillen Drilling & Inc. (Type or print)

Address 6500 Olson Rd Deep Bluffs

[Signed] Morrison McMillen Water Well Constructor

Date 6-15, 1983

NOTICE TO WATER WELL CONSTRUCTOR

The original and first copy of this report are to be filed with the

WATER RESOURCES DEPARTMENT,
SALEM, OREGON 97310

SP*45292-690

start card 2427 FEB 24 1988

RECEIVED

Col 4
1228

5N/1W-32a

Well Number: WATER 01

Zip 97051

☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon☐ Other☐ Thermal ☐ Injection ☐ Other

Positives used ☐ ☒ Type _____ Amount _____

Amount

6"	143'	10"	to 302'			
----	------	-----	---------	--	--	--

☐ Other

Gravel placed from _____ ft. to _____ ft. Size of gravel _____

Final location of shoe(s) 143' 10"

☐ Screens Type _____ Material _____[illegible]

5	169	301	1 hr.
---	-----	-----	-------

--	--	--	--

Temperature of water _____ Depth Artesian Flow Found _____

Was a water analysis done? ☐ Yes ☐ No

Did any strata contain water not suitable for intended use? ☐ Too little

☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other _____

Depth of strata: _____

WHITE	S - WATER RESOURCE	RTMENT	YE
-------	--------------------	--------	----

Street Address of Well (or nearest address) 3647 Liberty Hill
St Helens Ore

Artesian pressure _____ lb. per square inch. Date _____

Environ Biol Fish (2015) 98:3223–3231

Depth at which water was first found 111'

From	To	Estimated Flow Rate	SW
222	242	5	

Ground elevation	

[illegible]

Date started Feb.05, 1988 - Completed Feb.08, 1988

I certify that the work I performed on the construction, alteration, abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to my best knowledge and belief.

WWC Number

Signed _____ Date _____

I accept responsibility for the construction, alteration, or abandonment of the work performed on this well during the construction dates reported above. The work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 1224
Feb 18 1988

Signed H. Steve III Steve Date FEB. 18, 1988

WHITE S - WATER RESOURCES

YELLOW COPY - CONSTRUCTOR

PINK COED

STATE ENGINEER
Salem, Oregon

Well Record

STATE WELL NO. 4N/1W-4M
COUNTY Columbia
APPLICATION NO. GR-512

OWNER: Walter S. Erickson
of Jewel Ice Cream Co.

MAILING
ADDRESS: _____

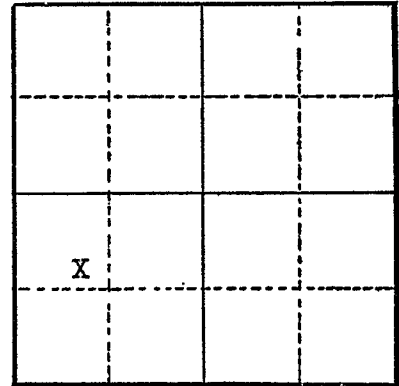
LOCATION OF WELL: Owner's No. #1

CITY AND
STATE: _____

St. Helens, Oregon

N. ~~1~~ R. ~~1~~ W., W.M.
NW 1/4 SW 1/4 Sec. 4 T. 4 S. R. 1 W., W.M.

Bearing and distance from section or subdivision
corner Black 3 Highway Addition to St. Helens



Altitude at well _____

TYPE OF WELL: drilled Date Constructed 3/1/39

Depth drilled 320 Depth cased _____

Section 4

CASING RECORD: 12 inch casing 0 to 300 ft.

FINISH: _____

AQUIFERS: _____

WATER LEVEL: 200 ft.

PUMPING EQUIPMENT: Type _____ H.P. _____
Capacity _____ G.P.M.

WELL TESTS:
Drawdown None ft. after _____ hours 120 G.P.M.
Drawdown _____ ft. after _____ hours _____ G.P.M.

USE OF WATER Industrial Temp. _____ °F. _____, 19 _____

SOURCE OF INFORMATION _____

DRILLER or DIGGER Walter B. Erickson

ADDITIONAL DATA:

Log No Water Level Measurements _____ Chemical Analysis _____ Aquifer Test _____

REMARKS: _____

COL 6
3246

4N/1w/5
12910

Well Number:

(9) LOCATION OF WELL by legal description:

(2) TYPE OF WORK:

(3) DRILL METHOD

(10) STATIC WATER LEVEL:

Artesian pressure _____ lb. per square inch. Date _____

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

(11) WATER BEARING ZONES:

Depth at which water was first found 120

From	To	Estimated Flow Rate	SWL
200	220	6	180

(12) WELL LOG:

Ground elevation

[illegible]

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	<i>NOV</i>				☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

☐ Perforations Method _____

☐ Screens Type _____ Material _____

[illegible]

☐ Pump ☐ Bailer ☒ Air ☐ Flowing
Artesian

Yield gal/min	Drawdown	Drill stem at	Time
			1 hr.

Temperature of water _____ Depth Artesian Flow Found _____
 Was a water analysis done? ☐ Yes By whom _____
 Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other _____
 Depth of strata: _____

(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon well construction standards. Materials used and information reported above are true to my best knowledge and belief.

WWC Number _____

Signed _____ Date _____

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. all work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

WWC Number: 660

Signed [Signature] Date 9-19-59

For Official Use Only by The Oregon Water Resources Department:

Received Date: _____

County Well Log ID # _____

Well Identification Tag # _____

COLL 3248103340**APPLICATION FOR WELL IDENTIFICATION TAG**
(PLEASE PRINT)**CURRENT LANDOWNER INFORMATION** *This well is well # 1 of 1 wells on the propertyCurrent Landowner's Name: Geneva GauenLandowner's Mailing Address: 59959 Hilltop DrCity: St Helens State: OR Zip: 97051 Phone #: 503-397-1599

Mail Well Tag to (if other than above address. ie: realtor (and name of company), etc.): _____

same

***** (Note: If this is a shared well please see instructions) *****

WELL LOCATION INFORMATION (May also be referred to as the "Map & Tax Lot Number")Township #: 4 (North or South) - circle one Range #: 1 (East or West) - circle one, Section #: 5Tax Lot #: 1100 _____ 1/4 _____ 1/4 (if known) County: _____Street Address of Well: same**WELL INFORMATION**

