June 28, 2002

Max Rosenberg
Oregon Department of Environmental Quality, Western Region
1102 Lincoln Street, Suite 210
Eugene, Oregon 97401

Re: Beneficial Water Use Determination
J.H. Baxter & Co. Wood Preserving Facility, 85 Baxter Road, Eugene, Oregon.

Dear Mr. Rosenberg:

J.H. Baxter & Co., Inc (Baxter) is pleased to submit two copies of the Beneficial Water Use Determination to Oregon Department of Environmental Quality (DEQ) in accordance with Oregon Administrative Rules (OAR) 340-122-080. This documents incorporates your comments in your April 18, 2002 memorandum.

As discussed with you previously, Baxter is finalizing the agreement to connect the Sanipot facility to the city water supply. Baxter will abandon the Sanipot well as soon as possible, and will provide DEQ with appropriate documentation of the abandonment activities.

Please do not hesitate to contact Caroline Ferrell or me at (541) 689-3801 if you have any questions or comments.

Sincerely;

RueAnn Thomas
Environmental Programs Director

cc: Georgia Baxter, JH Baxter
J. Stephen Barnett, Premier Environmental Services, Inc.

Beneficial Water Use Determination

JH Baxter & Co.
Eugene, Oregon Facility

Prepared for:
Oregon Department of Environmental Quality
Western Region
1102 Lincoln Street, Suite 210
Eugene, OR 97401

Prepared by:
J.H. Baxter & Co.
P.O. Box 10797
Eugene, OR 97440

June 28, 2002

JHBaxter

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Introduction

This report present the results of the beneficial water use determination for the J. H. Baxter & Company (Baxter) Wood Preserving Facility (the facility) located in Eugene, Oregon. The beneficial water use determination is being prepared as part of the Remedial Investigation (RI) process being conducted at the facility, and in accordance with Oregon Administrative Rules (OAR) 340-122-080(3)(f).

Background

The Baxter facility is located at 85 North Baxter Road in Eugene, Oregon (Figures 1 and 2). Baxter has operated the facility since 1943, and has used creosote, pentachlorophenol (PCP), Chemonite™, ammoniacal copper quat (ACQ) and fire retardants to treat wood products at the facility. Since 1989, Baxter has investigated the nature and extent of treating chemicals in the soil, sediment, surface water, and groundwater at and near the facility, and has completed several interim cleanup actions under the oversight of the Oregon Department of Environmental Quality (DEQ). Baxter prepared a Phase I and Phase II RI report for the facility in 1991 and 1994, respectively. In 1999, Baxter completed an ecological risk assessment (ERA) that concluded that treating chemicals present in the undeveloped area are highly unlikely to present significant risk to soil invertebrates, plants, avian species, and small mammals (Keystone 1999a). The ERA was approved by DEQ on July 23, 1999 (DEQ 1999). In addition, Baxter is preparing an RI summary report and human health risk assessment report that will summarize all investigation activities, nature and extent of treating chemicals in facility media, and potential effects on human receptors.

Initial investigations completed in the early 1990's indicated that soil and groundwater beneath the facility is affected by PCP, arsenic, and polycyclic aromatic hydrocarbons (PAHs, which are constituents of creosote), but offsite soil and groundwater were not significantly affected. As a precaution however, Baxter connected to the city water system several residences that were using groundwater wells for their domestic water supply. In 1994, Baxter also installed a groundwater extraction and treatment system along the northern boundary of the facility to prevent offsite migration of water affected by historic facility operations. Treated groundwater is discharged to Roosevelt Channel located north of the facility along Roosevelt Boulevard (Figure 2) pursuant to a National Pollution Discharge Elimination System (NPDES) Permit No. 102432 (hereinafter "NPDES Permit").

In 1997, Baxter installed a collection and treatment system to capture and treat stormwater at the facility. Several upgrades to the treatment system have been made since 1997, and treated water is discharged to Roosevelt Channel west of the facility under the NPDES Permit.

Recent groundwater monitoring activities and installation of additional offsite groundwater monitoring wells have indicated that a PCP-affected groundwater plume extends westerly from the facility. Baxter has monitored the groundwater plume by collecting samples from onsite and offsite monitoring wells, industrial wells, and private wells used for irrigation.

Summary of the Site Model

This section summarizes the site model for the facility. Additional details are available in the Phase I RI and Phase II RI (Keystone 1991, 1994). In addition, Baxter is preparing an RI summary report and human health risk assessment report that will summarize investigation activities, nature and extent of treating chemicals in facility media, present a conceptual site model, and evaluate potential effects on human receptors.

Geology and Hydrogeology

Based on boreholes and wells completed by Baxter, soils beneath the facility and surrounding area consist of a surficial silty clay horizon approximately 6 to 10 feet thick. Sandy gravels with varying amounts of silt and sand are present beneath the surficial material. Two aquitards are evident at the facility and adjacent areas based on borehole logs. The upper aquitard is comprised of silty sandy gravel, and may be discontinuous west of the facility. The depth of the upper aquitard is 10 to 30 feet below ground surface (bgs), and varies in thickness from approximately 10 to 30 feet. The deeper aquitard is present at a depth of approximately 70-80 feet bgs, and varies in thickness from a few feet to approximately 30 feet. The deeper aquitard appears to be discontinuous or absent west and northwest of the site.

Three informal water-bearing zones have been identified at the facility and in the surrounding area: a shallow water-bearing zone, an intermediate water-bearing zone, and a deeper water-bearing zone. Borehole data and pump test data indicate that the shallow and intermediate zones are semi-confined and leaky (Keystone 1991, 1994).

The shallow water-bearing zone is present in the sandy gravel beneath the surficial silty clay horizon, and is present at depths from approximately 10 to 30 feet bgs. Shallow groundwater may potentially discharge to Roosevelt Channel, depending on the time of year. The shallow water-bearing zone is separated from the intermediate water-bearing zone by discontinuous silty sandy gravel. The intermediate water-bearing zone is present beneath most of the facility, beginning at depths of approximately 20 feet bgs on the eastern portion of the facility to approximately 40 feet bgs west of the facility. The base of the intermediate zone is approximately 60 to 80 feet bgs. The intermediate and deeper zones are separated by an aquitard of silt, silty clay, or clay. The deeper water-bearing zone is present beneath the facility at a depth of approximately 80 to 100 feet bgs, and is comprised of sandy gravel. Based on well and boring logs, pump test data, and the extent of PCP in groundwater, it appears that all three informal water-bearing zones are interconnected to some degree over the site and site vicinity.

Groundwater in the area is present at depths varying from 4 to 22 feet bgs in the shallow water-bearing zone; 6 to 28 feet bgs in the intermediate water-bearing zone; and approximately 12 to 22 feet bgs in the deeper water-bearing zone, depending on the location and time of year (Baxter 2002). Groundwater flow in the shallow zone is north

to northwesterly, and northwesterly in the intermediate zone. Groundwater gradients typically range from 0.007 to 0.02 feet/feet in the shallow zone, and 0.003 to 0.005 feet/feet in the intermediate zone. At the northern facility boundary, a groundwater capture zone has developed around the existing groundwater extraction wells in both the shallow and intermediate zones (Baxter 2002). Pump test conducted at the facility during the RI indicated hydraulic conductivity of 7.8 feet/day and 17.3 feet/day in the shallow and intermediate water-bearing zones, respectively (Keystone 1991, 1994). Insufficient data are available to assess groundwater flow directions in the deeper zone.

Surface Water Hydrology

Natural surface water drainage in the Eugene area is to the north-northwest toward the Willamette River. Drainage in the site vicinity had been modified by ditches and canals built in the 1950s by the Army Corps of Engineers and the Soil Conservation Service. The drainage system is included within the lower Amazon Creek Watershed. This watershed drains west and north through Clear Lake to the Long Tom River to the Willamette River, 40 miles north of Eugene (Keystone 1991).

Onsite surface water features include a former log pond and the current stormwater retention pond. A log pond owned and operated by Cabax Mill (subsequently named Barker-Willamette), was historically located on the southwestern portion of the facility. During the mid-1970's, property including the log pond was purchased by Baxter, filled in, and a stormwater retention pond was constructed. Bentonite was used to seal the pond by distributing the bentonite on top of the water allowing it to sink to form a loose seal. The current pond is approximately one acre in size and five feet deep.

Overflow from the pond was historically discharged to the ditch along the southeastern portion of the site. The ditch flows westerly across Bertelsen Road, then northerly to the Roosevelt Channel, which is a stormwater drainage system for the west Eugene area. Roosevelt Channel empties into Amazon Creek, approximately two miles west of the facility.

In 1997, Baxter installed a stormwater collection and treatment system, and treated water is discharged to a storm ditch in the southwestern corner of the facility under the current NPDES Permit. Currently, there is no direct discharge of water from the pond. Any stormwater that collects in the pond is transferred to the stormwater treatment system. Treated stormwater is discharged through Outfall 001, described in the current NPDES Permit as a storm ditch.

Conceptual Site Model

This section presents a conceptual model of the transport and fate of facility-related chemicals to groundwater and surface water. The chemicals, including PCP, PAHs, and arsenic, have been found in soil, groundwater, surface water, and sediments. For the purpose of this discussion, the primary chemical of concern is PCP, based on the PCP

plume that has been documented offsite. Other chemicals used at the facility generally have not migrated significantly offsite.

Wood treating chemicals have been used onsite, and in the case of PCP and creosote, were applied to wood products in an oil-based carrier solution. Some of these chemicals have been released to soils through historical facility activities. These chemicals can migrate and be transported by groundwater to downgradient receptors by the groundwater pathway. To be considered a complete pathway, the chemicals must be incorporated into groundwater in a dissolved (aqueous) phase, sorbed onto particulate or colloidal particles, or as a nonaqueous phase liquid (NAPL), and must be transported to a point of contact with the end receptor (human or ecological). At the Baxter facility, groundwater transport of facility-related chemicals may occur by the following mechanisms:

- Leaching of affected soils in the vadose (unsaturated) zone and infiltration of the chemical-affected leachate to groundwater
- Direct contact of chemical-affected soils with groundwater
- Direct contact of NAPL (containing PCP and/or PAHs) with groundwater.

