

Oregon Street Business Park Design Review/Variance Application

Date: June 2021
Revised June 2022

Submitted to: City of Sherwood
Planning Department
22560 SW Pine Street
Sherwood, OR 97140

Applicant: Oregon Street Business Park, LLC
PO Box 1489
Sherwood, OR 97140

AKS Job Number: 7971

The logo for AKS Engineering & Forestry features the letters 'AKS' in a large, bold, blue sans-serif font. Below 'AKS', the words 'ENGINEERING & FORESTRY' are written in a smaller, blue, all-caps sans-serif font. The background of the logo area is a faint, colorful architectural drawing of a building with various windows and doors.

AKS
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Applicants/ Property Owners:	Oregon Street Business Park, LLC PO Box 1489 Sherwood, OR 97140
Applicant's Consultant:	AKS Engineering & Forestry, LLC 12965 SW Herman Road, Suite 100 Tualatin, OR 97062 Contact: Mimi Doukas, AICP, RLA Email: mimid@aks-eng.com Phone: (503) 563-6151
Site Location:	21720 SW Oregon Street, Sherwood, OR 97140 Southeast of SW Oregon Street, southwest and northeast of SW Tonquin Road, Sherwood, OR
Assessor's Map:	Washington County Assessor's Map 2S 1 28C Lot 500
Site Size:	±9.53 acres
City Zoning:	Employment Industrial (EI)



I. Executive Summary

Oregon Street Business Park, LLC (Applicant) is seeking approval of an industrial campus located at 21720 SW Oregon Street. The project is comprised of four separate industrial buildings totaling ±115,170 square feet in building area and associated parking and maneuvering areas, trash enclosures, pedestrian circulation, landscaping, public and utility improvements, and regional stormwater management facility.

This project will result in readily available industrial space for the Tonquin Employment Area (TEA) for small businesses that otherwise likely could not purchase their own sites and construct their own facilities. The design is typical of many industrial developments nearby and focuses on making smaller, flexible spaces that are readily available for small businesses.

This application was originally submitted on June 28, 2021, and deemed complete on September 21, 2021. Public hearings were held by the City of Sherwood Planning Commission on November 29, 2021; January 11, 2022; January 25, 2022; February 1, 2022; and February 22, 2022. At these hearings, the Planning Commission heard testimony regarding the implementation of the TEA Access Management Plan placement of SW Laurelwood Way (formerly Tonquin Court) from the Applicant and neighboring property owners. On February 22, 2022, the Planning Commission hearing was continued to June 28, 2022, in order for the Applicant to revise application materials to modify the site plan, illustrate the future SW Laurelwood Way right-of-way, and revise the stormwater facility to manage regional run-off from the new street.

Due to the proximity of the new street to the project and the associated site plan changes, a “Class A” Variance was needed to prevent excess disruption to the usability of the Oregon Street Business Park site. This variance would allow the “front” setback along SW Laurelwood Way to be reduced from 20 feet to 10 feet and would allow the project to offer a similar building footprint to what had been previously proposed for the project (±120,815 square feet). The addition of a variance application to the project required an additional neighborhood meeting, held on May 31, 2022.

This written narrative, together with the preliminary plans and other documentation included in the application materials, establishes that the application complies with all applicable approval criteria of the Sherwood Zoning and Community Development Code (SZCDC). This documentation provides the basis for the City to recommend approval of the application.

II. Site Description/Setting

The property is comprised of two bifurcated portions. The eastern and largest portion of Tax Lot 500 is referred to within this narrative as the “site.” The smaller portion of Tax Lot 500 west of SW Tonquin Road is generally referred to as the “western portion” of the property within this narrative.

Existing Conditions

The site is largely vacant, with several small buildings used for the Applicant’s current industrial business and gravel access and parking lot. The remainder of the site is comprised of a large stand of trees, fields, and a small wetland located south and east of the SW Tonquin Road/SW Oregon Street intersection. The portion west of SW Tonquin Road is largely comprised of wetland and floodplain areas and will not be affected by this project.

The subject property was recently annexed to the City of Sherwood through Sherwood City Council Ordinance 2020-008. This property is located within the Tonquin Employment Area. This area was added

to the Urban Growth Boundary (UGB) by the Metro Council in 2004. In conjunction with Metro adding this area to the UGB, the City of Sherwood undertook extensive planning of the Tonquin Employment Area including transportation and infrastructure and adopted a Preferred Concept Plan consistent with growth in the Urban Reserve.

Public Utilities

The property can be served by existing public utilities located adjacent or in close proximity to the site. There is an existing 12-inch water line in SW Oregon Street adjacent to this site’s frontage that can provide service to this site. An existing 15-inch public sanitary sewer line is located ±380 feet southwest of the site. The project will connect to an adjacent project’s public sanitary sewer line south of the site ultimately discharging to this existing main. There is an existing 12-inch storm sewer main located in SW Oregon Street available for connection.

Service	Provider	Size	Location	Distance from Site
Water	City of Sherwood	24 inches	SW Oregon Street	Adjacent
Water	City of Sherwood	12 inches	SW Oregon Street	Adjacent
Sanitary Sewer	City of Sherwood	15 inches	SW Oregon Street Roundabout	±380 feet southwest of site
Storm Sewer	Clean Water Services	Varied	SW Oregon Street	Adjacent

Transportation

The project site is located south of SW Oregon Street and is bisected by SW Tonquin Road. The site has frontage on SW Oregon Street, which is under the jurisdiction of Washington County, is classified as an arterial street with three lanes, and has a posted speed limit of 35 miles per hour. SW Tonquin Road is also classified as an arterial street. SW Tualatin-Sherwood Road is located less than a half mile from the site.

A portion of the site has been reserved for dedication to the City for future construction of a roundabout at the intersection of SW Oregon Street and SW Tonquin Road.

SW Laurelwood Way (Formerly Tonquin Court)

SW Laurelwood Way is illustrated on the attached Preliminary Plans (Exhibit A). The street follows the alignment, intersection location, and street cross sections requested by the City of Sherwood.

III. Applicable Review Criteria

SHERWOOD ZONING AND COMMUNITY DEVELOPMENT CODE

Title 16 – Zoning and Community Development Code

Division II. – LAND USE AND DEVELOPMENT

Chapter 16.31 - INDUSTRIAL LAND USE DISTRICTS

16.31.010 - Purpose

- A. **Employment Industrial (EI) - The EI zoning district provides employment areas that are suitable for, and attractive to, key industries and industry clusters that have been identified by the State of Oregon and the City's economic development strategy as important to the state and local economy. The following are preferred industry sectors for areas zoned EI: Clean Technology; Technology and Advanced Manufacturing; and Outdoor Gear and Active Wear.**



Land zoned EI shall provide for large and medium-sized parcels for industrial campuses and other industrial sites that can accommodate a variety of industrial companies and related businesses. Areas zoned EI are also intended to provide the opportunity for flex building space within small- and medium-sized industrial campuses and business parks to accommodate research and development companies, incubator/emerging technology businesses, related materials and equipment suppliers, and/or spin-off companies and other businesses that derive from, or are extensions of, larger campus users and developments. Retail and commercial uses are allowed only when directly supporting area employers and employees.

Industrial establishments and support services shall not have objectionable external features and shall feature well-landscaped sites and attractive architectural design, as determined by the Hearing Authority.

Response: The project involves industrial space that will support a variety of industrial companies and related businesses, including those listed as desirable above.

16.31.020 - Uses

- A. The table below identifies the land uses that are permitted outright (P), permitted conditionally (C) and not permitted (N) in the industrial zoning districts. The specific land use categories are described and defined in Chapter 16.88.
- B. Uses listed in other sections of this Code, but not within this specific table are prohibited.
- C. Any use not otherwise listed that can be shown to be consistent or associated with the uses permitted outright or conditionally in the industrial zones or contribute to the achievement of the objectives of the industrial zones may be permitted outright or conditionally, utilizing the provisions of Chapter 16.88.
- D. Additional limitations for specific uses are identified in the footnotes of this table.