(Do not complete if well report is attached. Information on locating well reports is enclosed)

Type of Well (i.e. domestic, irrigation, etc.): _____ Date Well Constructed: _____

Well Constructor/Company: _____

Well Depth (in feet): _____ Diameter of Well Casing (in inches): _____

Landowner Who Had Well Constructed (if known, or a list of property owners around the time you believe the well was constructed): _____

Other Information: _____

Mail form to: Oregon Water Resources Department

725 Summer St. NE, Suite A
Salem, OR 97301-1271

OR

fax to 503-986-0902 email to: Janet.L.Halladey@wrdd.state.or.us

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1/05 FEB 12 2010

WATER RESOURCES DEPT
SALEM, OREGON

For Official Use Only by The Oregon Water Resources Department:

Received Date:

County Well Log ID #

Well Identification Tag #

RECEIVED

Columbia 3250

L-72247

JUL 15 2004

WATER RESOURCES DEPT
SALEM, OREGON

WELL IDENTIFICATION APPLICATION FORM

INSTRUCTIONS ARE IN THE ACCOMPANYING "DEAR LANDOWNER" LETTER. FOR SHARED WELLS
PLEASE SEE THE 3RD PARAGRAPH FROM THE TOP IN THE LETTER. Your ID Tag will be mailed out in
approximately 10 days from the date we receive your application.)

****BUYER OR CURRENT LANDOWNER** (For the property that the well is located on. The Well ID tag will
be sent to this address unless otherwise specified here.)

Landowner's or Buyer's Name: Dennis + Shelley Minsent

Mailing Address: 59967 Hilltop Drive

City: St. Helens State: OR Zip: 97051 Phone: 503 346-1793

****WELL LOCATION:** Tax ID - 4105-021-01200

County: Columbia Well # (if multiple wells exist on same property-ie: well #1, #2, etc.)

Township: 4N North or South, Range: 1W East or West, Section: 5, 1/4 1/4
(circle one) (circle one) (If known)Tax Lot #: 1200 Type of Well: water supply? Domestic monitoring?
(Not the same as the tax acct. #) (Ex: domestic or irrigation use) (Ex: monitoring water for contaminants)Address of Well: 59967 Hilltop Dr St Helens OR 97051
(Number) (Street) (City) (Zip)(Optional): Does this well have a formal water right associated with it? Yes: No:
(If unknown you may want to contact the Water Rights Group at 503-986-0945 for research)

If Yes: Application #: Permit #: Certificate #:

(Optional): Latitude Longitude (May sometimes be obtained from Well Log Report)

****WELL INFORMATION:** (Important note: If attaching a well log you obtained from our web-site
please be certain that you have the correct log. Simply matching the tax lot number isn't enough. See attached
instructions for assistance. If a well report is not available please complete as much of the following as possible, at
a minimum the prior landowner names going back until around the time the well would have been drilled. Prior
landowner names can be obtained from the County Assessor - see instructions.)

Start Card # from well log report if known: Approx. Well Construction Date:

Well Constructor if known:

Name of Land Owner at Time of Construction (or prior landowners, going back in time to when well was constructed -
contact your county assessor for list)

Well Depth (in feet): Static Water Level (in feet): Diameter of Exposed Well Casing (in inches):

Please Return Completed Form to: Well ID Program, Oregon Water Resources Department
725 Summer St. NE, Suite A, Salem, OR 97301-1271, or fax to 503-986-0902 (App10-03)

State Permit No.

(USE ADDITIONAL SHEETS IF NECESSARY)

(USE ADDITIONAL SHEETS IF NECESSARY)

(USE ADDITIONAL SHEETS IF NECESSARY)

County of Columbia

OFFICE OF ASSESSOR
ST. HELENS, OREGON

FRANK LEMONT
ASSESSOR

TRACT 10 of GREENWOOD ACRES
SW $\frac{1}{4}$, of SE $\frac{1}{4}$
of section 5 T4 R1W

RECEIVED
MAR 30 1954

STATE ENGINEER
SALEM, OREGON

SYKES RD

TRACT
10



Backside of property
Well

GABLE RD

FRONT

51.00
170.00
321.11
160.11
74.73
144.59
59.86
160.82
65.00
60.00
762.14

COLU
50725

RECEIVED

JUN 15 1993

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)

WATER RESOURCES DEPT.
SALEM, OREGON

WELL I.D. # L. 22867
START CARD # 113037

Instructions for completing this report are on the last page of this form.

(1) OWNER: Well Number 1
Name CALVIN JILLSON
Address 35091 HANKEY RD
City ST. HELENS State OR Zip 97051

(2) TYPE OF WORK
☒ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:
☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:
☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☒ Yes ☐ No Depth of Completed Well 100 ft.
Explosives used ☐ Yes ☐ No Type _____ Amount _____

HOLE		SEAL					
Diameter	To	Material	From	To	Sacks or pounds		
<u>10</u>	<u>0</u>	<u>BENTONITE</u>	<u>0</u>	<u>40</u>	<u>17 SACKS</u>		
<u>6</u>	<u>40</u>	<u>100</u>					

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E
☐ Other _____
Backfill placed from _____ ft. to _____ ft. Material _____
Gravel placed from _____ ft. to _____ ft. Size of gravel _____

Diameter		From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:		<u>6"</u>	<u>+1</u>	<u>40</u>	<u>250</u>	☒	☐	☒
Liner:		<u>4.5"</u>	<u>-2</u>	<u>100</u>		☒	☒	☐

Final location of shoe(s) _____

Diameter		From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:		<u>6"</u>	<u>+1</u>	<u>40</u>	<u>250</u>	☒	☐	☒
Liner:		<u>4.5"</u>	<u>-2</u>	<u>100</u>		☒	☒	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailer ☒ Air ☐ Flowing
Yield gal/min _____ Drawdown _____ Drill stem at _____ Time _____
12 _____ 100 1 hr.