Historically, all these processes may have occurred at one time. For example, over the period of use, gravity and the infiltration and percolation of rainfall in the areas of affected surface soils could have carried the chemicals downward vertically through the unsaturated soil zone to the groundwater surface. Therefore, the primary mode of ongoing releases of facility-related chemicals in groundwater is probably from the direct contact of groundwater with affected soils.

Once the pathway to groundwater was established, a groundwater plume such as that presently observed at the facility was generated (Figure 3). The movement of a dissolved chemical (e.g., PCP) in water along the groundwater flow path is termed advection. Dispersion occurs as the chemical spreads along and away from the direction of groundwater flow during advective movement. The movement of a chemical from areas of higher chemical concentration to lower, independent of the direction of groundwater flow, is the process of chemical diffusion. All of these factors can contribute to the offsite migration of facility-related chemicals. However, offsite movement of facility-related chemicals is also accompanied by a decrease in concentrations due to dispersion, adsorption of the chemicals onto soil particles, and natural degradation of the chemicals by biological processes. These processes tend to limit the downgradient migration of facility-related chemicals, and the groundwater plume may stabilize and decrease in aerial extent over time.

Facility-related chemicals can also be transported in surface water in either dissolved or particulate phases. Dissolved chemicals will tend to absorb to sediment particles. Particulate or dissolved-phase transport of facility related chemicals will occur only in

areas where surface water contacts affected surface soils. Currently, all stormwater at the Baxter facility is captured and treated prior to discharge to the storm ditch at Outfall 001.

Extent of Facility–Affected Groundwater and Surface Water

The approximate extent of PCP in groundwater is shown on Figure 3. Figure 3 shows the maximum PCP concentration observed during the last three years and inferred concentration contours, and the maximum PCP concentration historically observed. These areas represent the approximate extent of PCP above 1 µg/L and based on groundwater monitoring activities over the last several years. Other chemicals that have been detected in groundwater (arsenic, PAHs, and dioxin/furans) are much less widespread, and are present within the PCP plume area shown on Figure 3. Depth of PCP-affected groundwater varies depending on the distance from the source areas. The highest PCP concentrations onsite are in the shallow water-bearing zone, and the highest PCP concentrations offsite are generally deeper and within the intermediate water-bearing zone. The concentration of PCP in wells located within the groundwater plume may vary from the concentration illustrated on Figure 3 depending on the depth of the well.

For groundwater wells with ten or more PCP results per well over the entire period for which groundwater data were available, 90 percent upper confidence limits (UCL) were calculated using a spreadsheet and instructions provided by DEQ (DEQ 2002), however, none of the wells generated statistically acceptable results and it was decided to evaluate the data based on the maximum detected concentrations for the most recent three years of sampling (1999 – 2001).

The approximate extent of PCP and other chemicals in surface water are shown on Figure 4. The highest concentration of PCP was collected from surface water in the ditch immediately downgradient from the stormwater retention pond prior to installation of the stormwater treatment system. Stormwater collected at the facility is treated to reduce the levels of PCP, PAHs, metals, and dioxins and furans. Treated stormwater is analyzed for facility-related chemicals and discharged under the NPDES Permit issued by DEQ. The purpose of the NPDES permit system is to control water pollution by regulating point sources that discharge pollutants into waters. The discharge limits imposed by the Permit are below levels of concern for human health and the environment.

Surface water data collected from Roosevelt Channel in 2001 indicated low concentrations of PCP. The highest PCP concentration of 1.08 µg/L was observed at RC-3, located approximately 1,000 feet northwest of Outfall 002. These concentrations are well below the NPDES Permit levels that are designed to be protective of human and ecological receptors, and below or near U. S. Environmental Protection Agency's (EPA) maximum contaminant level (MCL) for drinking water (1 µg/L).

Beneficial Water Use Determination

The beneficial water use determination is based on the following:

- Evaluation of land use in the area
- Identification of the *locality of the facility*
- Completion of a postcard survey for residences and businesses in the area
- Completion of a door-to-door survey in the area
- Review of water well logs from the Oregon Water Resources Department (WRD)
- Evaluation of well installation trends based on WRD well logs.

Land Use

Baxter performed a land use survey by contacting the City of Eugene and interviewing nearby landowners to understand the historic, current, and reasonably likely future land use near the facility. Current land use is shown in Figure 5, based both on actual use and the South Eugene Zoning Map (Lane Council of Government 2002).

Historic Land Use

The land near the facility was first developed in the mid-1920's for agricultural use, including farmhouses. Industrial and commercial properties were developed along the abandoned railroad south of the facility. Beginning in the 1950's, the farmland was developed for residential housing. The area was annexed as part of the City of Eugene in the early 1960s.

Current Land Use

The area near the facility currently includes mixed industrial, commercial, and residential properties. Residential areas are located primarily north and northwest of the facility, on the north side of Roosevelt Boulevard and to the west along Cross Street (Figure 5). The residential properties located west of the facility along Cross Street are zoned industrial. Industrial areas are located south, west, and east of the facility.

Reasonably and Likely Future Land Use

Reasonably likely future uses are generally the same as current uses (mixed industrial, commercial, and residential use). No changes in the current land use practices or zoning are expected.

Locality of the Facility

The *locality of the facility* is any point where a human or an ecological receptor contacts or is reasonably likely to come into contact with facility-related hazardous substances (OAR 340-122-115(38)). The *locality of the facility* also takes into account the

likelihood of the chemical constituents migrating over time (OAR 340-122-115(34)(d)(I). Based on historical groundwater and surface water monitoring data and assumed continued operation of the current onsite groundwater extraction system, the *locality of the facility* is shown on Figure 6. The *locality of the facility* encompasses the facility boundary, the current groundwater PCP plume, and the buffer zone, which includes areas where PCP may migrate over time due to groundwater transport or pumping of extraction wells. In addition, the *locality of the facility* shown on Figure 6 includes the extent of facility-affected surface water.

The buffer zone between the groundwater plume and *locality of facility* was defined as equal to half the width of the capture zone for a hypothetical pumping well for areas crossgradient of the plume, and the full width of that capture zone for areas downgradient of the plume. The width of the capture zone was determined to be approximately 655 feet, based on the following formula used for calculating maximum width of a capture zone for a confined aquifer under steady state conditions:

$$y_{max} = \pm Q/(2Kbi)$$

where y_{max} = the half width of the capture zone, Q = pumping rate, K = hydraulic conductivity; b = saturated thickness of the aquifer, and i = hydraulic gradient (Fetter 1994).

Assumptions for this calculation were a hypothetic pumping rate of 10 gallons per minute (1,925 cubic feet/day), a hydraulic conductivity of 14 feet/day (Keystone 1999b), aquifer thickness of 70 feet (approximate thickness of the intermediate water-bearing zone), and a gradient of 0.003 feet/feet (Keystone 1999b). This calculated capture zone is considered conservative, as any wells used for irrigation at nearby residences would typically pump at lower rates or short time periods. In addition, the width of the calculated capture zone is approximately the same as observed at the three onsite pumping wells, which pump at a combined rate of 50 gallons per minute.

Sampling data from the offsite wells indicates the edge of the plume is currently stable (Baxter 2002), and not increasing in size. However, the *locality of the facility* could be modified in the future if the plume migrates or changes size, or if the operation of the current onsite groundwater extraction system is modified.

Postcard and Door-to Door Survey

Baxter conducted a postcard survey and door-to door survey in the summer and fall of 2001 to evaluate water use and the presence of water wells in the locality of the facility and surrounding area. The area within which the survey was conducted is identified on Figure 7. Results of these surveys are summarized in Table 1. The postcard surveys and door-to-door survey forms are provided in Appendix A.

Water Use

Water use in the area was researched by contacting nearby property owners, conducting a field survey in the *locality of the vicinity*, and reviewing water well logs from the WRD that were within approximately one mile of the facility. Figure 5 shows the approximate locations of water wells based on information provided on the well logs and surveys completed by property owners. Table 2 provides a summary of each well in the area. Copies of WRD well logs, where available, are included in Appendix B.

Past Use

The area has been primarily agricultural, residential, and industrial for the past 80 years. Small farms in the area likely used well water for domestic use and irrigation. Based on the limited historical information obtained, municipal water was provided to the area by the Bethel Water District from sometime before 1939 until 1964. The Eugene Water and Electrical Board (EWEB) has provided water to the area since 1964.

Current Use

City water (provided by EWEB) is readily available within the *locality of the facility*, and most properties are connected to the city water supply. The main source of water provided by EWEB is obtained from the McKenzie River at an intake located at the intersection of the McKenzie River and Mohawk Road. Water is then pumped from the pump station at Hayden Bridge. In addition, EWEB relies on 24 covered reservoirs. Drilling began in May 2002 on the first of two production wells and four monitoring wells to be used as backup supply wells (EWEB 2002). The location of these wells is near the confluence of the Willamette and McKenzie Rivers. The new production wells are expected to be in use by 2005 (EWEB 2002).

A search of WRD water rights in the *locality of the facility* identified two water rights. A groundwater right point of diversion and a log pond serviced by groundwater were listed under permit number 6686. The use listed for both water rights is manufacturing. Both water rights are located on the adjacent property to the west, which is currently occupied by Zip-O-Log. The WRD well log for the groundwater right lists the well owner as Barker-Willamette.

A total of 50 water wells (domestic, irrigation, or industrial wells, excluding monitoring wells) were identified within the area, 33 of which are located in the *locality of the facility* (Figure 6; Table 2). These water wells were identified during the door-to-door survey and review of WRD well logs.

The following summarize the 33 wells located within the *locality of the facility:*

- Eleven of the wells are used for irrigation
- Six wells are either not used or not functional
- Two wells are used for industrial purposes
- One well was described as a set of monitoring wells

- Twelve of the wells have been abandoned
- One well is currently used for industrial and domestic purposes (Sanipot well)

Industrial well use includes log watering at the Zip-O-Log well, and truck washing and filling and cleaning porta-potties and wash stations at Sanipot. Assumed uses of irrigation wells include irrigation of gardens, use as swimming pool and wading pool water, and incidental ingestion and dermal contact associated with both activities.

The well listed for industrial and domestic purposes is located on the Sanipot facility at 3922 Roosevelt Boulevard (Figure 6, Well 31). The log for this well was submitted in 1995, and listed "industrial" for the use. Baxter has been in contact with the well owner, and the owner stated that the well was also used for domestic purposes. Baxter has been collecting groundwater samples from this well and monitoring for the presence of PCP since September of 2000. Baxter will connect this user to city water and will abandon the well.