Uses	EI ¹
Industrial	
Manufacture, compounding, processing, assembling, packaging, treatment, fabrication of products contained wholly within an enclosed building provided exterior odor and noise is consistent with municipal code standards and there is no unscreened storage and not otherwise regulated elsewhere in the code	P
Distribution, warehousing and storage associated with a permitted use operating on the same site	P
Distribution and warehousing up to 150,000 square feet, provided product(s) are stored within an enclosed building ⁹	P

¹ See special criteria for the EI zone, 16.31.050 and the Tonquin Employment Area (TEA), 16.31.060.

² If use is mixed with another, such as a restaurant, it is considered secondary to that use and permitted, provided it occupies less than fifty (50) percent of the total area.

³ Limited in size to five thousand (5,000) square feet in a single outlet and no more than twenty thousand (20,000) square feet in multiple outlets in the same development project.

⁴ *On constrained land where structures would not otherwise be permitted, provided that no natural resources such as wetland or floodplains are impacted.*

⁵ *Limited to Cardlock, wholesale or facilities incidental to and solely serving an associated permitted or conditional use - no public retail fuel sales.*

⁶ *See Special Criteria for Medical Marijuana Dispensary under Section 16.38.020.*

⁷ *Sales and rental area Limited in size to five thousand (5,000) square feet in a single outlet and no more than twenty thousand (20,000) square feet in multiple outlets in the same development project.*

⁸ *Animal boarding/kennels and pet daycare facilities entirely within an enclosed building are considered "other personal service."*

⁹ *For standalone warehousing and distribution only. Warehousing and distribution associated with another approved use is ancillary and permitted without size limitations.*

¹⁰ *These businesses are involved in the servicing and supplying of materials and equipment primarily intended for industrial, institutional, or commercial businesses. On-site sales are limited as most activity occurs electronically or off-site. Businesses may or may not be open to the general public, but sales to the general public are limited as a result of the way in which the firm operates. Products are generally delivered to the customer. Few customers, especially the general public, come to the site.*

¹¹ *Except for towers located within one thousand (1,000) feet of the Old Town District which are prohibited.*

¹² *See special standard criteria for hospitality and lodging uses within the Light Industrial Land Use District SZCDC 16.31.040.*

Response: The planned uses involve manufacturing, distribution, and warehousing in flexible industrial building space. These criteria are met.

16.31.030 - Development Standards

A. Generally

No lot area, setback, yard, landscaped area, open space, off-street parking or loading area, or other site dimension or requirement, existing on, or after, the effective date of this Code shall be reduced below the minimum required by this Code. Nor shall the conveyance of any portion of a lot, for other than a public use or right-of-way, leave a lot or structure on the remainder of said lot with less than minimum Code dimensions, area, setbacks or other requirements, except as permitted by Chapter 16.84 (Variances and Adjustments).

B. Development Standards

Except as otherwise provided, required minimum lot areas and dimensions and setbacks shall be:

Development Standards by Zone	EI
Lot area – industrial uses:	3 acres ⁹
Lot area – commercial uses (subject to Section 16.31.050)	10,000 SF
Lot width at front property line:	100 feet
Lot width at building line:	100 feet
Front yard setback ¹¹	20 feet
Side yard setback ¹⁰	None
Rear yard setback ¹¹	None
Corner lot street side ¹¹	20 feet
Height ¹¹	50 feet

⁹ Lots within the EI zone that were legal lots of record prior to October 5, 2010 and smaller than the minimum lot size required in the table below may be developed if found consistent with other applicable requirements of Chapter 16.31 and this Code. Further subdivision of lots smaller than three acres shall be prohibited unless Section 16.31.050 applies.

¹⁰ When a yard is abutting a residential zone or public park, there shall be a minimum setback of forty (40) feet provided for properties zoned Employment Industrial and Light Industrial zones, and a minimum setback of fifty (50) feet provided for properties zoned General Industrial.

¹¹ Structures located within one hundred (100) feet of a residential zone shall be limited to the height requirements of that residential zone.

Response:

The lot area is ±9.58 acres, the existing lot width is greater than 100 feet, and the proposed setbacks are greater than 20 feet along the front lot lines of SW Oregon Street and SW Tonquin Road. A variance for a reduction in front yard setback has been included for the frontage of the site along SW Laurelwood Way and a small area at the southeast corner of the site. The project site is not located adjacent to or within 100 feet of a park or residential zone. The height of the buildings proposed is less than the district maximum of 50 feet, at 23 feet, 6 inches (Sheet EX-1, Exhibit A) per structure. These criteria are met.

16.31.050 - Employment Industrial (EI) Restrictions

A. Use Restrictions

1. Retail and professional services that cater to daily customers, such as restaurants and financial, insurance, real estate, legal, medical and dental offices, shall be limited in the EI zone.
 - a. New buildings for stores, branches, agencies or other retail uses and services shall not occupy more than five thousand (5,000) square feet of sales or service area in a single outlet and no more than twenty thousand (20,000) square feet of sales or service area in multiple outlets in the same development project, and
 - b. New buildings for stores, branches, agencies or other retail uses and services shall not be located on lots or parcels smaller than five acres in size. A "development project" includes all improvements proposed through a site plan application.
2. Notwithstanding the provisions of Section 16.31.050 "Commercial Nodes Use Restrictions," commercial development permitted under 16.31.050(1)(a) may only be

proposed concurrent with or after industrial development on the same parcel. Commercial development may not occur prior to industrial development on the same parcel.

Response: Commercial uses are not proposed as part of the project. The criteria are met.

B. Land Division Restrictions

1. Lots of record prior to October 5, 2010 that are smaller than the minimum lot size required in the EI zone may be developed if found consistent with other applicable requirements of Chapter 16.31 and this Code. Further subdivision of lots smaller than three acres shall be prohibited unless Section 16.31.050 applies.
2. Lots or parcels larger than fifty (50) acres may be divided into smaller lots and parcels pursuant to a planned unit development approved by the city so long as the resulting division yields at least one lot or parcel of at least fifty (50) acres in size.
3. Lots or parcels fifty (50) acres or larger, including those created pursuant to subsection (2) above, may be divided into any number of smaller lots or parcels pursuant to a planned unit development approved by the city so long as at least forty (40) percent of the area of the lot or parcel has been developed with industrial uses or uses accessory to industrial use.

Response: Land divisions have not been planned as part of this project, and the subject property is ±9.5 acres in size, meeting the minimum size requirement for the Employment Industrial (EI) zoning district. These criteria are not applicable.

16.31.060 - Tonquin Employment Area (TEA) Commercial Nodes Use Restrictions modified

- A. Within the Tonquin Employment Area (TEA), only commercial uses that directly support industrial uses located within the TEA are permitted as conditional uses.
- B. Commercial development, not to exceed a total of five contiguous acres in size, may be permitted.
- C. Commercial development may not be located within three hundred (300) feet of SW 124th Avenue or SW Oregon Street, and must be adjacent to the proposed east-west collector street.

Response: Because of the project site's location within 300 feet of SW Oregon Street, and not adjacent to the proposed east-west collector street, commercial development is not proposed. As a result, these criteria are not applicable.

16.31.070 - Community Design

For standards relating to off-street parking and loading, energy conservation, historic resources, environmental resources, landscaping, access and egress, signs, parks and open space, on-site storage, and site design, the applicable provisions of Divisions V, VIII and IX will apply.

Response: The applicable standards are addressed later within this narrative.

16.31.080 - Floodplain

Except as otherwise provided, Section 16.134.020 shall apply.