Temperature of water 52° Depth Artesian Flow Found _____
Was a water analysis done? ☐ Yes By whom _____
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other _____
Depth of strata: _____

(9) LOCATION OF WELL by legal description:
County COLUMBIA Latitude _____ Longitude _____
Township 5N N or S Range 1W E or W. WM. _____
Section 32 SW 1/4 SW 1/4 _____
Tax Lot 0500 Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address) 35091 HANKEY RD ST. HELENS, OR 97051

(10) STATIC WATER LEVEL:
8 ft. below land surface. Date 5/14/98
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:
Depth at which water was first found 10 ft

From	To	Estimated Flow Rate	SWL
<u>10</u>	<u>12</u>	<u>7 Gpm</u>	<u>12</u>
<u>12</u>	<u>15</u>	<u>12 Gpm</u>	<u>8</u>

(12) WELL LOG:
Ground Elevation _____

Material	From	To	SWL
<u>CLAY</u>	<u>0</u>	<u>2</u>	
<u>BASALT W/LAYERS</u>	<u>2</u>		
<u>OF CLAYSTONE</u>		<u>10</u>	<u>8</u>
<u>CAVING BASALT BROWN</u>	<u>10</u>	<u>14</u>	
<u>BASALT BROWN HARD</u>	<u>14</u>	<u>100</u>	

RECEIVED

JUL 30 1998

WATER RESOURCES DEPT.
SALEM, OREGON

Date started 5/12/98 Completed 5/10/98
(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

WWC Number _____
Signed _____ Date _____

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

WWC Number _____
Signed APC Date 18 May 97

MAR 9 2000

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)

WATER RESOURCES DEPT.
SALEM, OREGON

Instructions for completing this report are on the last page of this form.

WELL I.D. # L 8
START CARD # 126863

Well Number

Name Taurus Investment, Inc.
Address 19130 SW Alexander St.
City Albany State OR Zip 97001

☐ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☒ Abandonment

(3) DRILL METHOD:
☐ Rotary Air ☐ Rotary Mud ☒ Cable ☐ Auger
☐ Other

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other

Special Construction approval ☐ Yes ☐ No Depth of Completed Well 300 ft.
Explosives used ☐ Yes ☐ No Type _____ Amount _____

SEAL

Diameter	From	To	Material	From	To	Sacks or pounds
6	+1	300	Cement	0	300	60 Bags

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E
☐ Other _____

Backfill placed from 0 ft. to ft. Material
Gravel placed from 0 ft. to ft. Size of gravel

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6	+1	80	250	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	6				☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s) 80

☒ Perforations Method Mills Knife
☐ Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
3	80	2 1/2"	3 per	5 1/2"		☒	☒
						☐	☐
						☐	☐
						☐	☐
						☐	☐

☐ Pump ☐ Bailer ☐ Air ☐ Flowing
 Yield gal/min Drawdown Drill stem at Time

8			1 hr.

[illegible]

Was a water analysis done? ☐ Yes By whom

Did any strata contain water not suitable for intended use? ☐ Too little

☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other

Depth of strata: _____

County Columbia Latitude _____ Longitude _____
Township 4 N N or S Range 1 W E or W. WM

Section 5 NW 1/4 NW 1/4
Tax Lot 100 Lot _____ Block _____ Subdivision 1103

Street Address of Well (or nearest address) N. VERNONIA
RD. ST. HELENS, OR 97051

100 ft. below land surface. Date 6 Feb
Artesian pressure lb. per square inch. Date

Depth at which water was first found

From	To	Estimated Flow Rate	SWL
Ø			

Ground Elevation _____

[illegible]

Date started 16 Feb 00 Completed 19 Feb-00

(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

WWC Number

Signed _____ Date _____

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 1480

Signed A. R. M. M. Date 9 Feb 60

WELL I.D. # L 25271
START CARD # 113041

(1) OWNER: _____ Well Number _____

Name Mary Ann

Address 32260 Hwy 154

City Tamala State IL Zip 61388

ORIGINAL - WATER RESOURCES DEPT. OF CONSTRUCTOR SECOND COPY - CUSTOMER
SALEM, OREGON

**STATE OF OREGON
WATER SUPPLY WELL REPORT**
(as required by ORS 537.765)

Instructions for completing this report are on the last page of this form.

(1) OWNER: Well Number 1
Name Dave Freytag
Address PO 216
City St. Helens State OR Zip 97051

(2) TYPE OF WORK
☒ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:
☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:
☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Well 120 ft.
Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE				SEAL			
Diameter	From	To	Material	From	To	Sacks or pounds	
10	0	20	Bent	0	19	9 Bags	
6	20	120					

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other pour
Backfill placed from _____ ft. to _____ ft. Material _____
Gravel placed from _____ ft. to _____ ft. Size of gravel _____

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6	1	19	250	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	4.0	-10	120		☐	☒	☐	☐
					☐	☐	☐	☐

Final location of shoe(s) 19

(7) PERFORATIONS/SCREENS:

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
115	85	1/2	80			☐	☒
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour

Yield gal/min	Drawdown	Drill stem at	Time
15		120	1 hr.

Temperature of water 52 Depth Artesian Flow Found _____
Was a water analysis done? ☐ Yes By whom _____
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other _____
Depth of strata: _____

Colu
51916

WELL I.D. # 50630
START CARD # 126517

(9) LOCATION OF WELL by legal description:
County Col Latitude _____ Longitude _____
Township 5N N or S Range 1W E or W. WM.
Section 33 NW 1/4 NW 1/4
Tax Lot 200 Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address) 36083 Liberty Hill
St. Helens OR

(10) STATIC WATER LEVEL:
40 ft. below land surface. Date 20 Aug 2001
Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:
Depth at which water was first found 95

From	To	Estimated Flow Rate	SWL
95	110	15	40

(12) WELL LOG:
Ground Elevation _____

Material	From	To	SWL
Clay 15' down	0	8	
Basalt 15' down	8	12	
Basalt 12' to 94'	12	94	40
Basalt w/ sandstone	95	110	
Basalt 110' to 120'	110	120	

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RECEIVED

SEP 12 2001

NOV 13 2001

WATER RESOURCES DEPT.
SALEM, OREGON

WATER RESOURCES DEPT.
SALEM, OREGON

Date started 20 Aug Completed 20 Aug 01

(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

Signed _____ WWC Number _____ Date _____

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

Signed [Signature] WWC Number 1480 Date 20 Aug

(WELL I.D.)# L 50630
(START CARD) # 126517

Instructions for completing this report are on the last page of this form.

