

State of Oregon  
Department of Environmental Quality

Memorandum

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**Date:** March 6, 2025

**To:** FILE

**Through:** Kevin Parrett and Katie Daugherty

**From:** Kevin Dana  
Northwest Region

**Subject:** Oregon Plastic Tubing, ECSI #6521; Staff Memorandum in support of a Conditional No Further Action determination

This document presents the basis for the Oregon Department of Environmental Quality's (DEQ's) recommended Conditional No Further Action (CNFA) determination for the Oregon Plastic Tubing site in Clackamas County. As discussed in this report, contaminant concentrations in shallow groundwater exceed acceptable risk levels for applicable exposure pathways. Consequently, the No Further Action determination will be conditioned upon adherence to restrictions recorded in an Easement & Equitable Servitudes attached to the property deed.

The proposed CNFA determination meets the requirements of Oregon Administrative Rules (OAR) Chapter 340, Division 122, Sections 010 to 0140; and Oregon Revised Statutes (ORS) 465.200 through 465.455.

The proposal is based on information documented in the administrative record for this site. A copy of the administrative record index is presented at the end of this report.

## 1. BACKGROUND

### Site location.

The site's location can be described as follows:

- Address: 6401 & 6402 South Miller Road, Hubbard, Clackamas County, Oregon.
- Latitude 45.1656° North; Longitude 122.7362° West
- Tax Lot 700, Township 5 South, Range 1 East, Section 6, Willamette Baseline and Meridian.

### Site setting.

The Oregon Plastic Tubing property is located in a rural, unincorporated area 3½ miles east-southeast of Hubbard. See Attachment 1 for a topographic map of the area and Attachment 2 for an aerial photo of the property. The property covers 61.31 acres on three tax lots (600, 700 & 1000), and extends north and south of Miller Road on the west side of Rock Creek. Only the 12.03-acre tax lot 700 (the "site"), covering the northeast quarter of the property, appears to have

been impacted by contamination. The northwest quarter of the property is used as a hazelnut orchard. Surrounding properties are farmlands and orchards.

**Hydrogeological setting.**

Soil borings advanced at the site in 2022 generally encountered silts mixed with clay and sand to depths of about 7 feet below ground surface (bgs), underlain by sand to the maximum explored depth of 20 feet bgs. Shallow groundwater was encountered in the borings at about 11 feet bgs.

Soil borings advanced along the eastern edge of the site in 2023 encountered clay layers extending 12-17 feet bgs, underlain by sand. Groundwater was encountered at 16 feet bgs.

The well log for the on-site domestic well shows mostly clayey soils to a depth of 85 feet bgs, with a silt layer from 31-43 feet bgs and a sand layer from 68-83 feet bgs. Groundwater was encountered in both the silt layer and the sand layer. See Attachment 3 for a copy of the well log.

**Site history.**

A brick and clay tile manufacturing facility was established on the south side of Miller Road in the 1890s. The office and shop building on the north side of Miller Road was constructed in 1950. Oregon Plastic Tubing and Pacific Corrugated Plastics, manufacturers of corrugated plastic tubing for irrigation and stormwater systems, began operating at the facility in 1982. Prinsco Water Management Solutions acquired the two companies and the property in 2022.

**2. BENEFICIAL LAND AND WATER USE DETERMINATIONS**

**Land use.**

The site is zoned Exclusive Farm Use (EFU) by Clackamas County. The site's industrial use was likely grandfathered in when Oregon's land use planning laws were adopted in the 1960s and 1970s.

**Groundwater use.**

A domestic water well is present on the west edge of the site, near the center of the property, as shown on Attachment 2. At the time the well was installed (March 1991) groundwater was encountered in two distinct layers, at 31 feet and 68 feet bgs, and the static water level was 12 feet bgs. See Attachment 3 for a copy of the well log.

A beneficial water use determination, conducted in 2022, identified 24 well logs in the same township/range/section as the site. Four of the well logs were registered to Needy Brick & Tile, including the on-site domestic well and domestic wells to the east (6451 South Miller Road) and southeast (6492 South Miller Road) of the site. The fourth log was an alteration/repair log.

**Surface water use.**

Rock Creek borders the property to the north, east and south, and wetlands associated with the creek extend onto the property, as shown on Attachment 4. Rock Creek is designated as Essential Salmonid Habitat. The creek flows north approximately three miles before discharging

to the Pudding River, as shown on Attachment 5. Stormwater at the facility either runs off the surface or infiltrates into the ground.

### **3. INVESTIGATION AND CLEANUP WORK**

A Phase I Environmental Site Assessment (ESA) was completed for the facility in March 2022. The Phase I ESA identified three Recognized Environmental Conditions (RECs) at the facility. The first was the presence of two aboveground storage tanks (ASTs): a 10,000-gallon diesel AST and a 6,000-gallon gasoline AST. Second was a record of two underground storage tanks (USTs): a 12,000-gallon diesel UST and a 10,000-gallon gasoline UST. The USTs were reportedly installed in the mid-1970s and decommissioned by removal in January 1991. Third was the presence of two on-site septic drain fields: one on the northeast corner of the office and shop building, and one on the southwest corner of the pipe manufacturing plant.

Seven borings, labeled GP-1 through GP-7, were advanced around the facility in April 2022 to look for potential contamination as part of a Phase II ESA. The boring locations are shown on Attachment 6. Soil and groundwater samples were collected from the borings and analyzed for petroleum products, polycyclic aromatic hydrocarbons (PAHs), and volatile organic compounds (VOCs).

Gasoline was identified in the soil in GP-7, on the southwest corner of the office and shop building, at a concentration of 9,930 parts per million (ppm) at a depth of 8-9 feet bgs, along with diesel at 1,370 ppm. The gasoline and diesel concentrations decreased to 3,760 ppm and 374 ppm, respectively, at 14-15 feet bgs. VOCs included benzene (35.9 ppm), ethylbenzene (91.1 ppm), isopropylbenzene (15.6 ppm), naphthalene (42.2 ppm), toluene (306 ppm), 1,2,4-trimethylbenzene (241 ppm), 1,3,5-trimethylbenzene (80.9 ppm), and xylenes (435 ppm). Diesel (166 ppm) and heavy oils (856 ppm) were detected in a shallow soil sample (½-1½ feet bgs) from boring GP-4, on the east side of the office and shop building. Little to no contamination was detected in the other soil samples.

Gasoline was identified in the groundwater in GP-3, on the southeast corner of the office and shop building, at a concentration of 22,800 parts per billion (ppb). Diesel (2,130 ppb) was also detected, along with benzene (9,080 ppb), 1,2-dibromoethane (4.7 ppb), 1,2-dichloroethane (16.4 ppb), ethylbenzene (2,230 ppb), isopropylbenzene (80.7 ppb), naphthalene (397 ppb), toluene (1,390 ppb), 1,2,4-trimethylbenzene (1,500 ppb), 1,3,5-trimethylbenzene (360 ppb), and xylenes (8,280 ppb). Higher concentrations of gasoline (23,300 ppb) and toluene (1,910 ppb) were detected in GP-7, but other contaminant concentrations were lower. Low concentrations of gasoline, diesel, and VOCs were also detected in the groundwater in GP-4, GP-5, and GP-6.

The petroleum contaminants in GP-3 and GP-7 (on the southeast and southwest corners of the office and shop building) were attributed to the two USTs that were decommissioned in 1991. A groundwater monitoring well (MW-1) was installed in the southeast tank pit (in the GP-3 location) in late June 2022. A groundwater sample was collected from MW-1 in July 2022 and analyzed for petroleum products, PAHs, VOCs, and total and dissolved lead. Gasoline (56,800 ppb) and diesel (1,800 ppb) were detected, along with benzene (14,600 ppb), 1,2-dibromoethane

(19.3 ppb), 1,2-dichloroethane (52.9 ppb), ethylbenzene (1,960 ppb), isopropylbenzene (89.8 ppb), naphthalene (456 ppb), toluene (2,240 ppb), 1,2,4-trimethylbenzene (1,560 ppb), 1,3,5-trimethylbenzene (431 ppb), and xylenes (7,470 ppb). Total lead (9.43 ppb) and dissolved lead (2.17 ppb) were also detected.

Two sub-slab vapor samples (SSV-1 and SSV-2) were collected beneath the office and shop building concurrently with the monitoring well sampling. The sample locations are shown on Attachment 7. The vapor samples were analyzed for gasoline and VOCs. Gasoline was detected in one of the samples at a concentration of 1,430 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). Other contaminants, in one or both samples, included benzene ( $2.63 \mu\text{g}/\text{m}^3$ ), chloroform ( $1.79 \mu\text{g}/\text{m}^3$ ), chloromethane ( $0.529 \mu\text{g}/\text{m}^3$ ), ethylbenzene ( $2.62 \mu\text{g}/\text{m}^3$ ), styrene ( $3.11 \mu\text{g}/\text{m}^3$ ), tetrachloroethene ( $944 \mu\text{g}/\text{m}^3$ ), toluene ( $6.14 \mu\text{g}/\text{m}^3$ ), trichlorofluoromethane ( $1.74 \mu\text{g}/\text{m}^3$ ), 1,2,4-trimethylbenzene ( $1.83 \mu\text{g}/\text{m}^3$ ), and xylenes ( $8.45 \mu\text{g}/\text{m}^3$ ).