Response: The project site is not located within a floodplain; however, the western portion of the property is within a floodplain area. Stormwater runoff from the site is planned to flow to a floodplain area. The applicable standards are addressed later within this narrative.

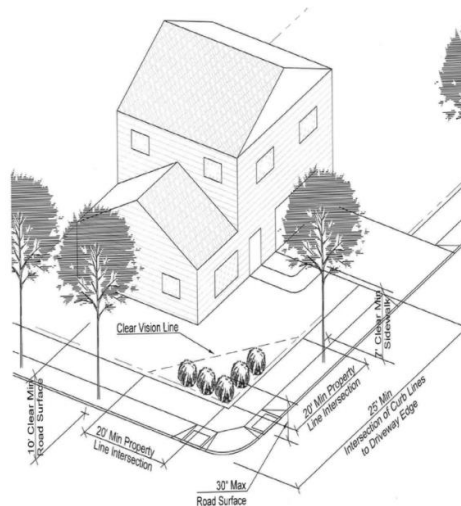
Chapter 16.58 - VISION CLEARANCE AND FENCE STANDARDS

16.58.010 - Clear Vision Areas

- A. A clear vision area shall be maintained on the corners of all property at the intersection of two (2) streets, intersection of a street with a railroad, or intersection of a street with an alley or private driveway.
- B. A clear vision area shall consist of a triangular area, two (2) sides of which are lot lines measured from the corner intersection of the street lot lines for a distance specified in this regulation; or, where the lot lines have rounded corners, the lot lines extended in a straight line to a point of intersection, and so measured, and the third side of which is a line across the corner of the lot joining the non-intersecting ends of the other two (2) sides.
- C. A clear vision area shall contain no planting, sight obscuring fence, wall, structure, or temporary or permanent obstruction exceeding two and one-half (2½) feet in height, measured from the top of the curb, or where no curb exists, from the established street center line grade, except that trees exceeding this height may be located in this area, provided all branches and foliage are removed to the height of seven (7) feet above the ground on the sidewalk side and ten (10) feet on the street side.

The following requirements shall govern clear vision areas:

- 1. In all zones, the minimum distance shall be twenty (20) feet.
- 2. In all zones, the minimum distance from corner curb to any driveway shall be twenty-five(25) feet.
- 3. Where no setbacks are required, buildings may be constructed within the clear vision area.



Response:

Clear vision areas are required at the interim driveway intersection with SW Oregon Street, the planned location of the intersection of SW Oregon Street and SW Laurelwood Way, the intersection of SW Oregon Street and SW Tonquin Road, and the intersection of SW Tonquin Road and the unnamed right-of-way at the southern property boundary. Vision clearance requirements have been met, as demonstrated by the attached Preliminary Circulation Plan (Exhibit A). Plantings between 2½ and 7 feet in height, walls, fences, and other prohibited items have not been planned within clear vision areas. These criteria are met.

16.58.020 - Fences, Walls and Hedges.

A. Purpose:

The fence standards promote the positive benefits of fences without negatively impacting the community or endangering public or vehicle safety. Fences can create a sense of privacy, protect children and pets, provide separation from busy streets, and enhance the appearance of the property by providing attractive landscape materials. The negative effect of fences can include the creation of street walls that inhibit police and community surveillance, decrease the sense of community, hinder the safe movement of pedestrians and vehicles, and create an unattractive appearance. These standards are intended to promote the positive aspects of fences and to limit the negative ones.

B. Applicability:

The following standards apply to walls, fences, hedges, lattice, mounds, and decorative toppers. These standards do not apply to sound walls and landscape features that are not hedges.

D. Location—Non-Residential Zone:

1. Fences up to eight (8) feet high are allowed along front, rear and side property lines, subject to Section 16.58.010. (Clear Vision Areas) and building department requirements.
2. A sound wall is permitted when required as a part of a development review or concurrent with a road improvement project. A sound wall may not be taller than twenty (20) feet.
3. Hedges up to twelve (12) feet tall are allowed.

E. General Conditions—All Fences:

1. Retaining, masonry, concrete, and modular retaining walls may not be constructed within the eight-foot public utility easement (PUE) located on the front and corner street side yards, without approval from the City Engineer.
2. Fences must be structurally sound and maintained in good repair. A fence may not be propped up in any way from the exterior side.
4. The finished side of the fence must face the street or the neighboring property. This does not preclude finished sides on both sides.
5. Buffering: If a proposed development is adjacent to a dissimilar use such as a commercial use adjacent to a residential use, or development adjacent to an existing

farming operation, a buffer plan that includes, but is not limited to, setbacks, fencing, landscaping, and maintenance via a homeowner's association or managing company must be submitted and approved as part of the preliminary plat or site plan review process per Section 16.90.020 and Chapter 16.122.

6. In the event of a conflict between this Section and the clear vision standards of Section 16.58.010, the standards in Section 16.58.010 prevail.
7. The height of a fence or wall is measured from the actual adjoining level of finished grade measured six (6) inches from the fence. In the event the ground is sloped, the lowest grade within six (6) inches of the fence is used to measure the height.
8. Call before you dig (811) if placing a fence within the public utility easement (PUE) to have your utility lines located. This easement area is usually located eight (8) feet across the front yard and the side yard setback on a corner lot. Utility lines can be buried just beneath the surface.

Response: Due to the grade of the site, retaining walls are required within several areas of the site. Fences and walls have not been planned within public utility easements (PUEs) and have not been proposed above 8 feet in height. Please see the attached Preliminary Plans (Exhibit A) for further details. These standards are understood; therefore, applicable criteria have been met or will be met upon installation of the fencing.

Division III. - ADMINISTRATIVE PROCEDURES

Chapter 16.70 - GENERAL PROVISIONS

16.70.010 - Pre-Application Conference

Pre-application conferences are encouraged and shall be scheduled to provide applicants with the informational and procedural requirements of this Code; to exchange information regarding applicable policies, goals and standards of the Comprehensive Plan; to provide technical and design assistance; and to identify opportunities and constraints for a proposed land use action. An applicant may apply at one time for all permits or zone changes needed for a development project as determined in the pre-application conference.

Response: A pre-application conference for this project was held on April 30, 2020.

16.70.020 - Neighborhood Meeting

- A. The purpose of the neighborhood meeting is to solicit input and exchange information about the proposed development.
- B. Applicants of Type III, IV and V applications are required to hold a meeting, at a public location for adjacent property owners and recognized neighborhood organizations that are within 1,000 feet of the subject application, prior to submitting their application to the City. Affidavits of mailing, sign-in sheets and a summary of the meeting notes must be included with the application when submitted. Applicants for Type II land use action are encouraged, but not required to hold a neighborhood meeting.

Response: As the application requires a Type IV process, a virtual neighborhood meeting was held on June 22, 2021. Another virtual neighborhood meeting was held on May 31, 2022, after

the addition of a variance to the application. Notice was provided to owners of property within 1,000 feet of the subject property. Documentation consistent with the provisions of this section is provided in Exhibit H. These criteria are met.

16.70.030 - Application Requirements

A. Form

Any request for a land use action shall be made on forms prescribed and provided by the City and shall be prepared and submitted in compliance with this Code. A land use application shall be reviewed against the standards and criteria effective at the time of application submittal. Original signatures from all owners or their legal representative must be on the application form.

B. Copies

To assist in determining the compliance of proposed land use actions with the Comprehensive Plan and provisions of this Code, applicants shall submit one (1) complete electronic copy of the full application packet, one reduced (8½ × 11) copy of the full application packet and the required number of hard copies as outlined on the applicable forms prescribed and provided by the City.