(1) OWNER: Well Number **1**
Name **DAVE FREYTAG**
Address **38083 LIBERTY HILL RD.**
City **ST. HELENS** State **OR** Zip **97051**

(2) TYPE OF WORK
☐ New Well ☒ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:
☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:

☒ Domestic	☐ Community	☐ Industrial	☐ Irrigation
☐ Thermal	☐ Injection	☐ Livestock	☐ Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Well **180** ft.
Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE				SEAL		
Diameter	From	To	Material	From	To	Sacks or pounds
6X1/4	120	180	000	0	0	000

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☐ Other _____

Backfill placed from _____ ft. to _____ ft. Material _____

Gravel placed from _____ ft. to _____ ft. Size of gravel _____

(6) CASING/LINER:								
	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:	6	+1	19	250	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:	4.0	-5	180		☐	☒	☒	☐
					☐	☐	☐	☐

Final location of shoe(s) 000

(7) PERFORATIONS/SCREENS:

☒ Perforations Method **DRILL HOLE**

☐ Screens Type _____ Material _____

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Line
140	180	3/4	1PFT			☐	☒
						☐	☐
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump
 ☐ Bailer
 ☒ Air
 ☐ Flowing
☐ Artesian

Yield gal/min	Drawdown	Drill stem at	Time
12 GPM		180	1 hr.

Temperature of water **52** Depth Artesian Flow Found _____

Was a water analysis done? ☐ Yes By whom _____

Did any strata contain water not suitable for intended use? ☐ Too little

☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other _____

Depth of strata: _____

(9) LOCATION OF WELL by legal description:
County **COLUMBIA** Latitude _____ Longitude _____
Township **5** N Range **1** W WM.
Section **33** NW 1/4 NW 1/4
Tax Lot **200** Lot _____ Block _____ Subdivision _____
Street Address of Well (or nearest address) **36083 LIBERTY HILL**
ST. HELENS OR 97051

(10) STATIC WATER LEVEL:

89 ft. below land surface.	Date 2/11/05
Artesian pressure lb. per square inch.	Date

(11) WATER BEARING ZONES:

Depth at which water was first found **95**

From	To	Estimated Flow Rate	SWL
95	120	3 GPM	89
120	160	8 GPM	89
160	180	12 GPM	89

(12) WELL LOG: _____
Ground Elevation _____

Material	From	To	SWL
BASALT BLUE W/LAYERS OF SANDSTONE	120	180	89
WEHEN FIRST WELL HAD 15 GPM & STATIC LEVEL OF 40 ON FEB 10, 2005 GPM WAS 3 & SWL OF 89 FT			
WELL WAS DEEPEMED TO 180 FT			
GPM WAS INCREASED TO 12 GPM			
RECEIVED			
FEB 16 2005			
WATER RESOURCES DEPT SALEM, OREGON			

Date started **02/10/05** Completed **02/11/05**

(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

WWC Number _____
Signed _____ Date _____

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

Signed [Signature] WWC Number **1480**
Date **2/11/2005**

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

APR 13 2005

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)

WATER RESOURCES DEPT
SALEM, OREGON

(WELL I.D.)# **L 66433**

(START CARD) # **W 159606**

Instructions for completing this report are on the last page

(1) OWNER:

Well Number **2**

Name **Charles N. Barker**

Address **36047 Liberty Hill Road**

City **St. Helens**

State **Oregon**

Zip **97051**

(2) TYPE OF WORK

☒ New Well ☐ Deepening ☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:

☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger

☐ Other

(4) PROPOSED USE:

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation

☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:

Special Construction approval ☐ Yes ☒ No Depth of Completed Well **504** ft.

Explosives used ☐ Yes ☒ No Type _____ Amount _____

HOLE

SEAL

Diameter	From	To	Material	From	To	Sacks or pounds
10	0	145'6"	Cement	0	145'6"	24 Sacks
6	145'6"	504				

How was seal placed: Method ☐ A ☐ B ☒ C ☐ D ☐ E

☐ Other

Backfill placed from _____ ft. to _____ ft. Material _____

Gravel placed from _____ ft. to _____ ft. Size of gravel _____

(6) CASING/LINER:

Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing: 6	+2'6"	146'1"	.250	☒	☐	☒	☐
				☐	☐	☐	☐
				☐	☐	☐	☐
				☐	☐	☐	☐
Liner: 4.5	104	504	sdr21	☐	☒	☐	☐
				☐	☐	☐	☐

Final location of shoe(s) **146'1"**

(7) PERFORATIONS/SCREENS:

☒ Perforations Method **Saw**

☐ Screens

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
464	503	3/8x6	20			☐	☒
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump

☐ Bailer

☒ Air

Flowing ☐ Artesian

Yield gal/min	Drawdown	Drill stem at	Time
6.7	286	480	1 hr.

Temperature of water **13c** Depth Artesian Flow Found _____

Was a water analysis done? ☐ Yes By whom _____

Did any strata contain water not suitable for intended use? ☐ Too little

☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other _____

Depth of strata: _____

(9) LOCATION OF WELL by legal description:

County **Columbia** Latitude _____ Longitude _____

Township **5N** N or S Range **1W** E or W WM.

Section **33** NW 1/4 NW 1/4

Tax Lot **00100** Lot _____ Block _____ Subdivision _____

Street Address of Well (or nearest address) _____

36047 Liberty Hill Road St. Helens, Oregon 97051

(10) STATIC WATER LEVEL:

194 ft. below land surface.