The on-site water well was also sampled in July 2022. The sample was analyzed for petroleum products, PAHs, VOCs, and total and dissolved lead. Low levels of gasoline (51.6 ppb) and heavy oils (84.2 ppb) were reported. Note, however, that the heavy oil detection barely exceeded the method detection limit of 83.3 ppb, and that gasoline was detected in the method blank at a concentration of 56.7 ppb.

The site entered DEQ's Voluntary Cleanup Program (VCP) in January 2023. In March 2023, DEQ requested that additional samples be collected to determine the nature and extent of contamination at the site.

#### Additional Assessment

Six additional borings (GP-8 through GP-13) were advanced at the site in April 2023. Three of the borings were completed as monitoring wells (MW-2 through MW-4). As shown on Attachment 8, five of the borings (including two monitoring wells) were advanced along the eastern edge of the site. The sixth boring (MW-4) was advanced to the west of the office and shop building. A single soil sample was collected from each boring at a depth of 14-15 feet bgs and analyzed for petroleum and VOCs. Very low levels of contamination were detected, with only up to 1.68 ppm gasoline and 2.77 ppm diesel.

Groundwater samples were collected from the four monitoring wells and analyzed for petroleum products, dissolved lead, and VOCs. The highest contaminant concentrations were in MW-1, including gasoline at 67,400 ppb, ethylbenzene at 2,310 ppb, and xylenes at 9,650 ppb. Moderate concentrations of diesel (699 ppb), heavy oils (843 ppb), and dissolved lead (18.5 ppb) were detected in MW-2 and MW-3. Gasoline (96.8 ppb), diesel (133 ppb), and heavy oils (154 ppb) were detected in MW-4.

Two additional sub-slab vapor samples were collected beneath the office and shop building. The vapor samples were analyzed for gasoline and VOCs. Contaminants included benzene ( $22.4 \mu\text{g}/\text{m}^3$ ), chloromethane ( $4.48 \mu\text{g}/\text{m}^3$ ), ethylbenzene ( $5.72 \mu\text{g}/\text{m}^3$ ), styrene ( $4.51 \mu\text{g}/\text{m}^3$ ),

tetrachloroethene (213  $\mu\text{g}/\text{m}^3$ ), toluene (30.2  $\mu\text{g}/\text{m}^3$ ), trichlorofluoromethane (1.28  $\mu\text{g}/\text{m}^3$ ), 1,2,4-trimethylbenzene (4.10  $\mu\text{g}/\text{m}^3$ ), 1,3,5-trimethylbenzene (1.33  $\mu\text{g}/\text{m}^3$ ), and xylenes (19.1  $\mu\text{g}/\text{m}^3$ ).

#### **Nature and extent of contamination.**

Gasoline, diesel, and VOCs are present in soils and shallow groundwater in the vicinity of the office and shop building, and VOCs are present in sub-slab vapors beneath the building.

## **4. RISK EVALUATION**

### **Conceptual site model.**

A conceptual site model identifies the sources of contamination at a site, the human or ecological receptors that could be exposed to the contamination, and the pathways by which the exposures could occur.

To evaluate human exposure to residual chemical contamination requires an assessment of the type and extent of that exposure. This is based on current and reasonably likely future site use. DEQ publishes risk-based concentrations (RBCs) for contaminants commonly encountered, for different types of exposure scenarios. These RBCs are conservative estimates of protective levels of contaminants in soil, groundwater and air. Table 1 shows potential exposure pathways and receptors for this site. Based on this, applicable RBCs are identified and used for risk screening.

**Table 1. Identification of applicable RBCs, based on pertinent pathways and receptors**

| Pathway                                   | Receptor            | Applicable RBC? | Basis for exclusion |
|-------------------------------------------|---------------------|-----------------|---------------------|
| <b>SOIL</b>                               |                     |                 |                     |
| Ingestion, dermal contact, and inhalation | Residential         | No              | See Note 1.         |
|                                           | Urban residential   | No              | See Note 1.         |
|                                           | Occupational        | Yes             |                     |
|                                           | Construction worker | Yes             |                     |
|                                           | Excavation worker   | Yes             |                     |
| Volatilization to outdoor air             | Residential         | No              | See Note 1.         |
|                                           | Urban residential   | No              | See Note 1.         |
|                                           | Occupational        | Yes             |                     |
| Leaching to groundwater                   | Residential         | No              | See Note 1.         |
|                                           | Urban residential   | No              | See Note 1.         |
|                                           | Occupational        | No              | See Note 2.         |
| <b>GROUNDWATER</b>                        |                     |                 |                     |
| Ingestion and inhalation from tap water   | Residential         | No              | See Note 1.         |
|                                           | Urban residential   | No              | See Note 1.         |
|                                           | Occupational        | No              | See Note 2.         |
| Volatilization to outdoor air             | Residential         | No              | See Note 1.         |
|                                           | Urban residential   | No              | See Note 1.         |
|                                           | Occupational        | Yes             |                     |

| Pathway                      | Receptor                           | Applicable RBC? | Basis for exclusion |
|------------------------------|------------------------------------|-----------------|---------------------|
| Volatilization to indoor air | Residential                        | No              | See Note 1.         |
|                              | Commercial                         | Yes             |                     |
| Groundwater in excavation    | Construction and excavation worker | Yes             |                     |
| <b>SOIL GAS</b>              |                                    |                 |                     |
| Volatilization to indoor air | Residential                        | No              | See Note 1.         |
|                              | Commercial                         | Yes             |                     |

Notes:

1. The impacted portion of the site has been in commercial use since 1950 and is unlikely to be redeveloped for residential use.
2. The contaminated, shallow groundwater is not used for drinking or other domestic purposes.

**Contaminant concentrations.**

Contaminants of Potential Concern (COPCs) are contaminants that are present at a site at concentrations exceeding an RBC for a complete exposure pathway.

Occupants of a site may come into direct contact with soils at the site, to depths of up to 3 feet bgs. Most of the soil contamination at the Oregon Plastic Tubing site resulted from leaking underground storage tanks, so the contamination is at depth (at least 8 feet bgs). However, diesel (166 ppm) and heavy oils (856 ppm) were detected in a shallow soil sample on the east side of the office and shop building. The combined concentration of diesel and heavy oils (1,022 ppm) is less than the occupational RBC of 14,000 ppm for direct contact with diesel-contaminated soils. Therefore, DEQ has determined that the diesel and heavy oils detected in shallow soils are not COPCs for the occupational direct contact exposure pathway.

Construction and excavation workers may come into direct contact with soils at a site to depths of up to 15 feet bgs. Table 2 shows the maximum concentrations of contaminants detected in soils at the Oregon Plastic Tubing site, and compares those concentrations with DEQ's direct contact RBCs for construction and excavation workers to determine if there are any COPCs.

**Table 2. Screening for Construction and Excavation Worker COPCs for the Soil Ingestion, Dermal Contact, and Inhalation exposure pathway.**

| Contaminant of Interest | Maximum Soil Concentration | Construction Worker RBC | Excavation Worker RBC | COPC (Y/N) |
|-------------------------|----------------------------|-------------------------|-----------------------|------------|
| Gasoline                | 9,930 ppm                  | 9,700 ppm               | >MAX                  | Y          |
| Diesel                  | 1,370 ppm                  | 4,600 ppm               | >MAX                  | N          |
| Benzene                 | 35.9 ppm                   | 380 ppm                 | 11,000 ppm            | N          |
| Ethylbenzene            | 91.1 ppm                   | 1,700 ppm               | 49,000 ppm            | N          |
| Isopropylbenzene        | 15.6 ppm                   | 27,000 ppm              | 750,000 ppm           | N          |
| Naphthalene             | 42.2 ppm                   | 580 ppm                 | 16,000 ppm            | N          |

| <b>Contaminant of Interest</b> | <b>Maximum Soil Concentration</b> | <b>Construction Worker RBC</b> | <b>Excavation Worker RBC</b> | <b>COPC (Y/N)</b> |
|--------------------------------|-----------------------------------|--------------------------------|------------------------------|-------------------|
| Toluene                        | 306 ppm                           | 28,000 ppm                     | 770,000 ppm                  | N                 |
| 1,2,4-TMB                      | 241 ppm                           | 2,900 ppm                      | 81,000 ppm                   | N                 |
| 1,3,5-TMB                      | 80.9 ppm                          | 2,900 ppm                      | 81,000 ppm                   | N                 |
| Xylenes                        | 435 ppm                           | 20,000 ppm                     | 560,000 ppm                  | N                 |

Notes:

1. The symbol ">MAX" signifies that the RBC for this pathway is greater than 1,000,000 ppm.
2. TMB = Trimethylbenzene.

Contaminants in soil may volatilize to outdoor air and be inhaled by occupants of the site. Table 3 shows the maximum concentrations of contaminants detected in soils at the site, and compares those concentrations with DEQ's volatilization to outdoor air RBCs to determine if there are any COPCs.