C. Content

1. In addition to the required application form, all applications for Type II-V land use approval must include the following:

- a. Appropriate fee(s) for the requested land use action required based on the City of Sherwood Fee Schedule.
- b. Documentation of neighborhood meeting per 16.70.020.
- c. Tax Map showing property within at least 300 feet with scale (1" = 100' or 1" = 200') north point, date and legend.
- d. Two (2) sets of mailing labels for property owners of record within 1,000 feet of the subject site, including a map of the area showing the properties to receive notice and a list of the property owners, addresses and tax lots. Ownership records shall be based on the most current available information from the Tax Assessor's office.
- e. Vicinity Map showing a minimum radius of 500 feet around the property and the closest intersection of two Principal Arterial, Arterial, Collector or Neighborhood roads.
- f. A narrative explaining the proposal in detail and a response to the Required Findings for Land Use Review for the land use approval(s) being sought.
- g. Two (2) copies of a current preliminary title report.
- h. Existing conditions plan drawn to scale showing: property lines and dimensions, existing structures and other improvements such as streets and

utilities, existing vegetation, any floodplains or wetlands and any easements on the property.

- i. Proposed development plans sufficient for the Hearing Authority to determine compliance with the applicable standards. Checklists shall be provided by the City detailing information typically needed to adequately review specific land use actions.
- j. A traffic study, if required by other sections of this Code.
- k. Other special studies or reports that may be identified by the City Manager or his or her designee to address unique issues identified in the pre-application meeting or during project review including but not limited to:
 - 1) Wetland assessment and delineation;
 - 2) Geotechnical report;
 - 3) Traffic study;
 - 4) Verification of compliance with other agency standards such as CWS, DSL, Army Corps of Engineers, ODOT, PGE, BPA, Washington County.
- l. Plan sets must have:
 - 1) The proposed name of the development. If a proposed project name is the same as or similar to other existing projects in the City of Sherwood, the applicant may be required to modify the project name.
 - 2) The name, address and phone of the owner, developer, applicant and plan producer.
 - 3) North arrow,
 - 4) Legend,
 - 5) Date plans were prepared and date of any revisions
 - 6) Scale clearly shown. Other than architectural elevations, all plans must be drawn to an engineer scale.
 - 7) All dimensions clearly shown.
2. Exemptions can be made when items in 16.70.030.C.1 are not necessary in order to make a land use decision, such as for text amendments to the development code. Additional written documentation may be necessary to adequately demonstrate compliance with the criteria.

Response: The required materials are attached to this narrative. Land use applications are attached as Exhibit B, Preliminary Plans containing the required information are attached as Exhibit A, and other required materials as applicable. These criteria are met.

Chapter 16.72 - PROCEDURES FOR PROCESSING DEVELOPMENT PERMITS

16.72.010 – Generally

A. Classifications

Except for Final Development Plans for Planned Unit Developments, which are reviewed per Section 16.40.030, all quasi-judicial development permit applications and legislative land use actions shall be classified as one of the following:

4. Type IV

The following quasi-judicial actions shall be subject to a Type IV review process:

- c. Site Plans — Greater than 40,000 square feet of floor area, parking or seating capacity.
- e. Industrial Site Plans subject to Section 16.90.020.D.7.b.

Response: The proposed industrial development involves ±115,170 square feet of floor area; therefore, a Type IV review process is required. The applicable criteria are included for review as part of this narrative, and these criteria are met.

C. Approval Criteria

- 1. The approval criteria for each development permit application shall be the approval standards and requirements for such applications as contained in this Code. Each decision made by a Hearing Authority or Appeal Authority shall list the approval criteria and indicate whether the criteria are met. It is the applicant's burden to demonstrate to the Hearing Authority and Appeal Authority how each of the approval criteria are met. An application may be approved with conditions of approval imposed by the Hearing Authority or Appeal Authority. On appeal, the Appeal Authority may affirm, reverse, amend, refer, or remand the decision of the Hearing Authority.
- 2. In addition to Section 1 above, all Type IV quasi-judicial applications shall also demonstrate compliance with the Conditional use criteria of Section 16.82.020.

Response: The applicable approval criteria have been addressed within this narrative. These criteria are met.

16.72.020 - Public Notice and Hearing

A. Newspaper Notice

Notices of all public hearings for Type III, IV and V land use actions required by this Code shall be published in a newspaper of general circulation available within the City two (2) calendar weeks prior to the initial scheduled hearing before the Hearing Authority and shall be published one additional time in the Sherwood Archer, Sherwood

Gazette or similarly local publication, no less than 5 days prior to the initial scheduled hearing before the hearing authority.

B. Posted Notice

1. Notices of all Type II, III, IV and V land use actions required by this Code shall be posted by the City in no fewer than five (5) conspicuous locations within the City, not less than fourteen (14) calendar days in advance of the staff decision on Type II applications or twenty (20) calendar days in advance of the initial hearing before the Hearing Authority for Type III, IV and V applications.
2. Signage must be posted on the subject property fourteen (14) calendar days in advance of the staff decision on Type II applications and twenty (20) calendar days in advance of the initial hearing before the Hearing Authority for Type III, IV and V applications.
 - a. on-site posted notice shall provide a general description of the land use action proposed, the project number and where additional information can be obtained.
 - b. On-site posted notice shall be designed to be read by motorists passing by; the exact size and font style to be determined by the City.
 - c. On-site posted notice shall be located on the property in a manner to be visible from the public street. For large sites or sites with multiple street frontages, more than one sign may be required.

C. Mailed Notice

1. For Type II, III, IV and V actions specific to a property or group of properties, the City shall send written notice by regular mail to owners of record of all real property within one thousand (1,000) feet from the property subject to the land use action. Written notice shall also be sent to Oregon Department of Transportation (ODOT), Metro, the applicable transit service provider and other affected or potentially affected agencies. If the subject property is located adjacent to or split by a railroad crossing ODOT Rail Division shall also be sent public notice.
2. Written notice to property owners shall be mailed at least fourteen (14) calendar days prior to a decision being made on a Type II land use action and at least twenty (20) calendar days in advance of the initial public hearing before the Hearing Authority. If two (2) or more hearings are required on a land use action, notices shall be mailed at least ten (10) calendar days in advance of the initial hearing before the Commission or Council.
3. For the purposes of mailing the written notice, the names and addresses of the property owners of record, as shown on the most recent County Assessor's records in the possession of the City, shall be used. Written notice shall also be mailed to homeowners associations when the homeowners association owns common property within the notification area and is listed in the County Assessor's records.

-
4. For written notices required by this Code, other than written notices to property owners of record, the City shall rely on the address provided by the persons so notified. The City shall not be responsible for verifying addresses so provided.
 5. If a zone change application proposes to change the zone of property which includes all or part of a manufactured home park, the City shall give written notice by first class mail to each existing mailing address for tenants of the manufactured home park at least twenty (20) days but not more than forty (40) days before the date of the first hearing on the application. Such notice costs are the responsibility of the applicant.

16.72.030 - Content of Notice

Public notices shall include the following information:

- A. The nature of the application and proposed use(s).
- B. A list of the applicable Code or Comprehensive Plan criteria to be applied to the review of the proposed land use action.
- C. The location and street address of the property subject to the land use action (if any).
- D. The date, time, place, location of the public hearing.
- E. The name and telephone number of a local government representative to contact for additional information.
- F. The availability of all application materials for inspection at no cost, or copies at reasonable cost.
- G. The availability of the City planning staff report for inspection at no cost, or copies at a reasonable cost, at least seven (7) calendar days in advance of the hearing.
- H. The requirements for the submission of testimony and the procedures for conducting hearings, including notice that failure to raise an issue accompanied by statements or evidence sufficient to offer the City, applicant or other parties to the application the opportunity to respond, will preclude appeal on said issue to the Council or to the State Land Use Board of Appeals (LUBA).

Response: Noticing is performed by the City; however, these standards are understood.