To evaluate trends in well construction and groundwater use, 1,200 WRD records of wells within a nine-square mile area around the facility were evaluated. Of these 1,200 well records, 528 of the records indicated that a well was abandoned, 10 were alterations or deepening of existing wells, 120 were for domestic wells, 102 were for industrial or irrigation use, 402 were groundwater monitoring wells, and two were community supply wells installed by the City of Eugene (note that several records had multiple classification and some had no classification). Most of the domestic and irrigation wells were installed between the 1950's and 1972; only 10 domestic or irrigation wells have been installed since 1993. The majority of the monitoring wells were installed, and abandonment records were filed between 1988 and 2002. Trends in domestic, irrigation, monitoring wells, and well abandonment records are shown in Figure 8. These data clearly indicate that fewer users are installing water supply wells (other than monitoring wells), due to the readily available city water system. Copies of the well records used for this analysis are provided in Appendix C.

Baxter attempted to verify the location and current use of the City of Eugene Community Supply wells identified in the WRD records of wells. Baxter contacted EWEB, the City of Eugene Waste Water Division, the City of Eugene Public Works Engineering Department, the City of Eugene Permitting Department, and the City of Eugene Parks and Recreation Department. None of the representatives contacted had records of the use or location of the wells.

The closest surface water feature is the Roosevelt Channel (located along the north side of Roosevelt Boulevard) that passes through the *locality of the facility.* Roosevelt Channel serves as a stormwater drainage channel for this area of west Eugene, and empties into Amazon Creek approximately two miles west of the facility. Assumed uses of surface water include incidental ingestion and dermal contact associated with children playing in ditches that discharge to Roosevelt Channel.

Future Use

Anticipated future uses of groundwater and surface water in the locality of the facility is expected be for irrigation or industrial use. City water is readily available to the locality of the facility provided by EWEB, and Baxter will continue to assist any potential users of groundwater for domestic purposes in connecting to the city water supply system. Use of the Roosevelt Channel for storm water control is expected to continue into the future.

Based on resident postcard and interview surveys, eleven people are planning water use changes. Four people indicated their onsite well was broken and have plans to fix it for irrigation purposes, four people indicated plans to install a new well for irrigation, two people indicated their onsite well was unused and have plans to use it for irrigation in the future, and one person indicated their water was currently provided by the city, but they may make unspecified changes in the future. In addition, Baxter will connect the user of the Sanipot well to city water and will abandon the well.

Summary of Beneficial Use

Water uses in the *locality of the facility* are limited to groundwater and city water, with groundwater being used for domestic, irrigation, and industrial purposes. One business in the *locality of the facility* is currently using groundwater for domestic use; however, Baxter has been in contact with the owner and will assist that user in switching to city water for drinking water in the near future.

Based on the discussions above, future beneficial use of groundwater and surface water in the locality of the facility is anticipated for irrigation, and industrial purposes. The only surface water feature in the locality of the facility is the Roosevelt Channel, which will continue to serve as the area's storm water drainage channel.

References

Baxter 2002. Second half 2001 Groundwater Monitoring Report, J.H. Baxter & Co., Eugene, Oregon Facility. Prepared by J.H. Baxter & Co. April 15, 2002.

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Keystone. 1991. Remedial investigation report (phase I) of J.H. Baxter & Co. Eugene, Oregon Site. Prepared for J.H. Baxter & Co. by Keystone Environmental. August 1991.

Keystone. 1994. Remedial investigation report (phase II) of JH Baxter & Co. Eugene, Oregon Site. Prepared for J.H. Baxter & Co. by Keystone Environmental. October 1994.

Keystone 1999a. Ecological Risk Assessment of J.H. Baxter & Co., Eugene, Oregon Plant Site. Prepared by Keystone Environmental Consultants, Inc. for J.H. Baxter & Company. June 1999.

Keystone 1999b. Capture Zone Analysis of the J.H. Baxter & Co. Groundwater Pumping System, Eugene, Oregon Site. Prepared by Keystone Environmental Ltd. for J.H. Baxter & Company. February 1999.