**Table 3. Screening for Occupational COPCs for the Volatilization to Outdoor Air exposure pathway for soils.**

| <b>Contaminant of Interest</b> | <b>Maximum Soil Concentration</b> | <b>Occupational RBC</b> | <b>COPC (Y/N)</b> |
|--------------------------------|-----------------------------------|-------------------------|-------------------|
| Gasoline                       | 9,930 ppm                         | 69,000 ppm              | N                 |
| Diesel                         | 1,370 ppm                         | >MAX                    | N                 |
| Benzene                        | 35.9 ppm                          | 50 ppm                  | N                 |
| Ethylbenzene                   | 91.1 ppm                          | 160 ppm                 | N                 |
| Isopropylbenzene               | 15.6 ppm                          | >CSAT                   | N                 |
| Naphthalene                    | 42.2 ppm                          | 83 ppm                  | N                 |
| Toluene                        | 306 ppm                           | >CSAT                   | N                 |
| 1,2,4-TMB                      | 241 ppm                           | >CSAT                   | N                 |
| 1,3,5-TMB                      | 80.9 ppm                          | >CSAT                   | N                 |
| Xylenes                        | 435 ppm                           | >CSAT                   | N                 |

Notes:

1. The symbol ">CSAT" signifies that the RBC for this pathway would not likely be exceeded unless soils were saturated with the contaminant.
2. The symbol ">MAX" signifies that the RBC for this pathway is greater than 1,000,000 ppm.
3. TMB = Trimethylbenzene.

Contaminants in groundwater may volatilize to outdoor air and be inhaled by occupants of the site. Table 4 shows the maximum concentration of contaminants detected in shallow groundwater at the site, and compares those concentrations with DEQ's volatilization to outdoor air RBCs to determine if there are any COPCs.

**Table 4. Screening for Occupational RBCs for the Volatilization to Outdoor Air exposure pathway for groundwater.**

| <b>Contaminant of Interest</b> | <b>Maximum GW Concentration</b> | <b>Occupational RBC</b> | <b>COPC (Y/N)</b> |
|--------------------------------|---------------------------------|-------------------------|-------------------|
| Gasoline                       | 67,400 ppb                      | >S                      | N                 |
| Diesel                         | 2,130 ppb                       | >S                      | N                 |
| Benzene                        | 14,600 ppb                      | 14,000 ppb              | Y                 |
| EDB                            | 19.3 ppb                        | 790 ppb                 | N                 |
| EDC                            | 52.9 ppb                        | 4,900 ppb               | N                 |
| Ethylbenzene                   | 2,310 ppb                       | 43,000 ppb              | N                 |
| Isopropylbenzene               | 89.8 ppb                        | >S                      | N                 |
| Naphthalene                    | 456 ppb                         | 16,000 ppb              | N                 |
| Toluene                        | 2,240 ppb                       | >S                      | N                 |
| 1,2,4-TMB                      | 1,560 ppb                       | >S                      | N                 |
| 1,3,5-TMB                      | 431 ppb                         | >S                      | N                 |
| Xylenes                        | 9,650 ppb                       | >S                      | N                 |

Notes:

1. The symbol “>S” signifies that the RBC for this pathway is greater than the solubility limit of the contaminant.
2. EDB = 1,2-dibromoethane.
3. EDC = 1,2-dichloroethane.
4. TMB = Trimethylbenzene.

Contaminants in groundwater may volatilize to indoor air and be inhaled by occupants of the site. Table 5 shows the maximum concentration of contaminants detected in shallow groundwater at the site, and compares those concentrations with DEQ’s vapor intrusion into indoor air RBCs to determine if there are any COPCs.

**Table 5. Screening for Commercial RBCs for the Vapor Intrusion into Indoor Air exposure pathway for groundwater.**

| <b>Contaminant of Interest</b> | <b>Maximum GW Concentration</b> | <b>Commercial RBC</b> | <b>COPC (Y/N)</b> |
|--------------------------------|---------------------------------|-----------------------|-------------------|
| Gasoline                       | 67,400 ppb                      | 520 ppb               | Y                 |
| Diesel                         | 2,130 ppb                       | 1,700 ppb             | Y                 |
| Benzene                        | 14,600 ppb                      | 12 ppb                | Y                 |
| EDB                            | 19.3 ppb                        | 1.5 ppb               | Y                 |
| EDC                            | 52.9 ppb                        | 18 ppb                | Y                 |
| Ethylbenzene                   | 2,310 ppb                       | 31 ppb                | Y                 |
| Isopropylbenzene               | 89.8 ppb                        | 9,100 ppb             | N                 |
| Naphthalene                    | 456 ppb                         | 50 ppb                | Y                 |
| Toluene                        | 2,240 ppb                       | 150,000 ppb           | N                 |

| <b>Contaminant of Interest</b> | <b>Maximum GW Concentration</b> | <b>Commercial RBC</b> | <b>COPC (Y/N)</b> |
|--------------------------------|---------------------------------|-----------------------|-------------------|
| 1,2,4-TMB                      | 1,560 ppb                       | 2,400 ppb             | N                 |
| 1,3,5-TMB                      | 431 ppb                         | 1,700 ppb             | N                 |
| Xylenes                        | 9,650 ppb                       | 3,300 ppb             | Y                 |

Notes:

1. EDB = 1,2-dibromoethane.
2. EDC = 1,2-dichloroethane.
3. TMB = Trimethylbenzene.

Construction and excavation workers may come into direct contact with contaminated groundwater at the site. Table 6 shows the maximum concentrations of contaminants detected in shallow groundwater at the site, and compares those concentrations with DEQ's groundwater in excavation RBCs to determine if there are any COPCs.

**Table 6. Screening for Construction & Excavation Worker RBCs for the Groundwater in Excavation exposure pathway.**

| <b>Contaminant of Interest</b> | <b>Maximum GW Concentration</b> | <b>Construct/Excavate Worker RBC</b> | <b>COPC (Y/N)</b> |
|--------------------------------|---------------------------------|--------------------------------------|-------------------|
| Gasoline                       | 67,400 ppb                      | 14,000 ppb                           | Y                 |
| Diesel                         | 2,130 ppb                       | >S                                   | N                 |
| Benzene                        | 14,600 ppb                      | 1,800 ppb                            | Y                 |
| EDB                            | 19.3 ppb                        | 27 ppb                               | N                 |
| EDC                            | 52.9 ppb                        | 630 ppb                              | N                 |
| Ethylbenzene                   | 2,310 ppb                       | 4,500 ppb                            | N                 |
| Isopropylbenzene               | 89.8 ppb                        | 51,000 ppb                           | N                 |
| Naphthalene                    | 456 ppb                         | 500 ppb                              | N                 |
| Toluene                        | 2,240 ppb                       | 220,000 ppb                          | N                 |
| 1,2,4-TMB                      | 1,560 ppb                       | 6,300 ppb                            | N                 |
| 1,3,5-TMB                      | 431 ppb                         | 7,500 ppb                            | N                 |
| Xylenes                        | 9,650 ppb                       | 23,000 ppb                           | N                 |

Notes:

1. The symbol ">S" signifies that the RBC for this pathway is greater than the solubility limit of the contaminant.
2. EDB = 1,2-dibromoethane.
3. EDC = 1,2-dichloroethane.
4. TMB = Trimethylbenzene.

Finally, contaminants in sub-slab vapors may intrude into indoor air. Table 7 shows the maximum concentrations of contaminants detected in sub-slab vapors at the site, and compares those concentrations with DEQ's soil vapor intrusion into indoor air RBCs to determine if there are any COPCs.

**Table 7. Screening for Commercial COPCs for the Soil Vapor Intrusion into Indoor Air exposure pathway.**

| Contaminant of Interest | Maximum Soil Gas Concentration | Commercial RBC            | COPC (Y/N) |
|-------------------------|--------------------------------|---------------------------|------------|
| Gasoline                | 1,430 µg/m <sup>3</sup>        | 40,000 µg/m <sup>3</sup>  | N          |
| Benzene                 | 22.4 µg/m <sup>3</sup>         | 52 µg/m <sup>3</sup>      | N          |
| Chloroform              | 1.79 µg/m <sup>3</sup>         | 18 µg/m <sup>3</sup>      | N          |
| Chloromethane           | 4.48 µg/m <sup>3</sup>         | 13,000 µg/m <sup>3</sup>  | N          |
| Ethylbenzene            | 5.72 µg/m <sup>3</sup>         | 160 µg/m <sup>3</sup>     | N          |
| Styrene                 | 4.51 µg/m <sup>3</sup>         | 150,000 µg/m <sup>3</sup> | N          |
| Tetrachloroethene       | 944 µg/m <sup>3</sup>          | 1,600 µg/m <sup>3</sup>   | N          |
| Toluene                 | 30.2 µg/m <sup>3</sup>         | 730,000 µg/m <sup>3</sup> | N          |
| Trichlorofluoromethane  | 1.74 µg/m <sup>3</sup>         | NITI                      | N          |
| 1,2,4-TMB               | 4.10 µg/m <sup>3</sup>         | 8,800 µg/m <sup>3</sup>   | N          |
| 1,3,5-TMB               | 1.33 µg/m <sup>3</sup>         | 8,800 µg/m <sup>3</sup>   | N          |
| Xylenes                 | 19.1 µg/m <sup>3</sup>         | 15,000 µg/m <sup>3</sup>  | N          |

Notes:

1. NITI = No Inhalation Toxicity Information.
2. TMB = Trimethylbenzene.

In summary, Contaminants of Potential Concern at the site are gasoline, diesel, benzene, 1,2-dibromoethane, 1,2-dichloroethane, ethylbenzene, naphthalene, and xylenes.