Division IV. – PLANNING PROCEDURES

Chapter 16.82 -CONDITIONAL USES

16.82.010 - Generally

A. Authorization

Uses permitted in zoning districts as conditional uses may be established, enlarged, or altered by authorization of the Commission in accordance with the standards and procedures established in this Chapter. If the site or other conditions are found to be inappropriate for the use requested, the Commission or Hearings Officer (cited below as Hearing Authority) may deny the conditional use.

Response: The uses proposed are permitted within the Employment Industrial (EI) zoning district. A conditional use permit has not been requested at this time; however, the application must meet the conditional use standards per Section 16.72.010(C)(2).

B. Changes in Conditional Uses

Changes in use or expansion of a legal non-conforming use, structure or site, or alteration of structures or uses classified as conditional uses, that either existed prior to the effective date of this Code or were established pursuant to this Chapter shall require the filing of a new application for review conforming to the requirements of this Chapter if the proposed changes would increase the size, square footage, seating capacity or parking of existing permitted improvements by twenty percent (20%) or more.

Response: Changes to a conditional use have not been proposed. These criteria do not apply.

C. Application and Fee

An application for a Conditional Use Permit (CUP) shall be filed with the City and accompanied by the appropriate fee pursuant to Section 16.74.010. The applicant is responsible for submitting a complete application which addresses all criteria of this Chapter and other applicable sections of this Code.

Response: The appropriate application and fees have been included as part of this submittal. These criteria are met.

16.82.020 - Permit Approval

A. Hearing Authority Action

1. The Hearings Authority shall conduct a public hearing pursuant to Chapter 16.72 and take action to approve, approve with conditions, or deny the application. Conditions may be imposed by the Hearings Authority if necessary to fulfill the requirements of the adopted Comprehensive Plan, Transportation System Plan, or the Code. The decision shall include appropriate findings of fact as required by this Section, and an effective date.

Response: These standards are understood.

2. Conditional uses may be approved at the hearing for a larger development (i.e. business campus or industrial park), to include future tenants of such development, if the range of uses allowed as conditional uses are considered, and specifically approved, at the time of original application.

Response: Any uses permitted conditionally within the Employment Industrial district that may be considered on the project site can obtain approval when under consideration. This Type IV site plan review application demonstrates compliance with the conditional use criteria of this section.

B. Final Site Plan

Upon approval of a conditional use by the Hearing Authority, the applicant shall prepare a final site plan for review and approval pursuant to Section 16.90. The final site plan shall include any

revisions or other features or conditions required by the Hearing Authority at the time of the approval of the conditional use.

Response: A final site plan with revisions or other features or conditions required by the Hearing Authority will be provided for review and approval. These criteria will be met upon submittal of a future application.

C. Use Criteria

No conditional use shall be granted unless each of the following is found:

1. All public facilities and services to the proposed use, including but not limited to sanitary sewers, water, transportation facilities, and services, storm drains, electrical distribution, park and open space and public safety are adequate; or that the construction of improvements needed to provide adequate services and facilities is guaranteed by binding agreement between the applicant and the City.

Response: Water, sanitary sewer, and electrical utilities are located within SW Oregon Street and, with extension of sanitary sewer services, are available to serve the site. Stormwater is available via an outfall within the SW Tonquin Road right-of-way adjacent to the westernmost portion of Tax Lot 500. The property is located within the service districts of the Sherwood Police Department, Tualatin Valley Fire and Rescue, and Pride Waste Disposal. New transportation facilities and transportation improvements have been planned as part of this project.

The public facilities and services available to the site currently, or following improvement, are or will be adequate, and these criteria are met.

2. Proposed use conforms to other standards of the applicable zone and is compatible with abutting land uses in regard to noise generation and public safety.

Response: The proposed use conforms to the standards of the Employment Industrial zoning district and has not been planned to create incompatible levels of noise generation or safety issues with abutting land uses. The site is surrounded by the Employment Industrial zoning district to the east and south and Light and General Industrial zoning districts to the west and north. The Rock Creek corridor is located west of the project site and SW Tonquin Road. This area provides a buffer between the site and a residential area ±650 feet from the site. These criteria are met.

3. The granting of the proposal will provide for a facility or use that meets the overall needs of the community and achievement of the goals and/or policies of the Comprehensive Plan, the adopted City of Sherwood Transportation System Plan and this Code.

Response: The currently underdeveloped site is projected to host a portion of the 3,520 jobs forecasted within the Tonquin Employment Area at buildout (TEA Final Concept Plan, September 2010). The proposed development will provide building space for a variety of industrial companies and related businesses. These small and medium-sized “flex”

building spaces are designed to provide leasable space for emerging businesses and those sectors targeted for the EI zoning district. Development of this site will create leasable building area to meet the needs of smaller businesses, providing additional employment within the City.

The development is proposed to access the street network via a driveway onto SW Laurelwood Way. SW Laurelwood Way provides access to SW Oregon Street, an arterial street. The attached Traffic Impact Analysis (TIA) (Exhibit G) demonstrates that the planned uses will not generate traffic in the area in excess of that identified as appropriate in the Sherwood Transportation System Plan. The street network planned satisfies the intent of the TEA Concept Plan and, thus, the Transportation System Plan by minimizing disruption of the TEA's large industrial properties and illustrating the City's preferred transportation network through this area of the Tonquin Employment Area.

These criteria are met.

4. Surrounding property will not be adversely affected by the use, or that the adverse effects of the use on the surrounding uses, the neighborhood, or the City as a whole are sufficiently mitigated by the conditions proposed.

Response: Surrounding properties and nearby uses, neighborhoods, and the City as a whole are not planned to be adversely impacted by the proposed project. Many of the surrounding uses within this and nearby zoning districts are similarly industrial in nature. Residential properties are located ±750 feet to the west; however, these areas are buffered from the project site by the Rock Creek corridor, SW Tonquin Road, and SW Murdock Road rights-of-way. This criterion is met.

5. The impacts of the proposed use of the site can be accommodated considering size, shape, location, topography and natural features.

Response: The proposed use accommodates the size, shape, location, topography, and natural features in and surrounding the site. The project proposes to leverage the topography of the site to provide stormwater quality facilities within the lowest point at the southwest corner of the site east of SW Tonquin Road. While many trees on the site require removal to accommodate the grading needed to access SW Laurelwood Way and create usable building envelopes, several trees are planned for preservation, as feasible. This criterion is met.

6. The use as proposed does not pose likely significant adverse impacts to sensitive wildlife species or the natural environment.

Response: The site is the location of Class I Riparian Habitat and Class A Upland Habitat, as mapped by Metro. The project proposes impacts to the on-site wetland and vegetated corridor. A natural resources assessment is attached (Exhibit E), which determined that there are no sensitive wildlife species present on the site. These criteria are met.

[...]

D. Additional Conditions

In permitting a conditional use or modification of an existing conditional use, additional conditions may be applied to protect the best interests of the surrounding properties and neighborhoods, the City as a whole, and the intent of this Chapter. These conditions may include but are not limited to the following:

1. Mitigation of air, land, or water degradation, noise, glare, heat, vibration, or other conditions which may be injurious to public health, safety or welfare in accordance with environmental performance standards.

Response: The project does not anticipate the degradation of air, land, or water or the creation of noise, glare, heat, vibration, or other conditions which may be injurious to public health, safety, or welfare. The site will operate in accordance with applicable environmental performance standards and be typical of industrial districts. These criteria are met.

2. Provisions for improvement of public facilities including sanitary sewers, storm drainage, water lines, fire hydrants, street improvements, including curb and sidewalks, and other above and underground utilities.