Figures

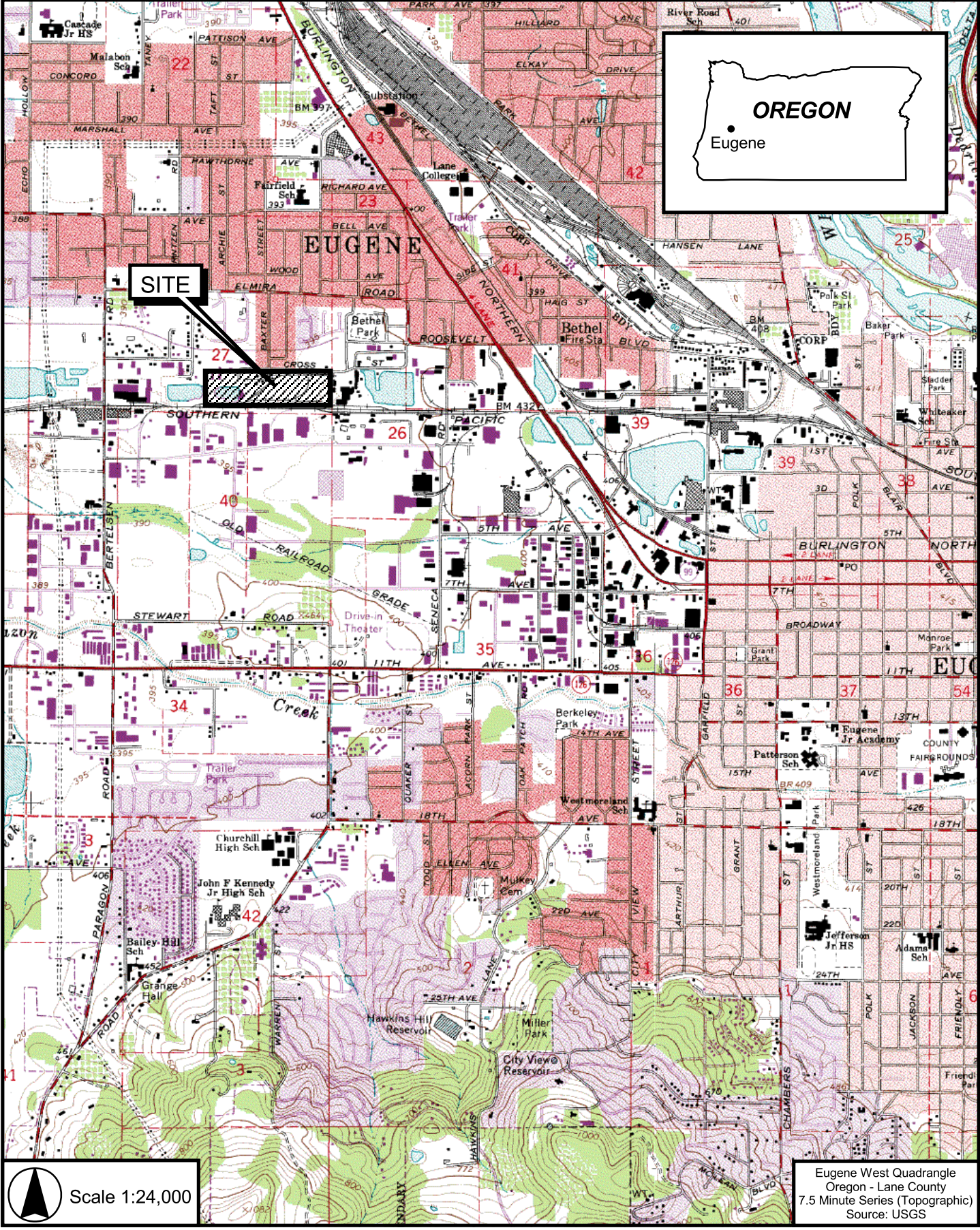


Figure 1. Vicinity Map - J.H. Baxter - Eugene, Oregon

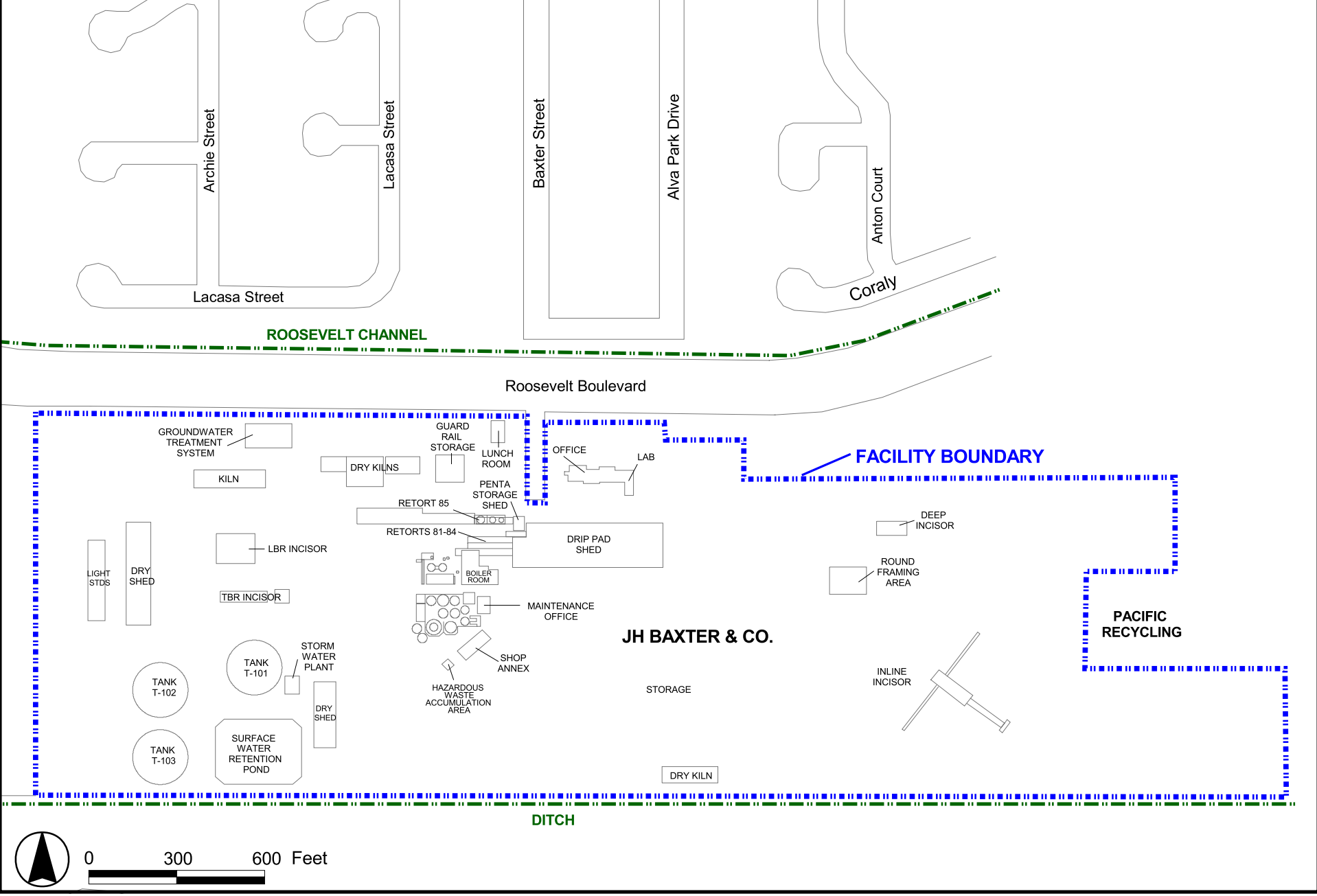
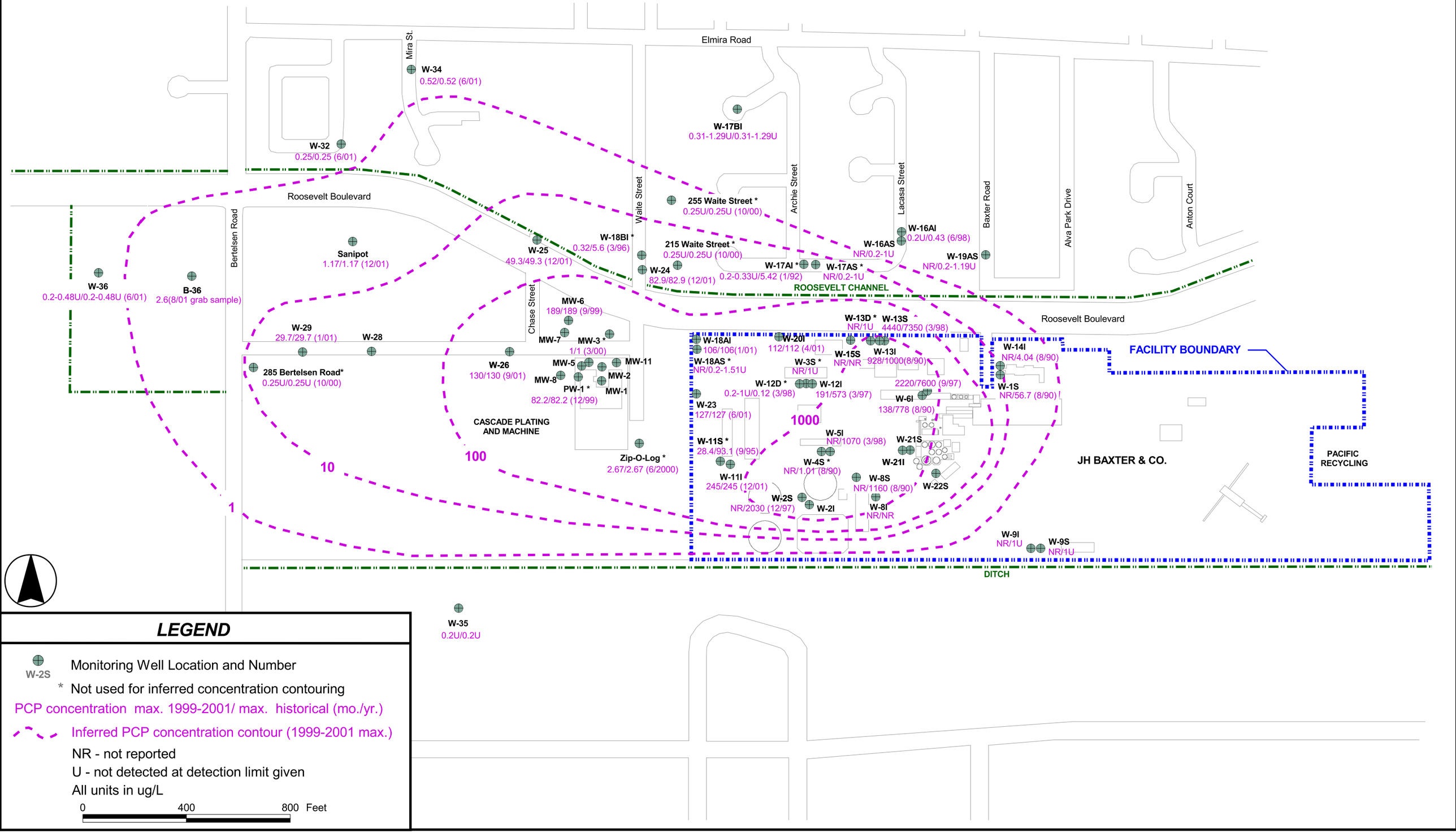


Figure 2. Site Plan - JH Baxter - Eugene, Oregon



LEGEND

W-2S — Monitoring Well Location and Number

* Not used for inferred concentration contouring

PCP concentration max. 1999-2001/ max. historical (mo./yr.)

Inferred PCP concentration contour (1999-2001 max.)