### **Human health risk.**

Contaminants of Concern (COCs) are those chemicals at a site that present an unacceptable risk to human health or the environment.

#### Direct Contact with Contaminated Soils

In April 2022, gasoline was identified in the soil in boring GP-7, on the southwest corner of the office and shop building, at a concentration of 9,930 ppm at a depth of 8-9 feet bgs. The concentration exceeds DEQ's RBC of 9,700 ppm for direct contact by construction workers. However, the volume of soils at the site with gasoline concentrations above 9,700 ppm appears to be very limited. In boring GP-7, gasoline concentrations decreased to 3,760 ppm at 14-15 feet bgs, and little to no gasoline was detected in soil samples from 12 additional borings at the site. Given the limited extent of gasoline concentrations above 9,700 ppm, it is unlikely that gasoline in the soil poses an actual direct contact risk to construction workers. Consequently, DEQ has determined that gasoline in the soil is not a COC for the direct contact exposure pathway.

#### Ingestion of Groundwater

Low levels of gasoline (51.6 ppb) and heavy oils (84.2 ppb) were detected in a water sample from the on-site domestic well in July 2022. However, the gasoline detection appears to have been the result of laboratory contamination, as gasoline was present in the method blank at a

concentration of 56.7 ppb, while the heavy oil result barely exceeded the method detection limit of 83.3 ppb. It is unlikely that contamination in the shallow groundwater poses a threat to the domestic aquifer, as the domestic aquifer (at 68 feet bgs) is shielded by dozens of feet of clayey soils and an intermediate groundwater layer, as shown on the well log in Attachment 3. Consequently, DEQ has determined that groundwater ingestion is not an applicable contaminant exposure pathway at this site.

#### Volatilization to Outdoor Air

In July 2022, benzene was detected in a groundwater sample from MW-1, on the southeast corner of the office and shop building, at a concentration of 14,600 ppb. The concentration slightly exceeded DEQ's volatilization to outdoor air RBC of 14,000 ppb for occupational exposures. A subsequent groundwater sample from MW-1 in April 2023 showed 11,900 ppb benzene, and a previous groundwater sample from GP-3 (in the same location) showed 9,080 ppb benzene. All other groundwater samples collected at the site have shown benzene concentrations less than 1,000 ppb. Given the limited extent of benzene concentrations above 14,000 ppb, it is unlikely that benzene in the groundwater poses an actual volatilization to outdoor air risk to occupants of the site. Consequently, DEQ has determined that benzene in the groundwater is not a COC for the volatilization to outdoor air exposure pathway.

#### Vapor Intrusion into Indoor Air

Eight contaminants (gasoline, diesel, benzene, 1,2-dibromoethane, 1,2-dichloroethane, ethylbenzene, naphthalene, and xylenes) were detected in shallow groundwater at concentrations exceeding commercial RBCs for the vapor intrusion into indoor air exposure pathway. The groundwater samples were collected from former tank excavation pits adjacent to the office and shop building at the site. However, four sub-slab vapor samples from beneath the building showed vapor concentrations that were, in most cases, more than an order of magnitude below commercial RBCs for vapor intrusion into indoor air. Given these results, it does not appear that contamination in the shallow groundwater is posing an actual vapor intrusion threat to the office and shop building. Consequently, DEQ has determined that the vapor intrusion into indoor air exposure pathway for groundwater contaminants is not a complete exposure pathway at this site.

#### Direct Contact with Contaminated Groundwater

In April 2022, high concentrations of gasoline (22,800 ppb) and benzene (9,080 ppb) were detected in a shallow groundwater sample from boring GP-3, on the southeast corner of the office and shop building. A similarly high concentration of gasoline (23,300 ppb) was detected in a shallow groundwater sample from boring GP-7, on the southwest corner of the building. The gasoline and benzene concentrations significantly exceeded their respective RBCs of 14,000 ppb and 1,800 ppb for the direct contact by construction and excavation workers exposure pathway. A subsequent groundwater sample from monitoring well MW-1, installed in the same location as boring GP-3 in July 2022, showed 56,800 ppb gasoline and 14,600 ppb benzene. A final groundwater sample from MW-1 in April 2023 showed 67,400 ppb gasoline and 11,900 ppb benzene. Given the magnitude of the exceedances and the location of the contamination (adjacent to a building), gasoline and benzene are COCs for the construction and excavation worker direct contact exposure pathway.

### **Ecological risk.**

A formal ecological risk assessment was not conducted for this site. However, Rock Creek, which is designated as Essential Salmonid Habitat, borders the site to the east, and wetlands associated with the creek extend onto the site, as shown on Attachment 4.

Most of the soil contamination at the site is at depth (at least 8 feet bgs) and not accessible to plants and animals. However, diesel (166 ppm) and heavy oils (856 ppm) were detected in a shallow soil sample from boring GP-4 on the east side of the office and shop building. The combined concentration of diesel and heavy oils (1,022 ppm) is less than the ecological direct contact RBC of 6,000 ppm for birds and mammals, but above the direct toxicity RBC of 260 ppm for plants and invertebrates. However, no plants appear to be present in the vicinity of GP-4 (as shown on Attachments 6 and 7), and the small size and location of the contaminated area (next to a building on an industrial site) makes it unlikely that ecological receptors will be significantly impacted by the contamination. Consequently, the shallow soil contamination is not a COC for ecological receptors.

In April 2023, five borings (GP-8 through GP-12) were advanced along the edge of the wetlands (as shown on Attachment 8), and two of the borings (GP-9 and GP-11) were completed as monitoring wells (MW-3 and MW-2, respectively). Groundwater was encountered in the wells at 16 feet bgs, and static water levels rose to 12-13 feet bgs. Groundwater samples from the two wells showed up to 699 ppb diesel, 843 ppb heavy oils and 18.5 ppb dissolved lead. No gasoline or VOCs were detected.

In December 2024, a reconnaissance was conducted along Rock Creek to determine if there was any evidence (visual or olfactory) of contaminated groundwater reaching the creek. No stressed vegetation or unusual bare patches of ground were noted, and no evidence of petroleum contamination (such as sheens) were observed. A shallow soil sample was collected along the creek bank downgradient from the shallow groundwater plume and analyzed for petroleum products, four VOCs, and lead. Only lead was detected, at a concentration of 17.4 ppm.

Given that the petroleum releases from leaking underground storage tanks likely occurred in the 1980s, and given the concentrations of petroleum constituents remaining in the shallow groundwater, visible impacts to Rock Creek should already be apparent. Since no impacts are apparent, it is likely that the residual groundwater contamination attenuates before reaching Rock Creek. Consequently, the groundwater to surface water exposure pathway does not appear to be complete, and the shallow groundwater contamination is not a COC for ecological receptors.

## **5. RECOMMENDATION**

Gasoline and benzene are present in shallow groundwater in former tank excavation pits adjacent to the office and shop building at concentrations that exceed RBCs for direct contact by future construction and excavation workers. To mitigate the direct contact risk, an Easement & Equitable Servitudes (EES) should be recorded on the property deed requiring that a Contaminated Media Management Plan (CMMP) be prepared and approved by DEQ before any subsurface construction work is conducted around the office and shop building.

As contaminant concentrations do not pose unacceptable risks to the current occupants of the Oregon Plastic Tubing site, a No Further Action determination is recommended, conditioned upon adherence to the requirements in the Easement and Equitable Servitudes. The Conditional No Further Action determination will be recorded in Your DEQ Online (YDO) under Environmental Cleanup Site Information (ECSI) file #6521.