Response: The project involves the improvement of public facilities to the applicable standards for sanitary sewers, storm drainage, water lines, fire hydrants, street improvements, and other utilities. These improvements are described elsewhere within this report and within the applicable sheets within the Preliminary Plans (Exhibit A). Therefore, these criteria are met.

3. Increased required lot sizes, yard dimensions, street widths, and off-street parking and loading facilities.

Response: The project site within the Employment Industrial zoning district meets the required lot sizes and yard dimensions. Street right-of-way is planned to be provided for needed public street and sidewalks. Off-street parking and loading facilities meet the applicable standards. Additional, increased requirements have not been anticipated.

4. Requirements for the location, number, type, size or area of vehicular access points, signs, lighting, landscaping, fencing or screening, building height and coverage, and building security.

Response: These standards are reviewed elsewhere within this report, and the applicable criteria have been met.

5. Submittal of final site plans, land dedications or money-in-lieu of parks or other improvements, and suitable security guaranteeing conditional use requirements.

Response: Parks and other improvements are not planned as part of this application. Right-of-way dedications for SW Laurelwood Way, along SW Oregon Street, and for the SW Oregon Street/SW Tonquin Road roundabout have been planned.

6. Limiting the number, size, location, height and lighting of signs.

Response: Specific signage and other details have not been proposed as part of this application. This criterion does not apply.

-
7. Requirements for the protection and preservation of existing trees, soils, vegetation, watercourses, habitat areas and drainage areas.

Response: Where practicable, existing trees, soils, vegetation, watercourses, habitat areas, and drainage areas have been preserved.

8. Requirements for design features which minimize potentially harmful environmental impacts such as noise, vibration, air pollution, glare, odor and dust.

Response: The proposed development is not planned to increase harmful environmental impacts such as noise, vibration, air pollution, glare, odor, or dust as outlined within review of the standards of SZCDC Sections 16.146 to 16.156. This criterion is met.

E. Time Limits

Unless approved under Section 16.82.020.A.2 for a larger development to include future tenants of such development, authorization of a conditional use shall be void after two (2) years or such lesser time as the approval may specify unless substantial construction, in the City's determination, has taken place. The Hearing Authority may extend authorization for an additional period, not to exceed one (1) year, upon a written request from the applicant showing adequate cause for such extension, and payment of an extension application fee as per Section 16.74.010.

F. Revocation

Any departure from approved plans not authorized by the Hearing Authority shall be cause for revocation of applicable building and occupancy permits. Furthermore, if, in the City's determination, a condition or conditions of CUP approval are not or cannot be satisfied, the CUP approval, or building and occupancy permits, shall be revoked.

Response: These standards are understood.

Chapter 16.84 - VARIANCES

16.84.010 - Purpose

This Chapter provides standards and procedures for variances, which are modifications to land use or development standards that are not otherwise permitted elsewhere in this Code as exceptions to Code standards. This Chapter provides flexibility, while maintaining the purposes and intent of the Code. No variances shall be granted to allow the use of property for a purpose not authorized within the zone in which the proposed use is located. In granting a variance, conditions may be imposed when necessary to protect the best interests of surrounding properties and neighborhoods, and otherwise achieve the purposes of the adopted Comprehensive Plan, the Transportation System Plan, and other Code provisions.

16.84.020 – Applicability

A. Exceptions and Modifications versus Variances

A code standard or approval criterion may be modified without approval of a variance if the applicable code section expressly allows exceptions or modifications. If the code provision does not expressly provide for exceptions or modifications then a variance is required to modify that code section and the provisions of Chapter 16.84 apply.

-
- B. Combining Variances with Other Approvals; Permit Approvals by Other Agencies.

Variance requests may be combined with and reviewed concurrently by the City approval body with other land use and development applications (e.g., development review, site plan review, subdivision, conditional use, etc.); however, some variances may be subject to approval by other permitting agencies, such as ODOT in the case of State Highway access.

- C. Adjustments and variances cannot be applied to change any existing Planned Unit Development (PUD).

Response: The Applicant is pursuing a variance for building setbacks as a component of land use approval concurrent with the Site Design Review.

16.84.030 - Types of Variances

As provided in this Section, there are three types of variances: Adjustments, Class A variance and Class B variance; the type of variance required depends on the extent of the variance request and the discretion involved in the decision making process.

[...]

- C. Class A Variances

- 1. Generally

- a. The Class A variance procedure may be used to modify a standard for three (3) or fewer lots, including lots yet to be created through a partition process.
- b. An applicant who proposes to vary a standard for lots yet to be created through a subdivision process may not utilize the Class A variance procedure. Approval of a Planned Unit Development shall be required to vary a standard for lots yet to be created through a subdivision process, where a specific code section does not otherwise permit exceptions.
- c. A Class A Variance shall not be approved that would vary the "permitted, conditional or prohibited uses" of a land use district.

Response: The requested variance would modify a standard for only one lot, the subject site. The Class A Variance does not vary permitted, conditional, or prohibited uses of the Employment Industrial land use district. These criteria are met.

- 2. Approval Process:

- a. Class A Variances shall be processed using a Type IV procedure, as governed by Chapter 16.84, using the approval criteria in subsection 3, below.
- b. In addition to the application requirements contained in Chapter 16.72.010, the applicant shall provide a written narrative describing the reason for the variance, why it is required, alternatives considered, and compliance with the criteria in subsection 3.

Response: These standards are understood. The project requires a Type IV review procedure.

The variance is being requested to modify the requirements of Section 16.31.030.B to permit a reduced front setback for buildings within the Employment Industrial zoning district. The variance would reduce the required 20-foot front setback to 10 feet along the site’s eastern boundary and at southeastern corner of Building 4. The adverse conditions requiring this variance are outlined below. These criteria are met.

3. **Approval Criteria: The City shall approve, approve with conditions, or deny an application for a Class A Variance based on the following criteria:**

a. **The proposed variance will not be materially detrimental to the purposes of this Code, to any other applicable policies and standards, and to other properties in the same land use district or vicinity;**

Response: The nature of the site’s zoning, use, and circumstances provides that the variance will not be materially detrimental to the purposes of the SZCDC or other applicable policies, standards, or neighboring properties. The Employment Industrial zoning district has only one listed setback standard—front yard setbacks. Side and rear setbacks are not required within the zoning district, and the standards permit zero-setback structures to be constructed.

The location of the variance is shielded from view from local residential districts through the adjacent Rock Creek corridor, several rights-of-way, and the project buildings themselves. The reduced setback will be visible from the adjacent Sherwood Commerce Center project and SW Laurelwood Way, an industrial local street that is not proposed to serve through traffic. The appearance of the buildings is also proposed to be softened by dense landscape plantings along the building and by street trees along the length of SW Laurelwood Way.

b. **A hardship to development exists which is peculiar to the lot size or shape, topography, or other similar circumstances related to the property over which the applicant has no control, and which are not applicable to other properties in the vicinity (e.g., the same land use district);**

Response: The project site is peculiar in a number of ways. The shape of the site is detrimental to development of the site as it requires the concentration of buildings at the center and eastern portions of the site—where industrial multi-tenant buildings, typically long and narrow, can be located. The topography of the site precludes the effective use of the western portions of the site, which must instead be used for a stormwater facility or would require large amounts of fill to elevate the ground above the adjacent rights-of-way for the purposes of development. Similarly, the Applicant’s property is unlike other properties in the area in that it is completely surrounded by rights-of-way. The applicant has no control over the amount of street frontage available. All of these factors create a hardship to development of the site.

While being only ±9.53 acres in size, the site is surrounded by rights-of-way, requiring a number of front yard setbacks. Since the property abuts SW Oregon Street, SW Tonquin Road, SW Laurelwood Way, and an unnamed right-of-way to the south of the property, 20-foot front yard setbacks are required along each of these frontages. Dedication of right-of-way was required along each of these streets with the exception of the unnamed right-of-way to the south, further reducing the buildable area of the site. The unnamed right-of-way, however, is unlikely to be developed as a street and may be vacated in the future. Should the right-of-way be vacated, the property line would function as a side or rear property line, which has no minimum required setback within the Employment Industrial district. The granting of a variance along this portion of the property would have little to no impact on adjacent properties as a result.