Date **3-24-05**

Artesian pressure _____ lb. per square inch. Date _____

(11) WATER BEARING ZONES:

Depth at which water was first found **461 feet**

From	To	Estimated Flow Rate	SWL
461	482	6.7	194

(12) WELL LOG:

Ground Elevation _____

Material	From	To	SWL
Top soil	0	3	
Clay brown	3	8	
Clay yellow-brown	8	35	
Clay red-brown	35	51	
Clay gray-brown soft	51	72	
Clay red	72	130	
Sandy clay gray w/some shale	130	134	
Basalt rock blue-gray hard	134	212	
Basalt rock brown-red slightly fractured	212	236	
Basalt rock blue med	236	308	
Basalt rock brown-yellow-blue med-soft	308	324	
Basalt rock blue-gray med	324	349	
Basalt rock black hard	349	409	
Basalt rock blue-gray med	409	461	
Basalt rock blue-green red water-bearing	461	487	
Basalt rock blue w/slight red med	487	504	

Date started **3-23-05**

Completed **3-24-05**

(unbonded) Water Well Constructor Certification:

I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

WWC Number _____

Signed _____

Date _____

(bonded) Water Well Constructor Certification:

I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

WWC Number **1646**

Signed *Ch N Barker*

Date **4-11-05**

STATE OF OREGON

WATER SUPPLY WELL REPORT

(as required by ORS 537.765 & OAR 690-205-0210)

02-25-2009

WELL LABEL # L 44742

START CARD # 1002814

(1) LAND OWNER Owner Well I.D.

First Name AL Last Name FAYE

Company

Address 61424 PERRY CREEK ROAD

City SAINT HELENS State OR Zip 97051

(2) TYPE OF WORK ☒ New Well ☐ Deepening ☐ Conversion
☐ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD

☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger ☐ Cable Mud
☐ Reverse Rotary ☐ Other

(4) PROPOSED USE ☒ Domestic ☐ Irrigation ☐ Community

☐ Industrial/ Commercial ☐ Livestock ☐ Dewatering

☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION Special Standard ☐ (Attach copy)

Depth of Completed Well 200.00 ft.

BORE HOLE			SEAL			sacks/	
Dia	From	To	Material	From	To	Amt	lbs
10	0	20	Bentonite	0	20	9	S
8	20	100	Bentonite Grout	20	90	9	S
6	100	200	Cement	90	100	3	S

How was seal placed: Method ☐ A ☒ B ☐ C ☐ D ☐ E

☒ Other POUR

Backfill placed from 20 ft. to 190 ft. Material BENT

Filter pack from ft. to ft. Material Size

Explosives used: ☐ Yes Type Amount

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Std	Plstc	Wld	Thrd
☒	☒	6	☒	1	100	250	☒	☒	☒	☒
☐	☐	4	☐	88	200	200	☐	☐	☐	☐

Shoe ☐ Inside ☒ Outside ☐ Other Location of shoe(s) 100

Temp casing ☐ Yes Dia From To

(7) PERFORATIONS/SCREENS

Perforations Method SAW CUT

Screens Type Material

Perf/S	Casing/ Screen	Liner	Dia	From	To	Scr/slot width	Slot length	# of slots	Tele/ pipe size
Perf	Liner			160	200	25	4	60	

(8) WELL TESTS: Minimum testing time is 1 hour

☐ Pump ☐ Bailer ☒ Air ☐ Flowing Artesian

Yield gal/min Drawdown Drill stem/Pump depth Duration (hr)

15		200	1
----	--	-----	---

Temperature 52 °F Lab analysis ☐ Yes By

Water quality concerns? ☐ Yes (describe below)

From	To	Description	Amount	Units
------	----	-------------	--------	-------

(9) LOCATION OF WELL (legal description)

County Columbia Twp 5.00 N N/S Range 1.00 W E/W WM

Sec 32 NW 1/4 of the SE 1/4 Tax Lot 100

Tax Map Number Lot

Lat 0 0 or DMS or DD

Long 0 0 or DMS or DD

☒ Street address of well ☐ Nearest address

61424 PERRY CREEK ROAD

SAINT HELENS, OR 97051

(10) STATIC WATER LEVEL

Date SWL(psi) + SWL(ft)

Existing Well / Predeepening

Completed Well 01-31-2007 100

Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found 190

SWL Date From To Est Flow SWL(psi) + SWL(ft)

01-31-2007 190 200 15 100

(11) WELL LOG

Ground Elevation

Material From To

CLAY RED 0 90

TAN CLAY STONE 90 180

GRAY CLAY STONE 180 200

RECEIVED

DEC 21 2009

WATER RESOURCES DEPT

SALEM, OREGON

Date Started 12-27-2007 Completed 12-31-2007

(unbonded) Water Well Constructor Certification

I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.

License Number Date

Electronically Filed

Signed

(bonded) Water Well Constructor Certification

I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.

License Number 1480 Date 02-25-2009

Electronically Filed

Signed ARTHUR D. MCMULLEN (E-filed)

Contact Info (optional)

ORIGINAL - WATER RESOURCES DEPARTMENT

THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK

START CARD # 184130

Form Version: 0.95

ATTACHMENT B

WATER RIGHTS DOCUMENTS

STATE OF OREGON

COUNTY OF COLUMBIA

ORDER APPROVING A CHANGE IN CHARACTER OF USE,
A CHANGE IN PLACE OF USE, AND A CHANGE IN POINT OF DIVERSION

Pursuant to ORS 540.510 to 540.530, after notice was given and no objections were filed, and finding that no injury to existing water rights would result, this order approves, as conditioned or limited herein, TRANSFER 8010 submitted by

LAURENE A. MCGILVRA, TRUSTEE OF THE MCGILVRA LIVING TRUST
34706 HANKEY ROAD
ST. HELENS, OREGON 97051.

The right to be modified, as evidenced by a portion of Certificate 22650, was perfected under Permit 18346 with a date of priority of JUNE 21, 1948. The right allows the use of MILTON CREEK, a tributary of the COLUMBIA RIVER, for IRRIGATION OF 9.9 ACRES. The amount of water to which this right is entitled is limited to an amount actually beneficially used and shall not exceed 0.12 cubic foot per second, if available at the authorized point of diversion: LOT 4 (SW¼ SE¼), SECTION 31, T 5 N, R 1 W, W.M., or its equivalent in case of rotation, measured at the point of diversion from the source.

This is an order in other than a contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review must be filed within the 60 day time period specified by ORS 183.484(2).

Pursuant to ORS 536.075 and OAR 137-004-080 and OAR 690-01-005 you may either petition for judicial review or petition the Director for reconsideration of this order.

The amount of water used for irrigation, together with the amount secured under an other right existing for the same lands, is limited to ONE-EIGHTIETH of one cubic foot per second per acre or its equivalent for each acre irrigated and shall be further limited to a diversion of not to exceed 2½ acre-feet for each acre irrigated during the irrigation season of each year.