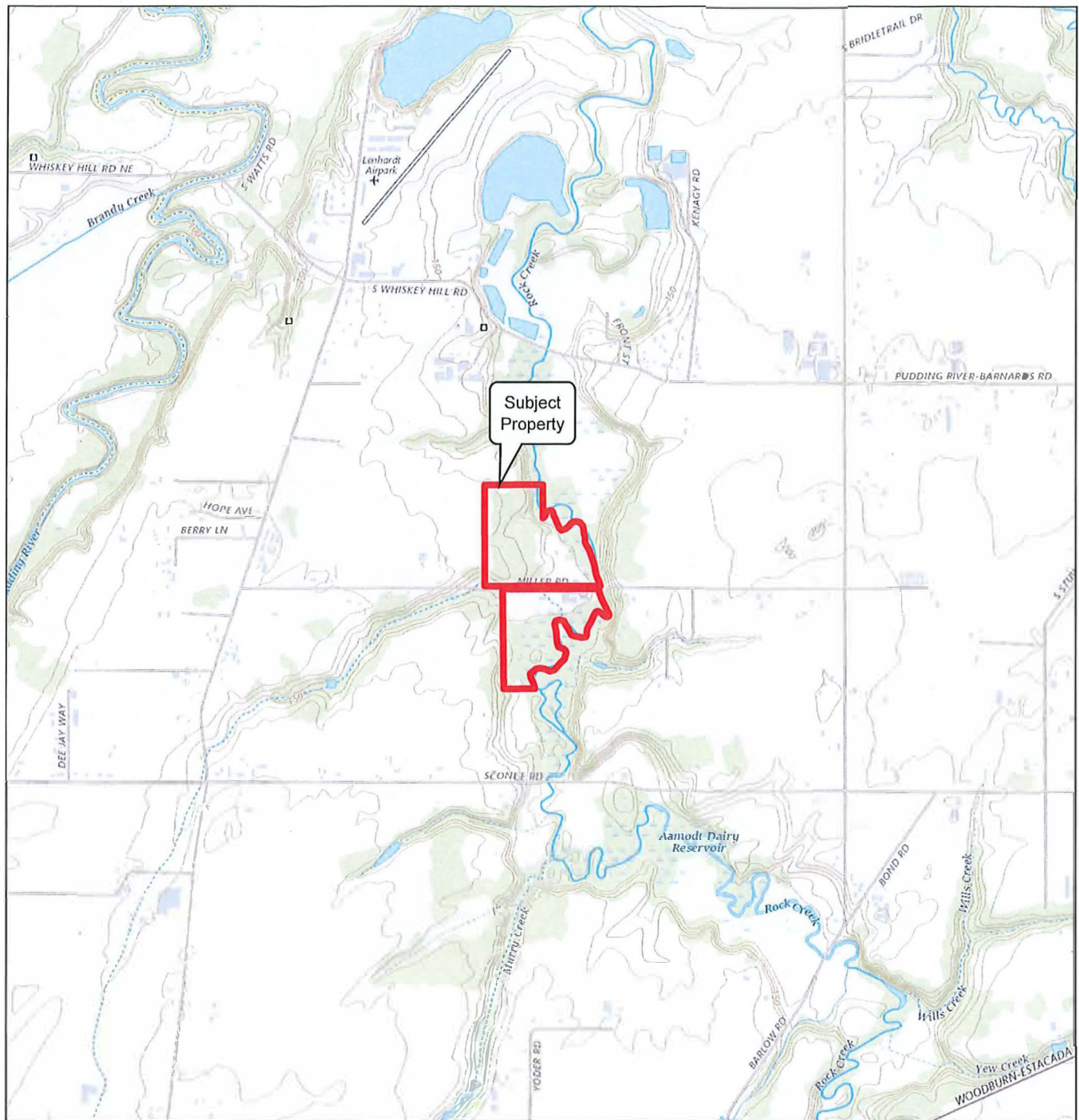
## **6. ADMINISTRATIVE RECORD**

1. Stantec “Phase I Environmental Site Assessment” (March 7, 2022).
2. Stantec “Phase II Environmental Site Assessment” (May 24, 2022).
3. Stantec “Supplemental Phase II Environmental Site Assessment” (September 17, 2022).
4. Stantec “Workplan for Additional Assessment and Well Installation” (March 9, 2023).
5. Stantec “Additional Assessment and Well Installation Report” (June 7, 2023).
6. Stantec “Rock Creek Reconnaissance Report” (February 14, 2025).

## **7. ATTACHMENTS**

1. Topographic Map
2. Aerial Photo
3. Well Log
4. Wetlands Map
5. Surface Waters Map
6. Boring Locations Map (April 2022)
7. Sample Locations Map (July 2022)
8. Sample Locations Map (April 2023)

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Legend  
 Subject Property

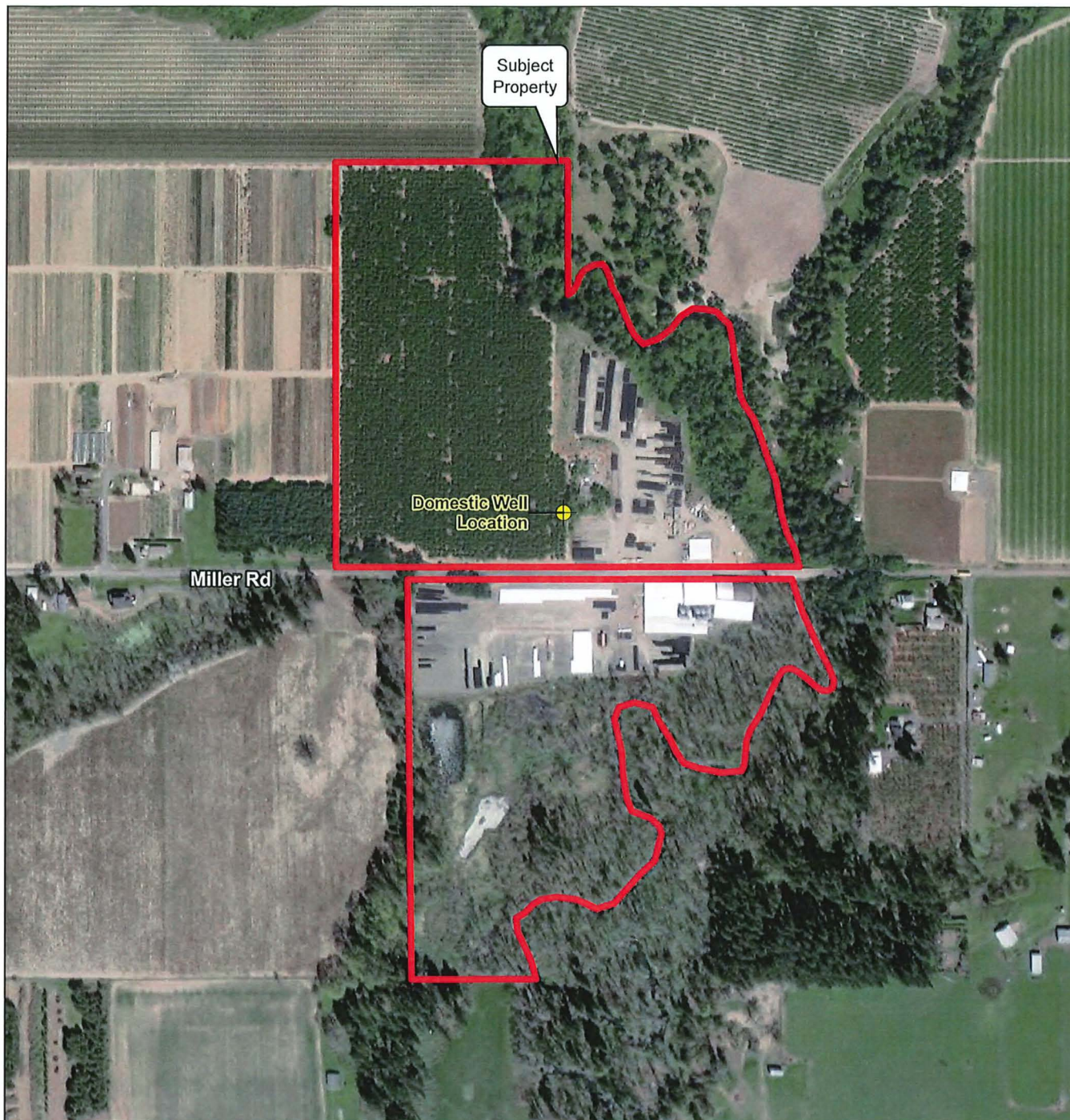
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Project Location  
T05S, R01E, S05  
Hubbard, Clackamas Co., OR  
Client/Project  
Duinick Companies LLC  
Phasel  
Prepared by KAB on 2021-11-23  
TR by XXX on 2020-XX-XX  
IR by XXX on 2020-XX-XX  
227704604

## Attachment 1

Site Location Map



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 10N
  2. Data Sources: USGS, Clackamas County Parcels
  3. Background: USGS 7.5 Minute Quadrangle

- Legend**
- Domestic Well Location
  - Subject Property

0 250 500 Feet  
(At original document size of 8.5x11)  
1:8,000



Project Location Prepared by KJM on 2022-05-18  
6401 and 6402 South Miller Road, TR by RMM on 2020-05-23  
Hubbard, OR IR by ES on 2020-03-23

Client/Project Oregon Plastic Tubing and Pacific Corrugated Company  
Phase II ESA 227704604

## Attachment 2

Title  
**Site Detail Map**

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

(START CARD) # 22455

(1) OWNER:

Name NEEDY TILE CO Well Number: \_\_\_\_\_  
Address 6401 S MILLER  
City HUBBARD, OR State \_\_\_\_\_ Zip 97032

(2) TYPE OF WORK:

☒ New Well ☐ Deepen ☐ Recondition ☐ Abandon

(3) DRILL METHOD

☐ Rotary Air ☐ Rotary Mud ☒ Cable  
☐ Other \_\_\_\_\_

(4) PROPOSED USE:

☒ Domestic ☐ Community ☐ Industrial ☐ Irrigation  
☐ Thermal ☐ Injection ☐ Other \_\_\_\_\_

(5) BORE HOLE CONSTRUCTION:

Special Construction approval Yes ☐ No ☐ Depth of Completed Well 85 ft.  
Explosives used ☐ Yes ☐ No ☐ Type \_\_\_\_\_ Amount \_\_\_\_\_

| HOLE      |           |           | SEAL                      |      |    | Amount<br>sacks or pounds |
|-----------|-----------|-----------|---------------------------|------|----|---------------------------|
| Diameter  | From      | To        | Material                  | From | To |                           |
| <u>10</u> | <u>0</u>  | <u>20</u> | <u>GRANULAR BENTONITE</u> |      |    | <u>13</u>                 |
| <u>6</u>  | <u>20</u> | <u>85</u> |                           |      |    |                           |