NR - not reported

U - not detected at detection limit given

All units in ug/L

0 400 800 Feet

Figure 3. Pentachlorophenol (PCP) in Groundwater - J.H. Baxter - Eugene, Oregon

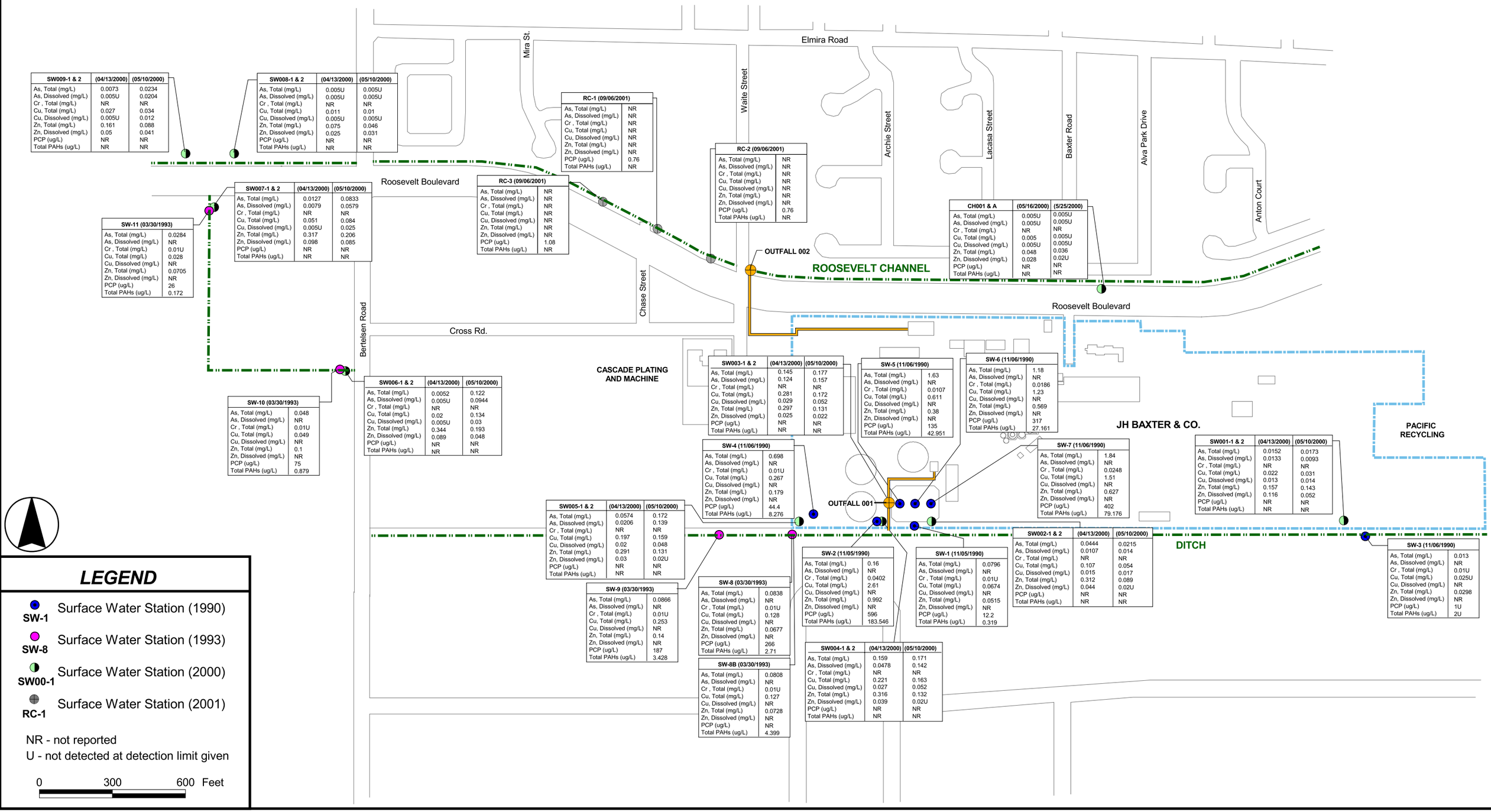


Figure 4. Surface Water Sampling Results - JH Baxter - Eugene, Oregon