The use shall conform to any reasonable rotation system ordered by the proper state officer.

The authorized place of use is located as follows:

LOT 3 (NW¼ SE¼) 2.1 ACRES
LOT 4 (SW¼ SE¼) 7.8 ACRES
SECTION 31

TOWNSHIP 5 NORTH, RANGE 1 WEST, W.M.

The right to use the water for the above purpose is restricted to beneficial use on the lands or place of use described

The applicant proposes to change the character of use from irrigation of 9.9 acres to industrial use.

The applicant proposes to change the place of use to:

SW¼ NW¼
SE¼ NW¼
NE¼ SW¼
NW¼ SW¼
ALL AS PROJECTED WITHIN PERRY DLC 57
SECTION 32

TOWNSHIP 5 NORTH, RANGE 1 WEST, W.M.

The applicant proposes to change the point of diversion to:

SW¼ SW¼, AS PROJECTED WITHIN PERRY DLC 57, SECTION 32,
T 5 N, R 1 W, W.M.; 1387 FEET SOUTH AND 2306 FEET EAST FROM THE
NW CORNER OF PERRY DLC 57.

The receiving landowners are:

KEITH FORSYTHE
35365 HANKEY ROAD
ST. HELENS, OREGON 97051

KENNETH JILLSON
35091 HANKEY ROAD
ST. HELENS, OREGON 97051

THIS CHANGE TO AN EXISTING WATER RIGHT MAY BE MADE PROVIDED THE FOLLOWING CONDITIONS ARE MET BY THE WATER USER:

1. The proposed changes shall be completed on or before October 1, 2001.
2. The quantity of water diverted at the new point of diversion, together with that diverted at the old point of diversion, shall not exceed the quantity of water lawfully available at the original point of diversion.
3. When required by the Department, the water user shall install and maintain a headgate, an in-line flow meter, weir, or other suitable device for measuring and recording the quantity of water diverted. The type and plans of the headgate and measuring device must be approved by the Department prior to beginning construction and shall be installed under the general supervision of the Department.
4. Water shall be acquired from the same surface water source as the original point of diversion.
5. The quantity of water diverted for industrial use shall not exceed 0.12 cubic foot per second. The total quantity of water appropriated for industrial use shall be limited to 24.75 acre feet during the irrigation season of each year.
6. The former place of use shall no longer be irrigated as a part of this water right.

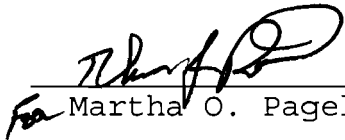
7. The water user shall install and maintain a fish screen or fish by-pass device. The type and plans of the screen or by-pass device must be approved by the Oregon Department of Fish and Wildlife prior to beginning of construction and shall be installed under the supervision of the Department of Fish and Wildlife.

The water user may participate in the Oregon Department of Fish and Wildlife's cost sharing program for installation of screening and by-pass devices in accordance with ORS 540.525.

Certificate 22650 is cancelled. A new certificate will be issued to confirm that portion of the right NOT involved in this transfer. When satisfactory proof of the completed change is received, a new certificate confirming this water right will be issued.

WITNESS the signature of the Water Resources

Director, affixed JAN 20 2000.



For Martha O. Pagel, Director

STATE OF OREGON
COUNTY OF COLUMBIA
CERTIFICATE OF WATER RIGHT

This Is to Certify, That RALPH R. BUTTS

of Box 5, Houlton, State of Oregon, has made proof to the satisfaction of the STATE ENGINEER of Oregon, of a right to the use of the waters of Milton Creek, a tributary of Scappoose Bay, for the purpose of Irrigation under Permit No. 15689 of the State Engineer, and that said right to the use of said waters has been perfected in accordance with the laws of Oregon; that the priority of the right hereby confirmed dates from January 31, 1944

that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 0.01 cubic foot per second,

or its equivalent in case of rotation, measured at the point of diversion from the stream. The point of diversion is located in the SE $\frac{1}{4}$ NE $\frac{1}{4}$, Section 5, Township 4 North, Range 1 West, W.M.

The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, shall be limited to one-eightieth of one cubic foot per second per acre, or its equivalent for each acre irrigated and shall be further limited to a diversion of not to exceed 2 $\frac{1}{2}$ acre feet per acre for each acre irrigated during the irrigation season of each year,

and shall

conform to such reasonable rotation system as may be ordered by the proper state officer.

A description of the place of use under the right hereby confirmed, and to which such right is appurtenant, is as follows:

0.15 acre in Lot 9, Bl. 4 Sherman's Add. to the City of St. Helens
(SE $\frac{1}{4}$ NE $\frac{1}{4}$)
Section 5
T. 4 N., R. 1 W., W.M.

Land on which water is to be used is a part of the property more explicitly described by appropriator as follows:

A parcel of land being and lying between Milton Creek and lot 9 in Block 4 of Sherman's Addition to the City of St. Helens, Oregon, as on file and of record in the office of the County Clerk of Columbia County, Oregon, and more particularly described as follows: Beginning at a point that is North 79° 13' East a distance of 18.0 feet from the Southeast corner of said lot 9 in block 4 of said Sherman's Addition which is marked with a one-half inch iron pipe; thence from this place of beginning running North 79° 13' East to center of said Milton Creek; thence up said Milton creek along its center to the South line of "A" street when extended Easterly; thence on the south line of said "A" street south 89° 35' West to a point marked with a 1 inch steel bar driven into the ground that is N. 89° 35' East 10.0 feet to the Northeast corner of said Lot 9; thence South 4° 58' East 96.8 feet to the place of beginning."

The right to the use of the water for the purposes aforesaid is restricted to the lands or place of use herein described.

WITNESS the signature of the State Engineer, affixed

this 15th day of May, 19 47.