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

☒ Other GRANULAR BENTONITE METHOD

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: | <u>6</u>            | <u>0</u> | <u>67</u> | <u>.25</u> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
|         |                     |          |           |            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
|         |                     |          |           |            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
|         |                     |          |           |            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
| Liner:  | <u>(see screen)</u> |          |           |            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |
|         |                     |          |           |            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |

Final location of shoe(s) 67

(7) PERFORATIONS/SCREENS:

☐ Perforations Method Pull Back  
☒ Screens Type SLOTTED Material PVC

| From      | To        | Slot size    | Number | Diameter | Tele/pipe size | Casing                   | Liner                               |
|-----------|-----------|--------------|--------|----------|----------------|--------------------------|-------------------------------------|
| <u>57</u> | <u>72</u> | <u>RISER</u> |        |          | <u>5</u>       | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>72</u> | <u>80</u> | <u>30</u>    |        |          | <u>5</u>       | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <u>80</u> | <u>85</u> | <u>TAIL</u>  |        |          | <u>5</u>       | <input type="checkbox"/> | <input type="checkbox"/>            |
|           |           |              |        |          |                | <input type="checkbox"/> | <input type="checkbox"/>            |
|           |           |              |        |          |                | <input type="checkbox"/> | <input type="checkbox"/>            |

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

☒ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

| Yield gal/min | Drawdown  | Drill stem at | Time         |
|---------------|-----------|---------------|--------------|
| <u>25</u>     | <u>20</u> |               | <u>1 hr.</u> |
|               |           |               |              |
|               |           |               |              |

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 CLATSOP Longitude \_\_\_\_\_  
Township 55 N or S, Range 1E E or W, WM.  
Section 6 SE 1/4 NW 1/4  
Tax Lot \_\_\_\_\_ Lot \_\_\_\_\_ Block \_\_\_\_\_ Subdivision \_\_\_\_\_  
Street Address of Well (or nearest address) SAME

(10) STATIC WATER LEVEL:

12 ft. below land surface. Date MAR 22  
Artesian pressure \_\_\_\_\_ lb. per square inch. Date \_\_\_\_\_

(11) WATER BEARING ZONES:

Depth at which water was first found \_\_\_\_\_

| From      | To        | Estimated Flow Rate | SWL       |
|-----------|-----------|---------------------|-----------|
| <u>31</u> | <u>43</u> |                     | <u>18</u> |
| <u>68</u> | <u>83</u> |                     | <u>12</u> |

(12) WELL LOG:

Ground elevation \_\_\_\_\_

| Material                    | From      | To        | SWL |
|-----------------------------|-----------|-----------|-----|
| <u>SOIL</u>                 | <u>1</u>  | <u>3</u>  |     |
| <u>CLAY BROWN</u>           | <u>3</u>  | <u>17</u> |     |
| <u>CLAY GREY</u>            | <u>17</u> | <u>31</u> |     |
| <u>SILT BROWN</u>           | <u>31</u> | <u>43</u> |     |
| <u>CLAY GREY</u>            | <u>43</u> | <u>68</u> |     |
| <u>SOME CEMENTED GRAVEL</u> |           |           |     |
| <u>GRAVEL CLAYEY</u>        | <u>68</u> | <u>70</u> |     |
| <u>SAND GREY</u>            | <u>70</u> | <u>83</u> |     |
| <u>CLAY GREY</u>            | <u>83</u> | <u>85</u> |     |

Date started MAR 20 Completed MAR 22

(unbonded) Water Well Constructor Certification:

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 \_\_\_\_\_

(bonded) Water Well Constructor Certification:

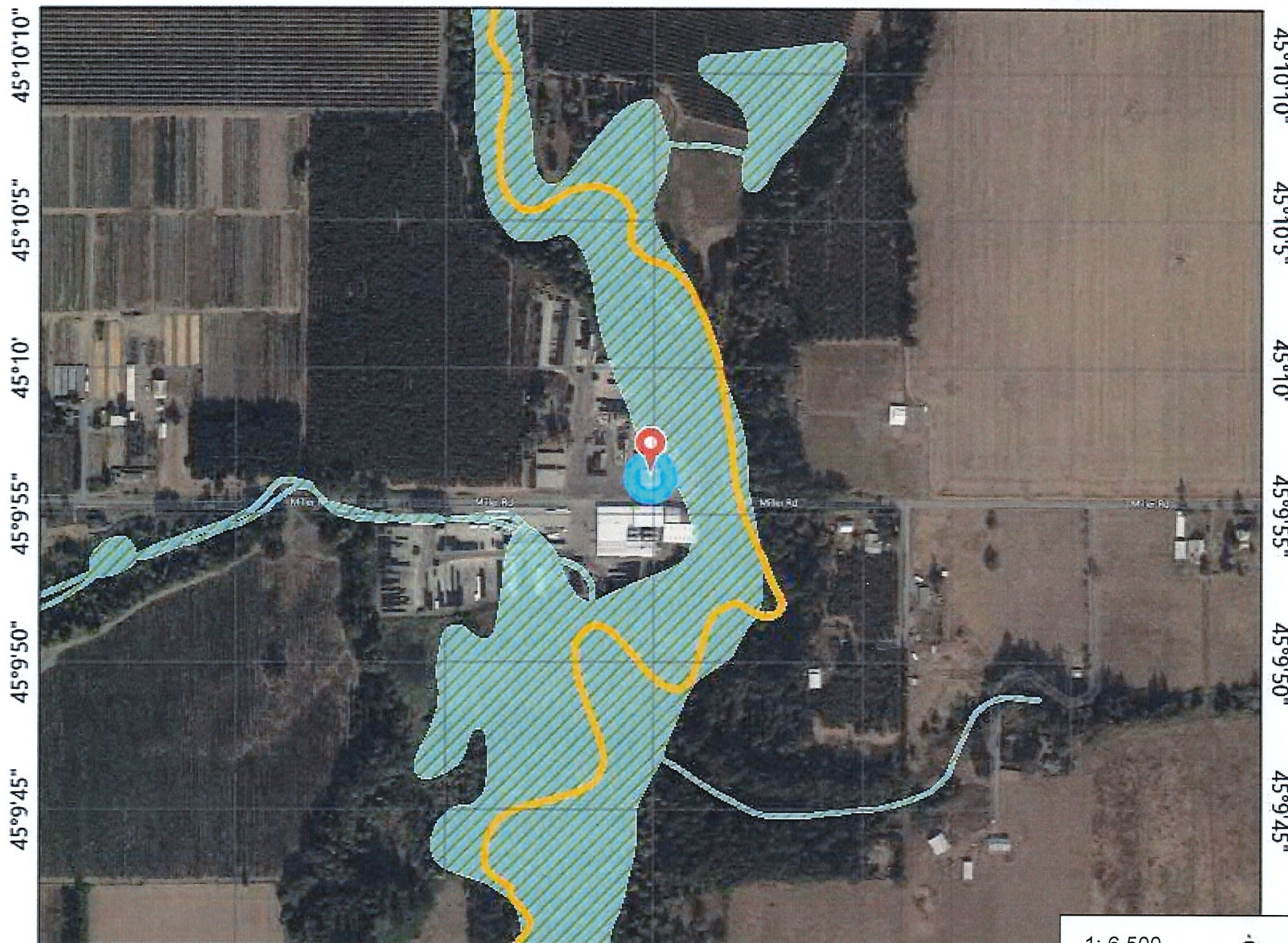
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. I work performed during this time is in compliance with Oregon well construction standards. This report is true to the best of my knowledge and belief.

WWC Number 243

Signed Richard Beech Date MAR 25, 19



-122°44'30" -122°44'20" -122°44'10" -122°44' -122°43'50"



## Legend

- County Boundaries (2015)
- Essential Salmonid Habitat
- ▨ National Wetland Inventory (2020)
- Dark Gray Canvas Reference
- Dark Gray Canvas Base

-122°44'30" -122°44'20" -122°44'10" -122°44' -122°43'50"

1: 6,500



0.2 0 0.10 0.2 Miles

WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere  
© Oregon Explorer (<https://oregonexplorer.info>)

This map is a user generated static output for reference only from:

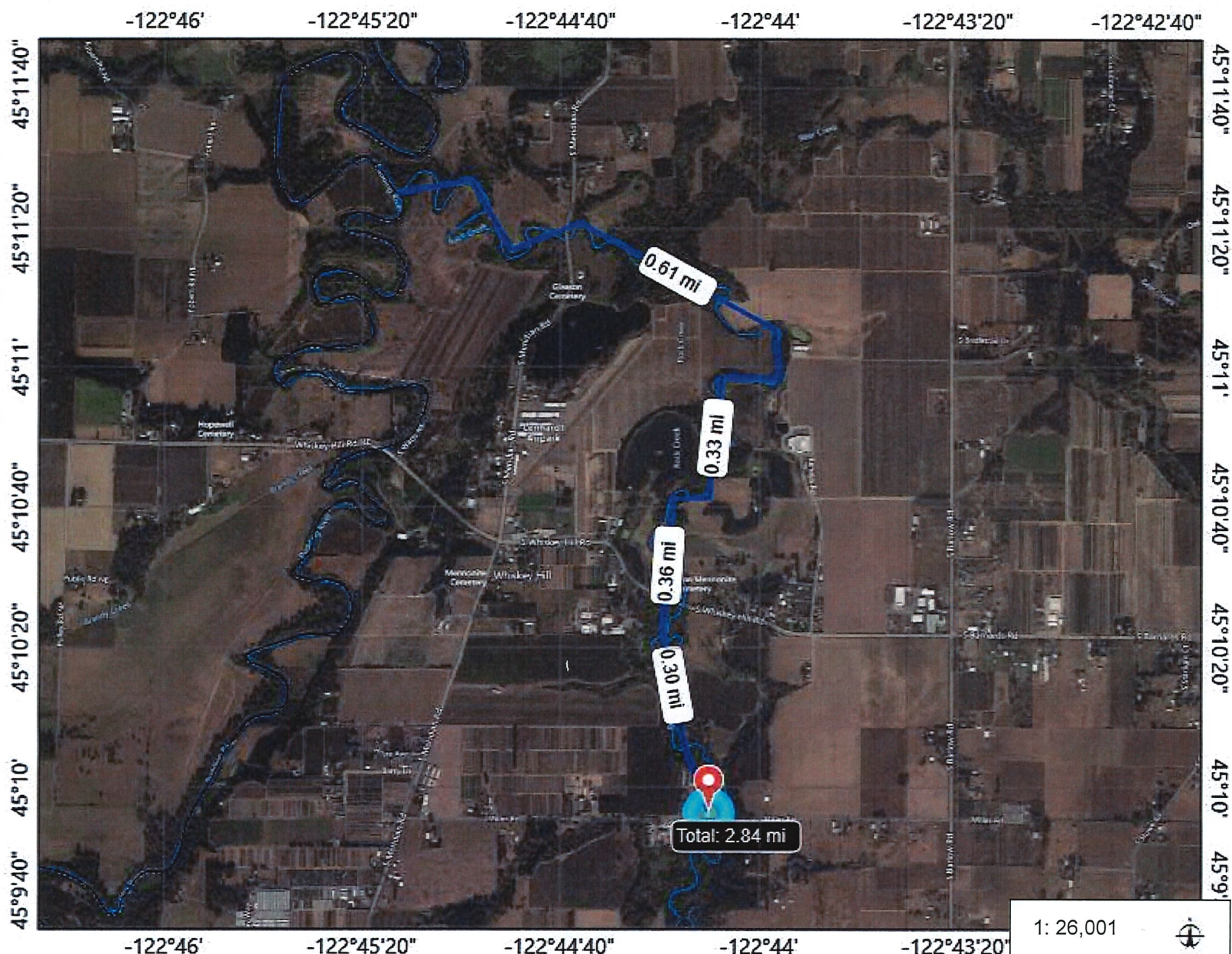
[Oregon Explorer Map Viewer](https://oregonexplorer.info)

Data layers that appear on this map may or may not be accurate, current, or reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION.

## Notes

Attachment 4

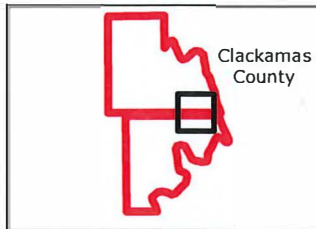
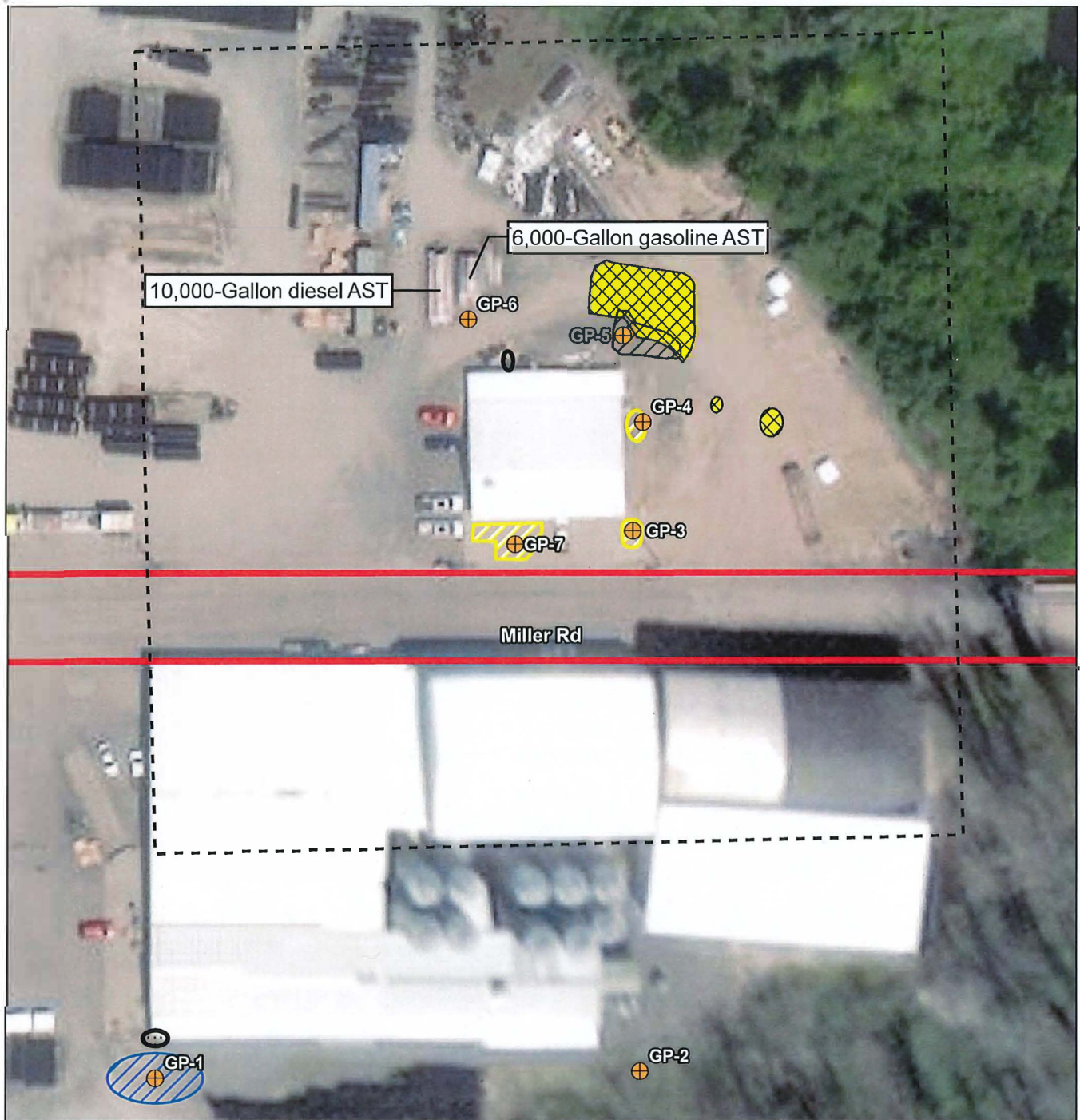


### Legend

- County Boundaries (2015)
- Rivers and Large Streams
  - Stream Order 5
  - Stream Order 6
  - Stream Order 7
  - Stream Order 8
  - Stream Order 9
- Dark Gray Canvas Reference
- Dark Gray Canvas Base

### Notes

Attachment 5



**Notes**  
 1. Coordinate System: NAD 1983 UTM Zone 10N  
 2. Data Sources: USGS, Clackamas County Parcels  
 3. Background: ESRI World Imagery

- Legend**
- Borehole Locations
  - Septic Tank
  - Drain Field
  - Locality of Facility
  - Backfilled Excavations
  - Ferric
  - Non-Ferric
  - Subject Property