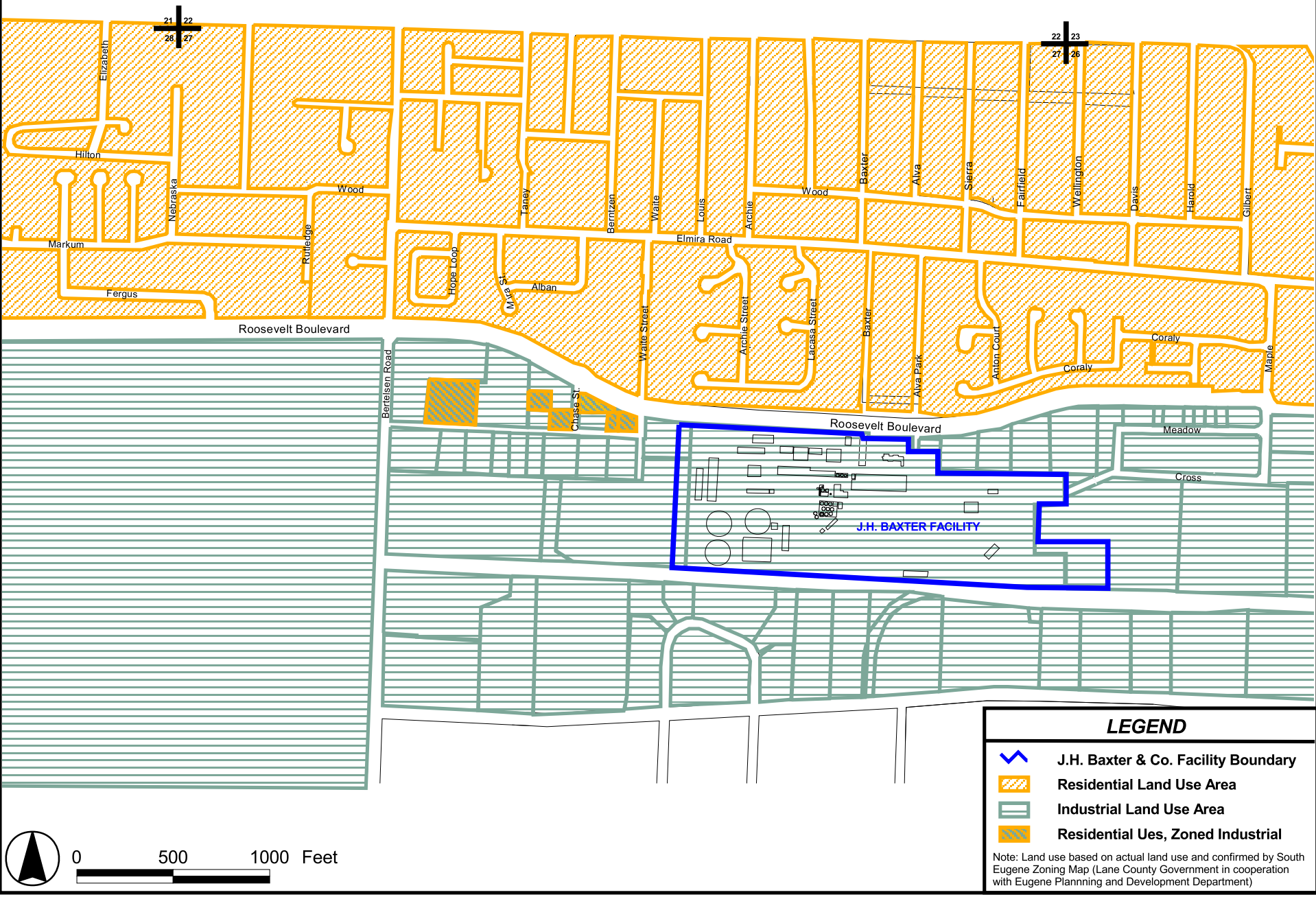


Figure 5. Surrounding Land Use - JH Baxter - Eugene, Oregon

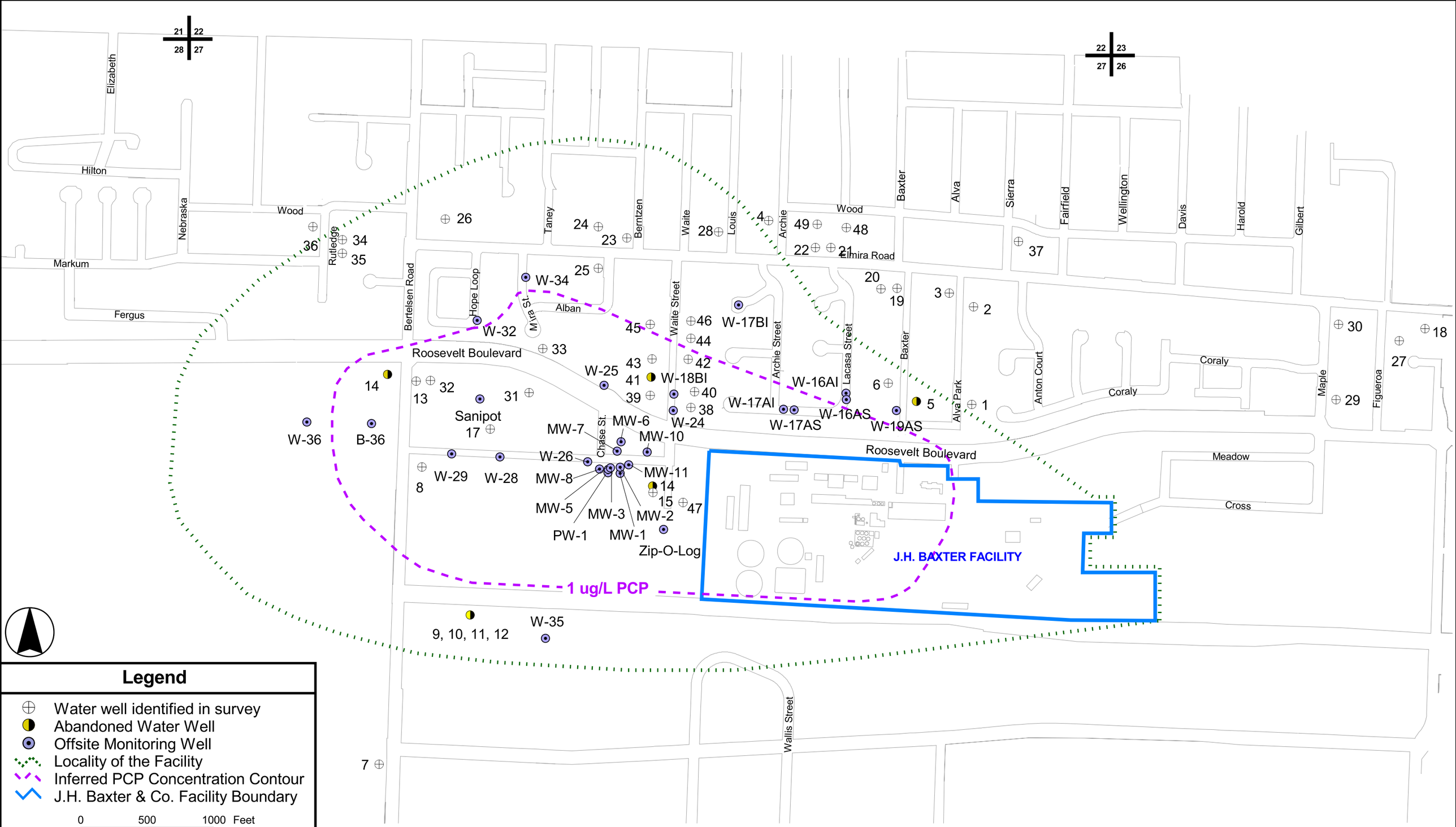


Figure 6. Locality of Facility - J.H. Baxter - Eugene, Oregon

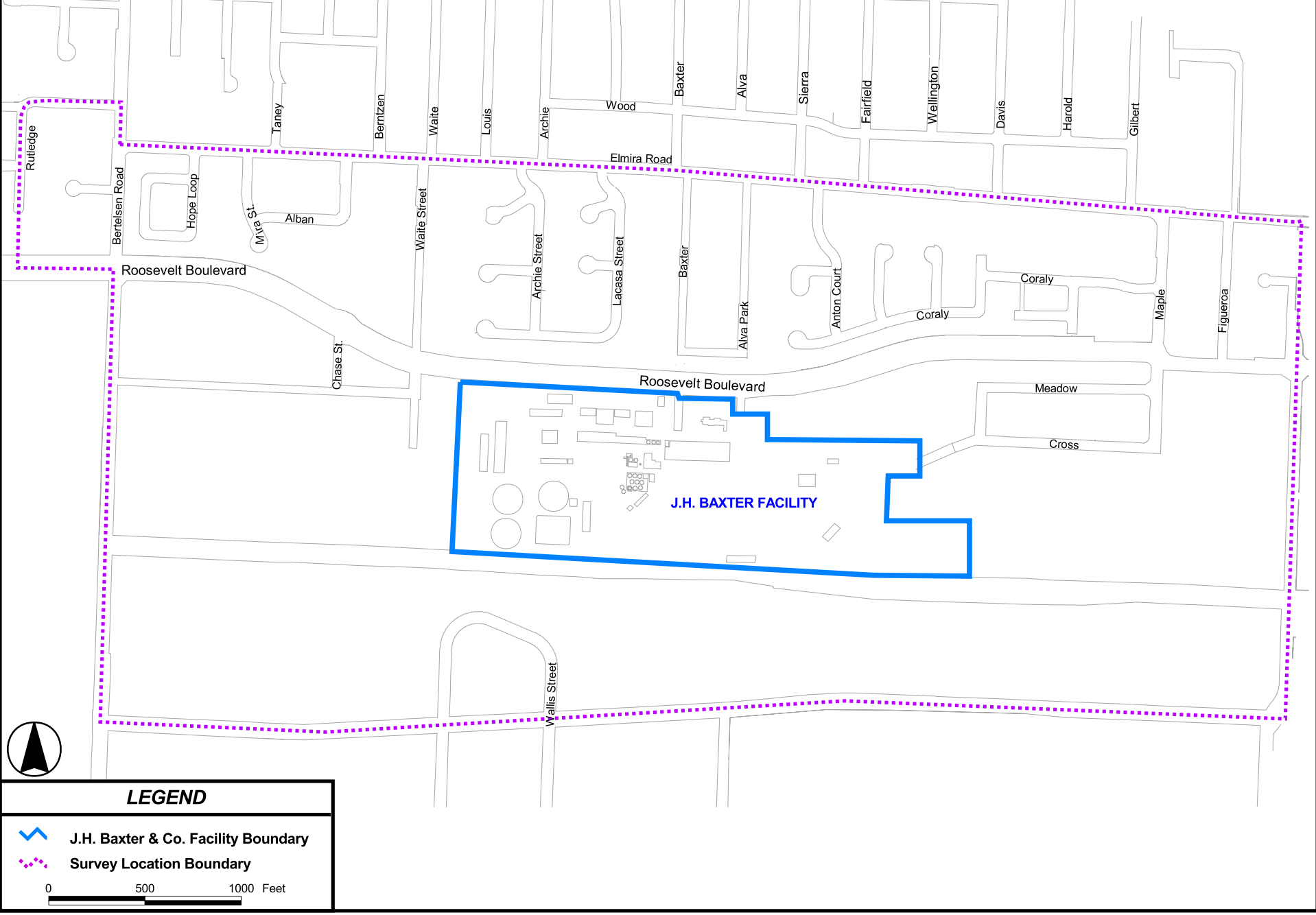
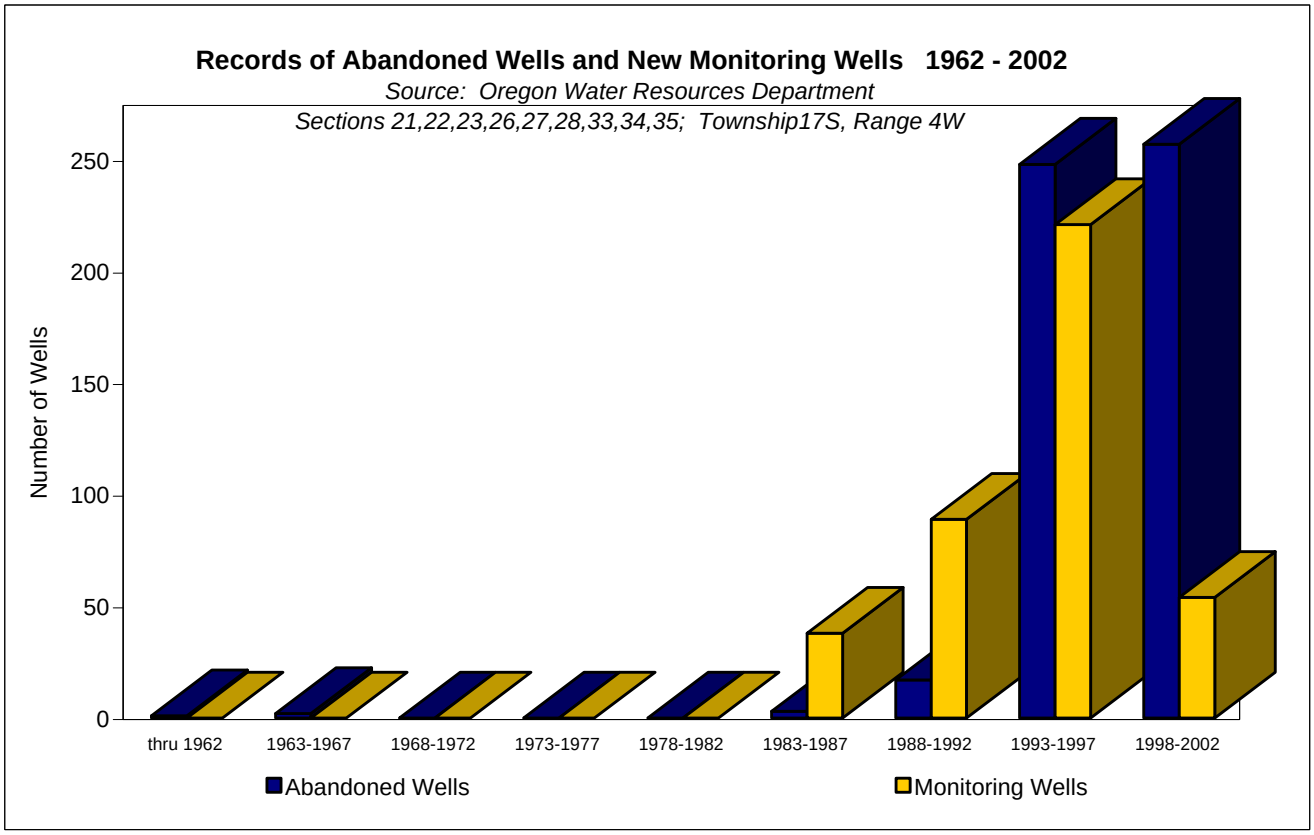