CHAS. E. STRICKLIN

State Engineer

STATE OF OREGON
COUNTY OF COLUMBIA

CERTIFICATE OF WATER RIGHT

This Is to Certify, That R. R. HANKINS

of St. Helens, State of Oregon, has made proof to the satisfaction of the STATE ENGINEER of Oregon, of a right to the use of the waters of Milton Creek a tributary of Columbia River for the purpose of irrigation under Permit No. 15827 of the State Engineer, and that said right to the use of said waters has been perfected in accordance with the laws of Oregon; that the priority of the right hereby confirmed dates from June 16, 1914

that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 0.009 cubic feet per second,

or its equivalent in case of rotation, measured at the point of diversion from the stream. The point of diversion is located in the NE $\frac{1}{4}$ NE $\frac{1}{4}$, as projected on Aaron Broyle DLC #37, Section 5, Township 4 North, Range 1 West, W. M.

The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, shall be limited to one-eightieth of one cubic foot per second per acre, or its equivalent for each acre irrigated and shall be further limited to a diversion of not to exceed 2 $\frac{1}{2}$ acre feet per acre for each acre irrigated during the irrigation season of each year,

and shall conform to such reasonable rotation system as may be ordered by the proper state officer.

A description of the place of use under the right hereby confirmed, and to which such right is appurtenant, is as follows:

0.7 acre in NE $\frac{1}{4}$ NE $\frac{1}{4}$, as projected on Aaron Broyle DLC #37, Sec. 5, T.4 N., R.1 W., W.M.

Land on which water is to be used is a part of that more explicitly described by appropriator as follows:

Commencing at the Southeast corner of the Donation Land Claim of Francis Perry in Section 5, Township 4 North Range 1 West of the Willamette Meridian, which said corner is on the North line of the Donation Land Claim of Aaron Broyles in said Section, Township and Range; from thence running along said claim line North 69° 30' East 5.83 chains to a post; thence South 31° East 10.00 chains to a point; thence South 59° West 7.59 chains to the center of Milton Creek; thence up the center of Milton Creek North 42° 10' West 11.22 chains to a point on the North line of said Claim, and thence East along the said Claim line 5.69 chains to the place of beginning, and being a part of the Aaron Broyles Donation Land Claim in Section 5 in Township 4 North of Range 1 West of the Willamette Meridian, Columbia County, Oregon.

The right to the use of the water for the purposes aforesaid is restricted to the lands or place of use herein described.

WITNESS the signature of the State Engineer, affixed

this 30th day of April, 1951.

CHAS. E. STRICKLIN

State Engineer

STATE OF OREGON
COUNTY OF COLUMBIA
CERTIFICATE OF WATER RIGHT

This Is to Certify, That F. W. BOND

of St. Helens, State of Oregon, has made proof to the satisfaction of the STATE ENGINEER of Oregon, of a right to the use of the waters of Milton Creek a tributary of Columbia River for the purpose of domestic use 1 house under Permit No. 20316 of the State Engineer, and that said right to the use of said waters has been perfected in accordance with the laws of Oregon; that the priority of the right hereby confirmed dates from April 25, 1951

that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 0.01 cubic foot per second

or its equivalent in case of rotation, measured at the point of diversion from the stream. The point of diversion is located in the SE $\frac{1}{4}$ NE $\frac{1}{4}$, Section 5, Township 4 North, Range 1 West, W. M.

The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, shall be limited to - - - - - of one cubic foot per second per acre,

and shall conform to such reasonable rotation system as may be ordered by the proper state officer.

A description of the place of use under the right hereby confirmed, and to which such right is appurtenant, is as follows:

SE $\frac{1}{4}$ NE $\frac{1}{4}$
Section 5
Township 4 North, Range 1 West, W. M.

The right to the use of the water for the purposes aforesaid is restricted to the lands or place of use herein described.

WITNESS the signature of the State Engineer, affixed

this 12th day of June, 19 57.

LEWIS A. STANLEY

State Engineer

STATE OF OREGON
COUNTY OF COLUMBIA
CERTIFICATE OF WATER RIGHT

This Is to Certify, That CLARENCE R. WAGNER

of St. Helens, State of Oregon, has made proof to the satisfaction of the STATE ENGINEER of Oregon, of a right to the use of the waters of Milton Creek, a tributary of Columbia River, for the purpose of domestic use 1 family under Permit No. 20329 of the State Engineer, and that said right to the use of said waters has been perfected in accordance with the laws of Oregon; that the priority of the right hereby confirmed dates from May 9, 1951

that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 0.01 cubic foot per second

or its equivalent in case of rotation, measured at the point of diversion from the stream. The point of diversion is located in the NE $\frac{1}{4}$ NE $\frac{1}{4}$, Section 5, Township 14 North, Range 1 West, W. M.

The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, shall be limited to ----- of one cubic foot per second per acre,

and shall conform to such reasonable rotation system as may be ordered by the proper state officer.

A description of the place of use under the right hereby confirmed, and to which such right is appurtenant, is as follows:

NE $\frac{1}{4}$ NE $\frac{1}{4}$
Section 5
Township 14 North, Range 1 West, W. M.

Land on which water is to be used is part of that described as follows:
Lot 11, Hankins Addition to City of St. Helens.

The right to the use of the water for the purposes aforesaid is restricted to the lands or place of use herein described.

WITNESS the signature of the State Engineer, affixed

this 12th day of June, 1957.

LEWIS A. STANLEY

State Engineer

TRANSFER OF WATER RIGHT FOR
COLUMBIA ROAD & DRIVEWAY
SECTION 31 & 32 T5N, R1W, WM
COLUMBIA COUNTY ORE.