The location of SW Laurelwood Way requires a significant reduction in the building area that can be constructed on the site, originally ±120,815 square feet. Without the requested variance, the currently proposed project (±115,170 square feet), would result in a further reduction in buildable area (±5.3 percent).

c. The use proposed will be the same as permitted under this title and City standards will be maintained to the greatest extent that is reasonably possible while permitting reasonable economic use of the land;

Response: The proposed use of the property will not be altered by the requested variance. The variance will not apply to other portions of the site with front setbacks and is the minimum variance needed to accomplish the reasonable economic use of the land.

d. Existing physical and natural systems, such as but not limited to traffic, drainage, natural resources, and parks will not be adversely affected any more than would occur if the development occurred as specified by the subject Code standard;

Response: The requested variance will not adversely affect existing physical or natural systems in the area. Access, traffic, drainage, natural resources, and parks are anticipated to be unaffected by the front yard setback variance.

e. The hardship is not self-imposed; and

Response: The hardship is caused by external factors outside the control of the Applicant such as site shape, topography, and road orientation.

f. The variance requested is the minimum variance that would alleviate the hardship.

Response: The requested variance is the minimum needed to alleviate the hardship. The reduced setback will allow a 10-foot front yard in the affected areas: a 50 percent reduction rather than one that would match the side and rear yard requirements of the zoning district. The requested variance will not apply to other areas of the site where front yard setbacks also apply.

Division V. - COMMUNITY DESIGN

Chapter 16.90 - SITE PLANNING*

[...]

16.90.020 - Site Plan Review

A. Site Plan Review Required

Site Plan review is required prior to any substantial change to a site or use that does not meet the criteria of a minor or major modification, issuance of building permits for a new building or structure, or for the substantial alteration of an existing structure or use.

For the purposes of Section 16.90.020, the terms "substantial change" and "substantial alteration" mean any development activity as defined by this Code that generally requires a building permit and may exhibit one or more of the following characteristics:

1. The activity alters the exterior appearance of a structure, building or property and is not considered a modification.
2. The activity involves changes in the use of a structure, building, or property from residential to commercial or industrial and is not considered a modification.
3. The activity involves non-conforming uses as defined in Chapter 16.48.
4. The activity constitutes a change in a City approved plan, per Section 16.90.020 and is not considered a modification.
5. The activity is subject to site plan review by other requirements of this Code.
6. The activity increases the size of the building by more than 100% (i.e. the building more than doubles in size), regardless of whether it would be considered a major or minor modification.

B. Exemption to Site Plan Requirement

1. Single and two family uses
2. Manufactured homes located on individual residential lots per Section 16.46.010, but including manufactured home parks.

C. Reserved

Response: These standards are understood. A site plan review is required, and the materials needed for such a review are provided as part of this application.

D. Required Findings

No site plan approval will be granted unless each of the following is found:

1. The proposed development meets applicable zoning district standards and design standards in Division II, and all provisions of Divisions V, VI, VIII and IX.

Response: The findings in this narrative, preliminary plans, and other documentation included in this application demonstrate compliance with the listed approval criteria. This criterion is met.

-
2. The proposed development can be adequately served by services conforming to the Community Development Plan, including but not limited to water, sanitary facilities, storm water, solid waste, parks and open space, public safety, electric power, and communications.

Response: The subject property can adequately be served by public urban services, which are located in adjacent or nearby rights-of-way. Stormwater will drain to the planned stormwater management facility located west of the subject site. With the addition of the SW Laurelwood Way right-of-way to the plans, compliance with the TEA Preferred Concept Plan, Transportation System Plan (TSP), and Comprehensive Plan is shown. These criteria are met.

3. Covenants, agreements, and other specific documents are adequate, in the City's determination, to assure an acceptable method of ownership, management, and maintenance of structures, landscaping, and other on-site features.

Response: Covenants, agreements, or other specific documents addressing ownership, management, and maintenance of structures, landscaping, and other on-site features are neither necessary nor planned. These criteria are met.

4. The proposed development preserves significant natural features to the maximum extent feasible, including but not limited to natural drainage ways, wetlands, trees, vegetation (including but not limited to environmentally sensitive lands), scenic views, and topographical features, and conforms to the applicable provisions of Division VIII of this Code and Chapter 5 of the Community Development Code.

Response: The site does not contain any identified or protected scenic views. An existing drainage way and vegetated corridor runs west of the subject site. Clean Water Services (CWS) has conducted a Sensitive Area Pre-Screening Site Assessment, verifying that the project will not significantly impact existing or potentially sensitive areas found west of SW Tonquin Road. Encroachment into these areas is unavoidable due to site topography, sanitary sewer connection, and layout needs, however, and permanent impacts to the wetland east of the SW Tonquin Road/SW Oregon Street intersection are required. A CWS Service Provider Letter is included in Exhibit J, and the project will comply with the CWS water quality protection requirements as issued. The project proposes the purchase of 0.27 acres of credits from the Tualatin Valley Environmental Bank to mitigate permanent impacts to the wetland. The applicable criteria are met.

5. For developments that are likely to generate more than 400 average daily trips (ADTs), or at the discretion of the City Engineer, the applicant must provide adequate information, such as a traffic impact analysis (TIA) or traffic counts, to demonstrate the level of impact to the surrounding transportation system. The developer is required to mitigate for impacts attributable to the project, pursuant to TIA requirements in Section 16.106.080 and rough proportionality requirements in Section 16.106.090. The determination of impact or effect and the scope of the

impact study must be coordinated with the provider of the affected transportation facility.

Response: Pursuant to the TIA requirements of Section 16.106.080 and the rough proportionality requirements of Section 16.106.090, a TIA was prepared by a licensed traffic engineer and rough proportionality for nearby transportation projects determined. The planned industrial complex of this size is likely to generate 572 average daily trips (ADT). This Traffic Impact Analysis is attached as Exhibit G. These criteria are met.

[...]

7. Industrial developments provide employment opportunities for citizens of Sherwood and the region as a whole. The proposed industrial development is designed to enhance areas visible from arterial and collector streets by reducing the "bulk" appearance of large buildings. Industrial design standards include the following:

a. Portions of the proposed industrial development within 200 feet of an arterial or collector street and visible to the arterial or collector (i.e. not behind another building) must meet any four of the following six design criteria:

(1) A minimum 15% window glazing for all frontages facing an arterial or collector.

Response: The site is located adjacent to and visible from two arterial streets, SW Oregon Street and SW Tonquin Road. Per the Building Elevation Exhibit (EX-1) included as part of Exhibit A, the industrial development is planned to provide a minimum of 15 percent window glazing for all frontages facing an arterial street. North elevations visible from SW Oregon Street provide 15 percent glazing. The west elevation of Building 1 visible from SW Tonquin Road provides 15.7 percent window glazing. Other building elevations are not visible from streets meeting the classification of arterial or collector. This design criterion is met for all buildings as proposed.

(2) A minimum of two (2) building materials used to break up vertical facade street facing frontages (no T-111 or aluminum siding).

Response: A minimum of two building materials are proposed to break up the vertical façade of street facing frontages. Per the Building Elevation Exhibit included as part of Exhibit A, the buildings are planned to have a ledgestone base, stone band, and corrugated steel siding. This design criterion is met for all buildings as proposed.

(3) Maximum thirty-five (35) foot setback for all parts of the building from the property line separating the site from all arterial or collector streets (required visual corridor falls within this maximum setback area).