Figure 7. Postcard and Door-to-Door Survey Location - JH Baxter - Eugene, Oregon



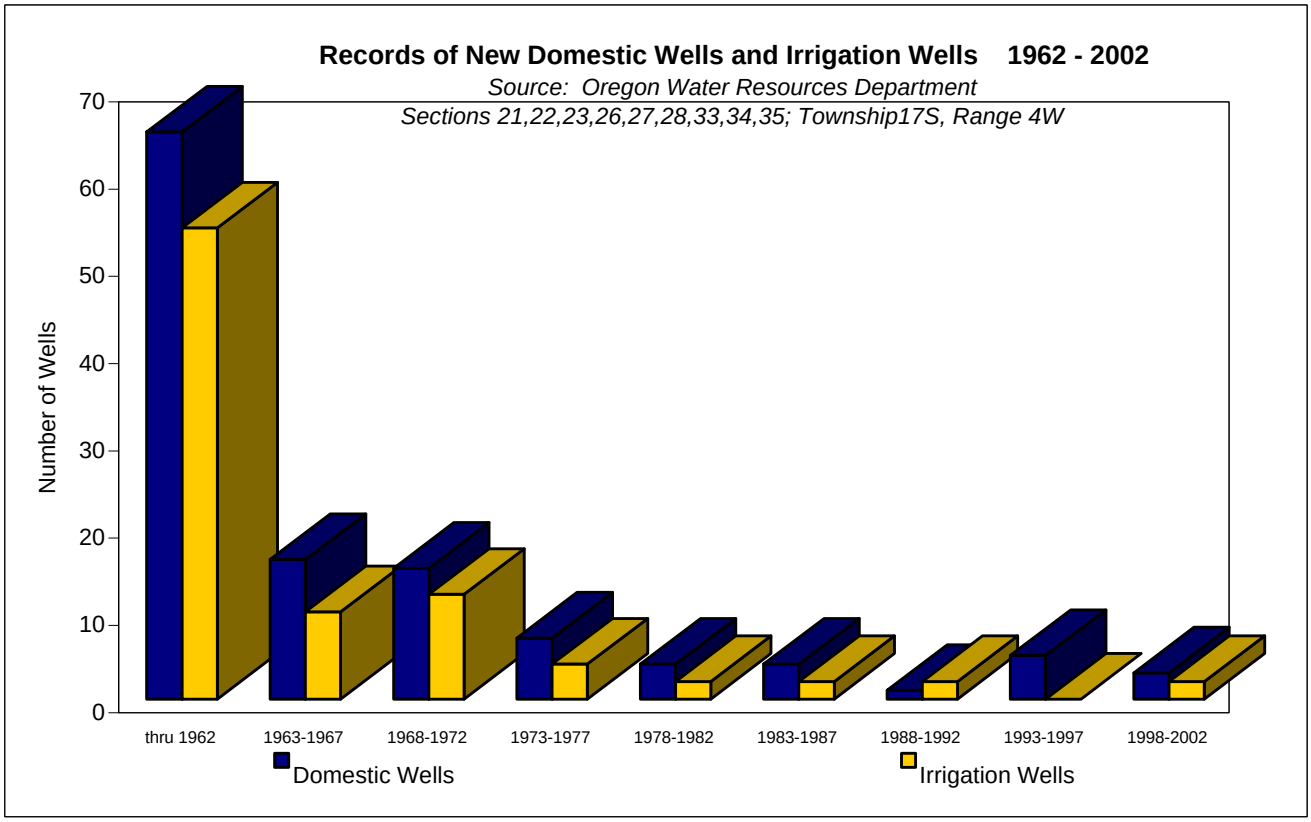


Figure 8 . Trends in Water Use in Wells

Tables

Table 1. Summary of Water Use Surveys

Name	Address	Water Supplied by City	Well on Property	Current use	Plan to Make Changes?	Survey Type	Remarks
Resident	2925 W. Elmira	Y	N		N	mail	
Resident	2940 W. Elmira	Y	Y	irrigation	N	mail	Well pumped in summer for irrigation
Resident	2950 W. Elmira	Y	N		No answer	mail	
Resident	3039 W. Elmira	Y	N		N	mail	
Resident	3041 Elmira	Y	N		N	field	
Jane Thomson	3080 W. Elmira	Y	N		N	mail	
Resident	3085 Elmira	Y	N		N	field	
Ann McCoy	3125 Elmira	Y	N		N	mail	
Resident	3175 Elmira	Y	N		N	field	
Resident	3185 Elmira	Y	Y	abandoned	N	field	Well not in use - Abandoned
JC Kelly	3265 Elmira	Y	N		N	mail	
Resident	3285 Elmira	Y	N		N	field	
Resident	3310 W. Elmira	Y	N		N	mail	
Resident	3324 W. Elmira	Y	N		N	mail	
Resident	3325 Elmira	Y	N		N	field	
Resident	3327 Elmira	Y	N		N	field	
Resident	3329 Elmira	Y	N		N	field	
Resident	3341 Elmira	Y	N		N	field	
Resident	3355 Elmira	Y	N		N	field	
Simpson	3365 Elmira	Y	N		N	mail	
Lawrence and Sandra Gregson	3375 Elmira	Y	N		N	mail	
Delmar L. Smith	3390 Elmira	Y	N		NA	mail	
Resident	3451 Elmira	Y	N		N	field	
Rich and Teresa Watson	3510 Elmira	Y	Y	irrigation	N	field	Field survey conducted by Baxter, well is used for irrigation
Bob Ticer	3520 Elmira	Y	Y	irrigation	N	field	Well used only for irrigation
David and Carmela Kortum	3521 Elmira	Y	N		N	mail	
Nina Hatch	3577 Elmira	Y	Y	broken	N	field	Well not currently in use - pump doesn't work
Tom Crisman	3585 Elmira	Y	Y	buried	N	field	Well not currently in use - buried, still open
Resident	3615 Elmira	Y	N		N	field	
Carrie Thompson	3740 Elmira	Y	NS		N	field	May be a well on-site - never been used by resident
Resident	3755 Elmira	Y	N		N	field	
Resident	3830 Elmira	Y	NA		N	field	
Sue Paul	3841Elmira	Y	Y	irrigation	N	field	Well used for irrigation only - switched to city water 7 years ago
Resident	3861 Elmira	Y	N		N	field	
Resident	3879 Elmira	NA	NA	NA	NA	field	Nobody home
Deanna Cramer	3810 Elmira	Y	N		N	field	
Sam Waddle	3880 Elmira	Y	Y	irrigation	N	field	Well used only for irrigation
Resident	3885 Elmira	NA	NA	NA	NA	field	Not sure of water source, sublet property - hose spigot in yard only source of water
Resident	3890 Elmira	Y	N		N	field	
Resident	3894 Elmira	Y	N		N	field	
Resident	3910 Elmira	NA	NA	NA	NA	field	Nobody home
Fairfield Baptist Church	3991 Elmira	NA	Y	irrigation	N	field	Well used for irrigation only
Fortuna Distributing	3225 W 1st	Y	N		N	field	
Oak Harbor Freight Lines	3281 W 1st	Y	N		N	field	
West Wind Forest Products	3445 W 1st	Y	N		N	field	
Industrial Finishes & Systems Inc.	3455 W 1st	Y	N		N	mail	
Western Graphics Group	3535 W 1st	Y	N		N	field	
Oregon Rubber Co.	3595 W 1st	Y	N		N	field	
Henry Manufacturing	3675 W 1st	Y	N		N	field	
Master Machine	3975 W 1st	Y	N		N	field	
Whittier Wood Products	3787 W 1st	Y	Y	abandoned	N	field	Well not in use - Abandoned
Resident	3822 Alban	Y	N		N	field	
Resident	3833 Alban	Y	N		N	field	
Resident	3836 Alban	Y	N		N	field	
Resident	3911 Alban	Y	N		N	field	
Resident	136 Alton	Y	N		N	field	
Resident	152 Alton	Y	N		N	field	
Resident	195 Alton	Y	N		N	field	
Resident	202 Alton	Y	N		N	field	
Resident	203 Alton	Y	N		N	field	
Resident	238 Alton	Y	N		N	field	
Resident	242 Alton	Y	N		N	field	

Name	Address	Water Supplied by City	Well on Property	Current use	Plan to Make Changes?	Survey Type	Remarks
Resident	310 Alton	Y	N		N	field	
Resident	322 Alton	Y	N		N	field	
Resident	351 Alton	Y	N		N	field	
Resident	393 Alton	Y	N		N	field	
Resident	211 Alva Park Drive	Y	Y	abandoned	N	field	Well not in use - Abandoned
Resident	235 Alva Park Drive	Y	N		N	field	
Katherine Pingelton	275 Alva Park Drive	Y	N		N	mail	
Resident	312 Alva Park Drive	Y	N		N	field	
Resident	333 Alva Park Drive	Y	Y	abandoned	N	field	Former well abandoned in 1967
Daniel R. Perkins	344 Alva Park Drive	Y	N		N	mail	
John Hamburg	353 Alva Park Drive	Y	Y	broken	Y	field	The well is currently not in use due to a broken pump, however the resident plans to fix the pump. It has been 1 yr since the resident last used the well for irrigation.
Jon Bridges	374 Alva Park Drive	Y	Y	broken	Y	field	The well is currently not functional, but might be fixed for use in irrigation
Resident	212 Baxter Road	Y	N		N	field	
Resident	215 Baxter Road	Y	N		N	field	
Resident	230 Baxter Road	Y	N		N	field	
Resident	234 Baxter Road	Y	N		N	field	
G. Thailman	235 Baxter Road	Y	Y	abandoned	N	field	Confirmed by Baxter on 3/14/02 that well was abandoned.
Resident	242 Baxter Road	Y	N		N	field	
Rene Berry	245 Baxter Road	Y	N		N	mail	
Michael & Irene Eastman	250 Baxter Road	Y	Y	unused	N	mail	Well is not in use
Resident	275 Baxter Road	Y	N		N	field	
Resident	320 Baxter Road	Y	N		N	field	
Carothers & Son Ltd.	71 & 75 S. Bertelsen Road	Y	N		N	mail	
Dan Rodrigues	192 N. Bertelsen Road	Y	N		N	mail	
Dale Wonn- Trus Joist	195 N. Bertelsen Road	Y	N		N	mail	
Comac Veneer	199 Bertelsen Road	Y	Y	abandoned	N	field	Field survey conducted by Baxter, well is abandoned
C&K Profit Sharing Trust	285 Bertelsen Road	Y	Y	industrial	N	field	Field survey conducted by Baxter, well is used for industrial purposes
Resident	362 Bertelsen	Y	N		N	field	
Rebecca Meter	366 N. Bertelsen Road	Y	N		N	mail	
Troy Thorn	410 N. Bertelsen Road	Y	N		N	mail	
Mike Hershberger- Evergreen Roofing	152 Chase Street	Y	N		N	field	
Pauline Young	151 Chase Street	Y	N		N	mail	
Resident	3925 Chase Street	Y	N		N	field	
Willamette Roofing - Kim Glispie	3991 Chase Street	Y	Y	abandoned	N	field	Old well- possibly abandoned
Resident	3188, 3196, 3214, & 3224 Coraly	Y	N		N	field	
Resident	3219, 3207, 3193, 3189, & 3185 Coraly	Y	N		N	field	
Resident	3130 Coraly	Y	N		N	field	
Sandra F. Guzdek	3150 Coraly	Y	N		N	mail	
Resident	3243, 3239, 3231, 3227, & 3225 Coraly	Y	N		N	field	
Resident	3261, 3255, & 3251 Coraly	Y	N		N	field	
Resident	3267 Coraly	Y	N		N	field	
Resident	3296 Coraly	Y	N		N	field	
Resident	3382 Coraly	Y	N		N	field	
Resident	3383 Coraly	Y	N		N	field	
Resident	3385 Coraly	Y	N		N	field	
Resident	3388 Coraly	Y	N		N	field	
Cascade Plating & Machine- Gary Dybeuik	3790 Cross Street	Y	Y	industrial	N	mail	Well is used for sampling and monitoring only
Resident	3831 Cross Street	Y	N		N	mail	
# 1 NW Mobile Home Service	3879 Cross Street	Y	N		N	field	
Andrew Slztynelski	3901 Cross Street	Y	N		N	field	
A. G. Boles	3965 Cross Street	Y	Y	unused	N	field	Well is not used & possibly dry, was used for irrigation ~ 20 years ago
Mike Karigan	3951 Cross Street	Y	N		N	mail	
PFS Med. Inc.	3295 Cross Street	Y	N		N	field	
Pacific Recycling Inc.	3300 Cross Street	Y	N		N	field	
Frances Denson	225 Figueroa Street	Y	N		N	mail	
Resident	226 Figueroa Street	Y	N		N	field	
Tammy Shay	244 Figueroa Street	Y	N		N	mail	
Lloyd Slonecker	266 Figueroa Street	Y	N		N	mail	
Resident	295 Figueroa Street	Y	N		N	field	
Gerrit Sluyk	345 Figueroa Street	Y	Y	unused	N	mail	Not used
Resident	365 Figueroa Street	Y	NS		Y	field	Possibly an old well on the property, may install a new well for irrigation
Resident	374 Figueroa Street	Y	N		N	mail	
Aday's Market	430 Gilbert Street	Y	N		N	mail	
Resident	445 W. Gilbert Street	Y	N		N	mail	

Name	Address	Water Supplied by City	Well on Property	Current use	Plan to Make Changes?	Survey Type	Remarks
Christopher Seals- American Barricade	60 Grimes Street	Y	N		N	field	
Jackson Ceiling Systems, Inc.	70 Grimes Street	Y	N		N	mail	
Resident	306 Hope Loop	Y	N		N	field	
Travis Kimber	316 Hope Loop	Y	N		N	mail	
Resident	324 Hope Loop	Y	N		N	field	
Resident	335 Hope Loop	Y	N		N	field	
Resident	338 Hope Loop	Y	N		N	field	
Resident	348 Hope Loop	Y	N		N	field	
Resident	350 Hope Loop	Y	N		N	field	
Nick & Kim Schenfeld	356 Hope Loop	Y	N		N	mail	
Resident	368 Hope Loop	Y	N		N	field	
Pablo Osohampo	381 Hope Loop	Y	N		N	mail	
Joseph J. Russell	185 Maple Street	Y	N		N	mail	
Paula Corson	225 Maple Street	Y	N		N	mail	
Ann Barr	245 Maple Street	Y	Y	unused	Y	mail	Well is currently not used, but they would like to make it functional
Resident	246 Maple Street	Y	N		N	field	
Resident	285 Maple Street	Y	N		N	field	
Trox	320 Maple Street	Y	Y	unused	Y	mail	Well is currently not used, but they would like to reactivate it for irrigation in 2003 or 2004
Resident	332 Maple Street	Y	N		N	field	
Resident	344 Maple Street	Y	N		N	field	
Resident	345 Maple Street	Y	N		N	field	
Sheila M. Rankin	364 Maple Street	Y	N		N	mail	
E. D. Claflin	365 Maple Street	Y	Y	irrigation	possibly	field	Well is not currently used, but they may use it for irrigation
Resident	382 W. Maple Street	Y	N		N	mail & field	
Resident	3165 Meadow Lane	Y	N		N	field	
Resident	3180 Meadow Lane	Y	N		N	field	
Meadow Lane Self Storage	3220 Meadow Lane	Y	N		N	field	
Key Industries	175 Davis Street & 3290 Meadow Lane	Y	N		N	field	
John Knickbocker	302 Mira	Y	N		N	field	
Joe Adair	310 Mira	Y	N		N	field	
Rona Provines	318 Mira	Y	N		N	field	
Resident	337 Mira	Y	N		N	field	
Resident	359 Mira	Y	N		N	field	
Clayton Townsend	393 Mira	Y	N		N	field	
Yale	3350 Roosevelt	Y	N		N	field	
Don Raridon	3849 Roosevelt	Y	Y	abandoned	Y	field	One well abandoned in 1995, and a new well will be installed
Equipment Connection	3894 Roosevelt	Y	N		N	field	
Cascade Phillips / Sanipot	3922 Roosevelt	N	Y	domestic	Y	field	Well used for irrigation and domestic. City water available nearby
Dan McIntyre- McIntyre Construction	3970, 3980, & 3990 Roosevelt	Y	Y	irrigation	N	field	One well used by three buildings as an irrigation well
Karen Watkws	360 Rutledge Street	Y	N		N	mail	
Steve Rochelle	375 Rutledge Street	Y	N		N	mail	
Aaron Rose	355 Rutledge Street	Y	N		N	field	
Jerry Jackson	365 Rutledge Street	Y	N		N	field	
Chad Weston	385 Rutledge Street	Y	Y	broken	Y	mail	Well hasn't pumped since 1999, planning to use for irrigation and landscape
Karen McIntire	405 Rutledge Street	Y	Y	broken	N	field	Well is unused and not functional
Tamara Felix	460 Rutledge Street	Y	Y	irrigation/ recreation	N	field	Well is used for irrigation and recreation
David Scheider	465 Rutledge Street	Y	N		N	field	
Ray-O-Lite Signs	101 Seneca	Y	N		N	field	
Ass. Heating & Air Conditioning	105 Seneca	Y	N		N	field	
Dennis Pruitt- Western Pnuematics	110 Seneca	Y	N		N	field	
Brian's Antiques	115 Seneca	Y	N		N	field	
Glorybee Foods	120 N. Seneca	Y	N		N	mail	
Resident	135 Seneca	Y	N		N	field	
Steve Carnes	153 N. Seneca	Y	N		N	mail	
Allen Burton	173 N. Seneca	Y	N		N	mail	
Resident	179 Seneca	Y	N		N	field	
Larraine Zurke	195 N. Seneca	Y	N		N	mail	
My Printing Shop	199 Seneca	Y	N		N	field	
Zip-O-Log	1225 Waite Street	Y	Y	industrial	N	field	Well used to keep logs wet
Scott Sombart	191 Waite Street	Y	Y	abandoned	Y	mail	The well was abandoned and filled in 10/2000, but he would like to install a new well for irrigation
Virginia Schmidt	214 Waite Street	Y	Y	broken	Y	field	Well is currently not functional, but would like another well
Jeff Bandow	240 Waite Street	Y	Y	abandoned	N	mail	Well is abandoned, sealed and covered over