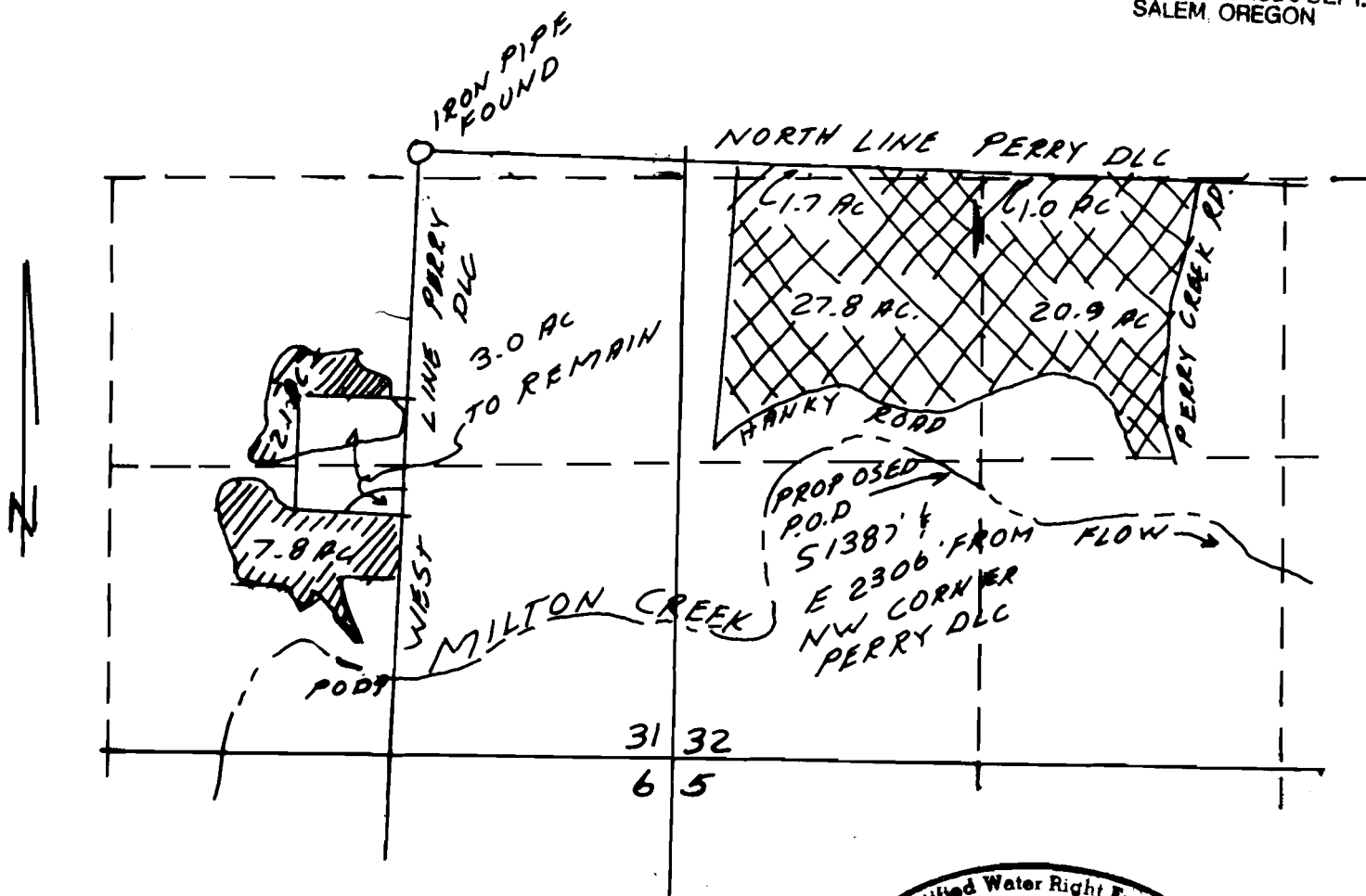
NOV. 1 1996

SCALE 1" = 800'

RECEIVED

OCT 29 1999

WATER RESOURCES DEPT.
SALEM, OREGON



PORTION TO BE TRANSFERRED

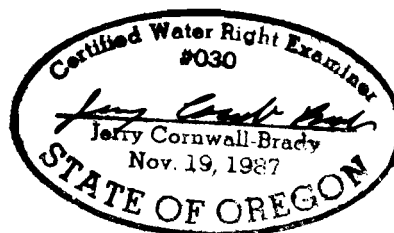


PERMIT No. 18346

APPLICATION No. 23232



PROPOSED AREA
OF USE



RENEWAL DATE 12-31-97

NOTE: THE PURPOSE OF THIS MAP IS TO IDENTIFY THE LOCATION OF THE WATER RIGHT. IT IS NOT INTENDED TO PROVIDE INFORMATION RELATIVE TO THE LOCATION OF PROPERTY OWNERSHIP BOUNDARY LINES.

STATE OF OREGON
COUNTY OF COLUMBIA
CERTIFICATE OF WATER RIGHT

THIS CERTIFICATE ISSUED TO

FRANCIS EDWARD MCGILVRA
ROUTE 1, BOX 770
ST. HELENS, OREGON 97051

confirms the right to use the waters of MILTON CREEK, a tributary of the COLUMBIA RIVER, for IRRIGATION OF 3.0 ACRES.

This right was perfected under Permit 18346. The date of priority is JUNE 21, 1948. The amount of water to which this right is entitled is limited to an amount actually beneficially used and shall not exceed 0.04 CUBIC FOOT PER SECOND or its equivalent in case of rotation, measured at the point of diversion from the source.

The point of diversion is located as follows:

LOT 4 (SW $\frac{1}{4}$ SE $\frac{1}{4}$), SECTION 31, T 5 N, R 1 W, W.M..

The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, is limited to ONE-EIGHTIETH of one cubic foot per second per acre, or its equivalent for each acre irrigated and shall be further limited to a diversion of not to exceed 2 $\frac{1}{2}$ acre-feet for each acre irrigated during the irrigation season of each year.

The use shall conform to such reasonable rotation system as may be ordered by the proper state officer.

A description of the place of use to which this right is appurtenant is as follows:

LOT 3 (NW $\frac{1}{4}$ SE $\frac{1}{4}$) 2.5 ACRES
LOT 4 (SW $\frac{1}{4}$ SE $\frac{1}{4}$) 0.5 ACRE
SECTION 31
TOWNSHIP 5 NORTH, RANGE 1 WEST, W.M.

This certificate describes that portion of the water right confirmed by Certificate 22650, State Record of Water Right Certificates, NOT modified by the provisions of an order of the Water Resources Director entered JAN 20 2000, approving Transfer Application 8010.

The issuance of this superseding certificate does not confirm the status of the water right in regard to the provisions of ORS 540.610 pertaining to forfeiture or abandonment.

The right to the use of the water for the above purpose is restricted to beneficial use on the lands or place of use described.

WITNESS the signature of the Water Resources
Director, affixed JAN 20 2000.

/s/ Thomas J. Paul (for)
Martha O. Pagel, Director

Recorded in State Record of Water Right Certificates numbered 76380.