0 35 70 Feet  
 (At original document size of 8.5x11)  
 1:840



**Project Location**  
 6401 and 6402 South Miller Road,  
 Hubbard, OR

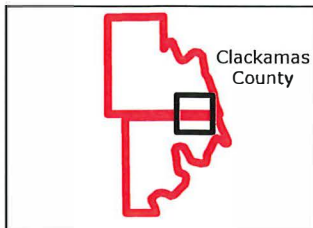
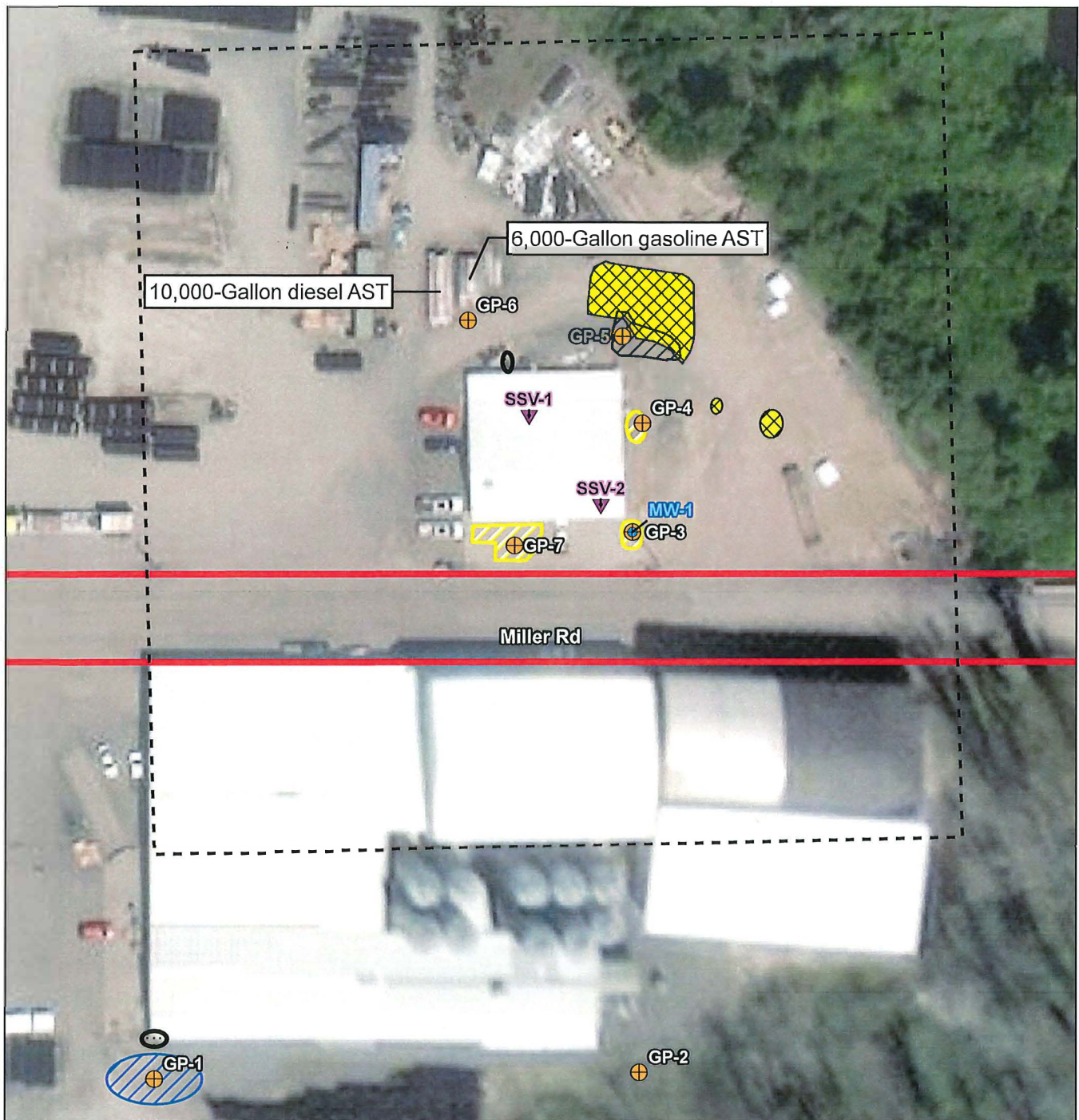
**Prepared by** KJM on 2022-05-24  
 TR by RWM on 2020-05-23  
 IR by ES on 2020-05-23

**Client/Project**  
 Oregon Plastic Tubing and  
 Pacific Corrugated Company  
 Phase II ESA

**Figure No.**  
 3 **Attachment 6**

**Title**  
 Phase II Investigation Areas

V:\227704604\03\_data\gis\_cat\gisproj\PhaseII\PhaseII.aprx Revised: 2022-06-09 By: kjmueller



**Notes**  
1. Coordinate System: NAD 1983 UTM Zone 10N  
2. Data Sources: USGS, Clackamas County Parcels  
3. Background: ESRI World Imagery

#### Legend

- ◆ Proposed Groundwater Monitoring Well Locations
- ▼ Proposed Soil Vapor Sample Locations
- ⊕ Borehole Locations
- Septic Tank
- ▨ Drain Field
- ▭ Locality of Facility
- ▨ Backfilled Excavations
- ▨ Ferric
- ▨ Non-Ferric
- ▭ Subject Property

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(At original document size of 8.5x11)  
1:840



**Project Location**  
6401 and 6402 South Miller Road,  
Hubbard, OR

Prepared by KJM on 2022-06-09  
TR by RVM on 2020-05-23  
IR by ES on 2020-05-23

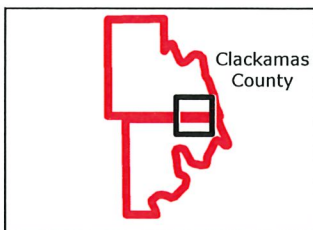
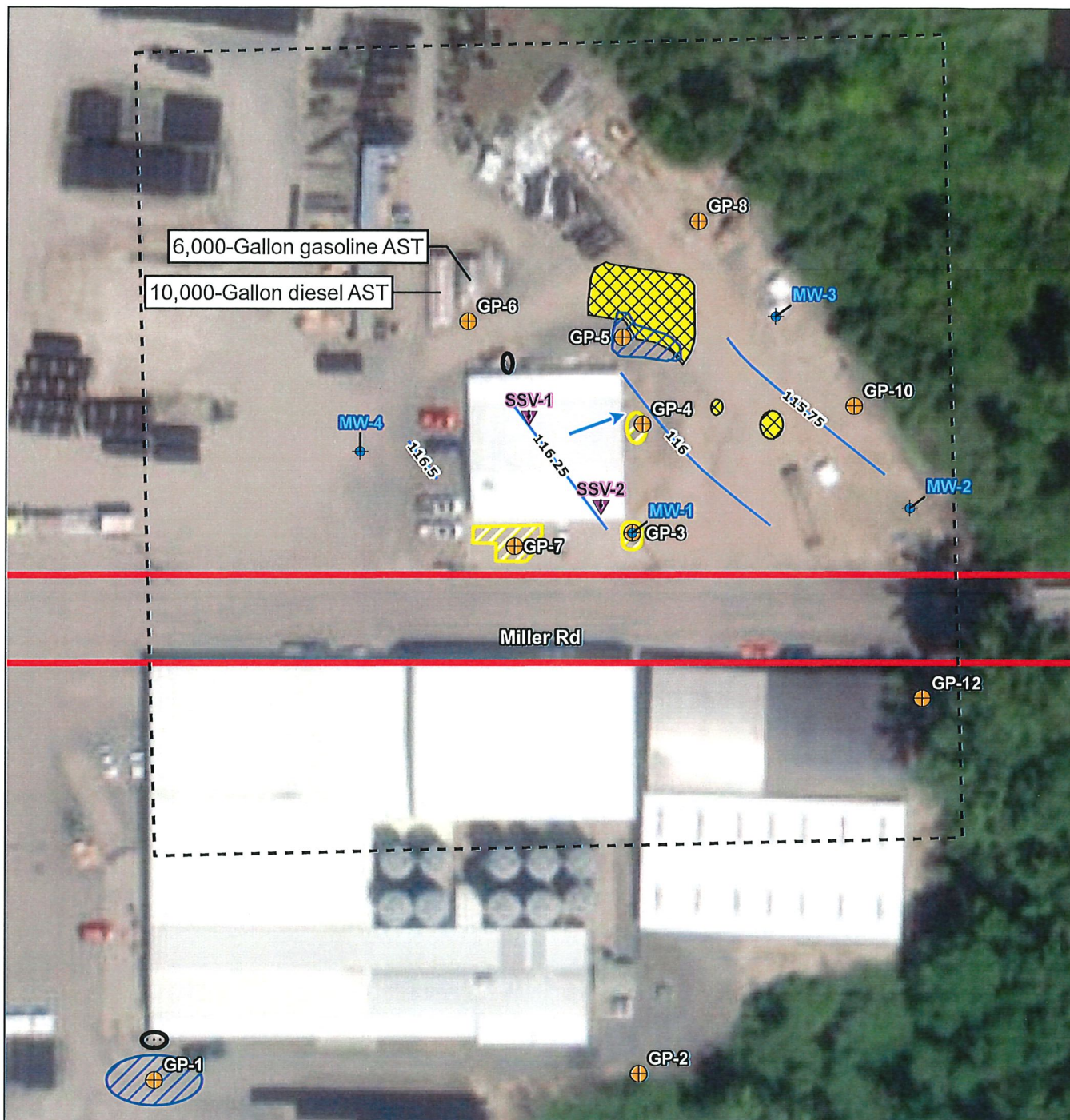
**Client/Project**  
Oregon Plastic Tubing and  
Pacific Corrugated Company  
Supplemental Phase II ESA

227704604

**Figure No.**  
3 **Attachment 7**

**Property Investigation Areas**

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Revised: 2023-05-08 By: bschafmeyer



**Notes**  
1. Coordinate System: NAD 1983 UTM Zone 10N  
2. Data Sources: USGS, Clackamas County Parcels  
3. Background: ESRI World Imagery

- Legend**
- Subject Property
  - Backfilled Excavations
  - Ferric
  - Non-Ferric
  - Locality of Facility
  - Drain Field
  - Septic Tank
  - Groundwater Flow
  - Groundwater Contour (ft)
  - + Groundwater Monitoring Well Locations
  - ▼ Soil Vapor Sample Locations
  - + Borehole Locations

0 35 70 Feet  
(At original document size of 8.5x11)  
1:840



Project Location  
6401 and 6402 South Miller Road,  
Hubbard, OR

Prepared by BS on 2023-05-06  
TR by RMM on 2020-05-23  
IR by ES on 2020-05-23

Client/Project  
Oregon Plastic Tubing and  
Pacific Corrugated Company  
Additional Assessment Report  
227704604

Figure No.  
3

Title  
Attachment 8

Site Plan