Name	Address	Water Supplied by City	Well on Property	Current use	Plan to Make Changes?	Survey Type	Remarks
Steven Freiberg	255 Waite Street	Y	Y	irrigation	N	field	Field survey conducted by Baxter, well is used for irrigation
Resident	271 Waite Street	Y	N		N	field	
McGregor	274 Waite Street	Y	Y	irrigation	N	mail	Well is currently used for irrigation
Louise Seven	285 Waite Street	Y	Y	unused	N	field	Two onsite wells, both not used
Paula Hall	304 Waite Street	Y	Y	irrigation	N	field	Well is used for irrigation
Kimm N. Marshall	305 Waite Street	Y	Y	irrigation	N	mail	Well is used for irrigation
Tom Furrer	350 Waite Street	Y	N		N	mail	
Resident	365 Waite Street	Y	N		N	field	
Resident	3200 W. Wood Avenue	Y	N		N	mail	
Resident	3386 W. Wood Avenue	Y	N		N	mail	
Resident	3390 W. Wood Avenue	Y	NS		N	mail	Unsure if there is a well
Resident	3396 W. Wood Avenue	Y	N		N	mail	
Resident	3486 W. Wood Avenue	Y	N		N	mail	
Resident	3492 W. Wood Avenue	Y	N		N	mail	
Resident	3516 Wood Avenue	Y	N		Y	mail	Changes are unspecified
Resident	3596 W. Wood Avenue	Y	Y	irrigation	N	mail	Well is used for irrigation
Resident	3690 W. Wood Avenue	Y	N		N	mail	
Gabe Villalobos	4020 Wood Avenue	Y	Y	irrigation	N	field	Well is used for irrigation
Suzie Stephenson	4025 Wood Avenue	Y	N		N	field	
Resident	4030 Wood Avenue	Y	N		N	field	
Edward Brown	4040 Wood Avenue	Y	N		N	field	
NG	4045 Wood Avenue	Y	N		N	field	
Kim Eng	4055 Wood Avenue	Y	N		N	mail	
James Trunnell- Partner Meadow Ln LLC	796 Hwy 99 W	Y	N		N	mail	
Margaret Boiler	266 Anton Court	Y	N		N	mail	
R. Winniger	278 Anton Court	Y	N		N	mail	
Resident	487 W. Archie	Y	N		N	mail	
Nathan- Phillips Electric Inc.	1298 Bethel Drive	Y	N		N	mail	
Resident	450 W. Louis	Y	Y	irrigation	N	mail	Well is used for irrigation
Resident	443 W. Sierra	Y	Y	irrigation	N	mail	Well is used for irrigation

Note:
NA - no answer
NS - occupant not sure

Table 2. Summary of Water Wells

Well Number	Address	Owner	Depth (feet)	Year	In Locality of Facility	Current Status	Information Source
1	211 Alva Park Drive	--	--	--	N	Not Used	Survey
2	353 Alva Park Drive	John Hamburg	--	--	N	Not Used	Survey
3	374 Alva Park Drive	Jon Bridges	--	--	N	Not Used	Survey
4	476 Archie Street	Mel Spiecker	21	1963	N	Domestic, Irrigation	Log
5	235 Baxter Road	G. Thailman (formerly owned by F Moshberger)	19	1961	Y	Abandoned	Survey
6	250 Baxter Road	Michael & Irene Eastman	--	--	Y	Not Used	Survey
7	13 Bertelsen Road	Lane Plywood (formerly Cascade Resin)	150	1968	N	Industrial	Log
8	199 Bertelsen Road	Comac Veneer	130	1966	Y	Abandoned	Survey, Log
9	65 Bertelsen Road	Lane Plywood	120	1984	Y	Abandoned	Log
10	65 Bertelsen Road	Lane Plywood	140	1984	Y	Abandoned	Log
11	65 Bertelsen Road	Lane Plywood	165	1984	Y	Abandoned	Log
12	465 Bertesen Road	Lane Plywood	150	1968	Y	Abandoned	Log
13	285 Bertelsen Road	C&K Profit Sharing Trust	31	--	Y	Industrial	Survey
14	Bertlesen Road	Wildish Paving	76	1993	Y	Abandoned Domestic	Log
15	3790 Cross Street	Cascade Plating and Machine	75	2000	Y	Abandoned Industrial	Log
16	3790 Cross Street	Cascade Plating and Machine - Gary Dybevik	20-50	--	Y	Monitoring Wells	Survey
17	3965 Cross Street	A.G. Boles	--	--	Y	Abandoned/Collapsed	Survey
18	2940 Elmira Street	--	--	--	N	Irrigation	Survey
19	3510 Elmira Street	Rich and Teresa Watson	--	--	N	Irrigation	Survey
20	3520 Elmira Street	Bob Ticer	--	--	N	Irrigation	Survey
21	3577 Elmira Street	Nina Hatch	--	--	N	Not Functional	Survey
22	3585 Elmira Street	Tom Crisman	--	--	N	Not Functional	Survey
23	3841 Elmira Street	Douglas and Sue Paul	--	--	Y	Irrigation	Survey
24	3879 Elmira Street	--	--	--	Y	Irrigation	Survey
25	3880 Elmira Street	Sam Waddle	26	--	Y	Irrigation	Survey
26	3991 Elmira Street	Fairfield Baptist Church - John Gayle	180	--	Y	Irrigation	Survey
27	345 Figueroa Street	Gerrit Sluyk	17	--	N	Not Used	Survey
28	450 Louis	--	20	--	Y	Irrigation	Survey
29	245 Maple Drive	Ann Barr	--	--	N	Not Used	Survey
30	365 Maple Street	E.D. Claflin	--	--	N	Not Used	Survey
31	3922 Roosevelt Blvd.	Cascade Phillips / Sanipot	34	1995	Y	Domestic, Industrial	Survey, Log
32	3970,3980,3990 Roosevelt Blvd.	McIntyre Construction - Dan McIntyre	--	--	Y	Irrigation	Survey, Log
33	3849 Roosevelt Street	Don Raridon	60	--	Y	Not Used	Survey
34	385 Rutledge Street	Chad Weston	--	--	Y	Irrigation	Survey
35	405 Rutledge Street	Karen McIntyre	--	--	Y	Not Functional	Survey
36	460 Rutledge Street	Tamara Felix	24	1961	N	Irrigation, Recreational	Survey, Log
37	443 Sierra Street	James D. Miller	85	1989	N	Irrigation	Survey, Log
38	191 Waite Street	Scott Sombart	20	--	Y	Abandoned	Survey
39	214 Waite Street	Harold Schmidt	32	--	Y	Well dry/collapsed	Survey
40	215 Waite Street	Gerald Biente	19	--	Y	Irrigation	Log
41	240 Waite Street	Jeff Bandow	--	--	Y	Abandoned	Survey
42	255 Waite Street	Steven Freiberg	31	--	Y	Irrigation	Survey
43	274 Waite Street	Gregor McGregor	40	--	Y	Not Used	Survey
44	285 Waite Street	Louise Seven	2 at 60	--	Y	1 Not Used/1 Abandoned	Survey
45	304 Waite Street	Paula and Eric Hall	22	--	Y	Irrigation	Survey
46	305 Waite Street	Kimm Marshall	18	--	Y	Irrigation	Survey
47	Waite Street	Zip-O-Log - Jack Leniger	125	--	Y	Industrial	Survey
48	3596 Wood Avenue	Harold Hepner	27	1970	N	Irrigation	Survey, Log
49	3680 Wood Avenue	George W. Shafer	21	1965	N	Domestic, Irrigation	Log

Notes:
1. "--" indicates information not available.
2. Survey: Source was a returned landowner survey or field survey
   Log: Source was Oregon Water Resources Department well log.

Appendix A

Mail and Field Survey Forms

(not included in this electronic copy)

Appendix B

Oregon Water Resources Department Well Logs

(not included in this electronic copy)

Appendix C

Oregon Water Resources Department Well Records

(not included in this electronic copy)