Response: Because of the site configuration and orientation of arterial streets surrounding the site, a maximum 35-foot setback is not practicable.

-
- (4) Parking is located to the side or rear of the building when viewed from the arterial or collector.

Response: The project site abuts four rights-of-way. The primary frontage of the site, however, is SW Laurelwood Way, which is where access to the site is planned.

Building 1: Portions of Building 1 are greater than 200 feet from SW Oregon Street and SW Tonquin Road, both arterial streets. Due to the industrial nature of the site and need for both delivery and fire vehicle circulation throughout the site, parking and drive aisles were required to be located alongside Building 1. Although these parking areas are to the side of the building when viewed from SW Oregon Street, the parking areas appear in front of the building. Due to the grade differences between SW Tonquin Road (between 140 feet and 145 feet) and Building 1 (167 feet Finished Floor Elevation) are generally planned to be screened from view from SW Tonquin Road. This area lies at a higher elevation when viewed from street level, and multiple tree plantings are planned between the parking area, the stormwater facility, and SW Tonquin Road.

Building 2: Building 2 is only visible from SW Oregon Street. When viewed from SW Oregon Street, parking is provided to the side of the building.

Building 3: Building 3 provides parking visible from SW Oregon Street.

Building 4: Building 4 is not visible from SW Oregon Street or SW Tonquin Road and is greater than 200 feet from these arterial streets. The building, however, provides parking to the side of the building when viewed from the direction of SW Oregon Street.

This design criterion is met for Buildings 2 and 4.

- (5) Loading areas are located to the side or rear of the building when viewed from the arterial or collector. If a loading area is visible from an arterial or collector, it must be screened with vegetation or a screen made of materials matching the building materials.

Response: Loading areas are planned to be located on the side of each building of the industrial campus or screened from view by retaining walls or landscaping. This criterion is met for all buildings as proposed.

- (6) All roof-mounted equipment is screened with materials complimentary to the building design materials.

Response: Roof-mounted equipment has not been planned. Roof-mounted equipment, if desired in the future, is anticipated to be screened with materials complementary to the building design. Future roof-mounted equipment on Buildings 1 and 3 will be screened to comply with industrial design requirements to provide a fourth design element. Detailed elevations are available as part of Exhibit A. This criterion is met.

- b. As an alternative to Section 16.90.020.D.7.a, an applicant may opt to have a design review hearing before the Planning Commission to demonstrate

how the proposed development meets or exceeds the applicable industrial design objectives below (this design review hearing will be processed as a Type IV review):

- (1) Provide high-value industrial projects that result in benefits to the community, consumers and developers.
- (2) Provide diversified and innovative working environments that take into consideration community needs and activity patterns.
- (3) Support the City's goals of economic development.
- (4) Complement and enhance projects previously developed under the industrial design standards identified in Section 16.90.020.D.7.

Response: An alternative review to the standards of Section 16.90.020.D.7.a has not been planned; however, many of these criteria are met. The project will provide highly desirable industrial space for new and growing industrial companies. These spaces will provide diverse workspaces for area businesses to occupy that would otherwise need to locate elsewhere due to a lack of availability of small industrial suites in Sherwood. This project provides an opportunity for the community, consumers, and developers to support the City's goals of economic development by providing jobs, products, and services within Sherwood.

- (5) Enhance the appearance of industrial developments visible from arterials and collectors, particularly those considered "entrances" to Sherwood, including but not limited to: Highway 99W, Tualatin-Sherwood Road and Oregon Street.
- (6) Reduce the "bulk" appearance of large industrial buildings as viewed from the public street by applying exterior features such as architectural articulation, windows and landscaping.
- (7) Protect natural resources and encourage integration of natural resources into site design (including access to natural resources and open space amenities by the employees of the site and the community as a whole).

Response: Landscaping within visual corridors and vegetation within the stormwater facility will screen the site from SW Oregon Street and SW Tonquin Road. The industrial buildings are planned to be enhanced and framed by the appearance of landscaping. Windows and architectural material choices are planned to enhance the exterior appearance of the buildings and reduce "bulk." Natural resources, such as the wetlands on the western edge of the site near the future SW Oregon Street/SW Tonquin Road roundabout, will be enhanced with vegetation for stormwater treatment. These criteria are met.

-
8. Driveways that are more than twenty-four (24) feet in width shall align with existing streets or planned streets as shown in the Local Street Connectivity Map in the adopted Transportation System Plan (Figure 17), except where prevented by topography, rail lines, freeways, pre-existing development, or leases, easements, or covenants.

Response: The planned driveway providing ingress and egress connects to SW Laurelwood Way. There are no additional existing or planned streets to align with the driveway. The standard is not applicable.

E. Approvals

The application is reviewed pursuant to Chapter 16.72 and action taken to approve, approve with conditions, or deny the application for site plan review. Conditions may be imposed by the Review Authority if necessary to fulfill the requirements of the adopted Comprehensive Plan, Transportation System Plan or the Zoning and Community Development Code. The action must include appropriate findings of fact as required by Section 16.90.020. The action may be appealed to the Council in accordance with Chapter 16.76.

F. Time Limits

Site plan approvals are void after two (2) years unless construction on the site has begun, as determined by the City. The City may extend site plan approvals for an additional period not to exceed one (1) year, upon written request from the applicant showing adequate cause for such extension, and payment of an extension application fee as per Section 16.74.010. A site plan approval granted on or after January 1, 2007 through December 31, 2009, is extended until December 31, 2013.

Response: These standards are understood.

Chapter 16.92 - LANDSCAPING

16.92.010 - Landscaping Plan Required

All proposed developments for which a site plan is required pursuant to Section 16.90.020 shall submit a landscaping plan that meets the standards of this Chapter. All areas not occupied by structures, paved roadways, walkways, or patios shall be landscaped or maintained according to an approved site plan.

Response: The Preliminary Landscape Plan, prepared by a licensed landscape architect, is included in Exhibit A. Unpaved areas not occupied by structures are planned to be landscaped and maintained in accordance with the submitted plans, as applicable.

16.92.020 - Landscaping Materials

A. Type of Landscaping

Required landscaped areas shall include an appropriate combination of native evergreen or deciduous trees and shrubs, evergreen ground cover, and perennial plantings. Trees to be planted in or adjacent to public rights-of-way shall meet the requirements of this Chapter. Plants may be selected from the City's "Suggested Plant Lists for Required Landscaping Manual" or suitable for the Pacific Northwest

climate and verified by a landscape architect or certified landscape professional.

1. Ground Cover Plants

- a. All of the landscape that is not planted with trees and shrubs must be planted in ground cover plants, which may include grasses. Mulch is not a substitute for ground cover, but is allowed in addition to the ground cover plants.
- b. Ground cover plants other than grasses must be at least the four-inch pot size and spaced at distances appropriate for the plant species. Ground cover plants must be planted at a density that will cover the entire area within three (3) years from the time of planting.

2. Shrubs

- a. All shrubs must be of sufficient size and number to be at full growth within three (3) years of planting.
- b. Shrubs must be at least the one-gallon container size at the time of planting.

3. Trees

- a. Trees at the time of planting must be fully branched and must be a minimum of two (2) caliper inches and at least six (6) feet in height.
- b. Existing trees may be used to meet the standards of this chapter, as described in Section 16.92.020.C.2.

Response: The Preliminary Landscape Plan (Exhibit A) shows a combination of trees, shrubs, and ground cover in all landscaped areas in compliance with the minimum standards of this section. These criteria are met.

B. Plant Material Selection and Preparation

- 1. Required landscaping materials shall be established and maintained in a healthy condition and of a size sufficient to meet the intent of the approved landscaping plan. Specifications shall be submitted showing that adequate preparation of the topsoil and subsoil will be undertaken.
- 2. Landscape materials should be selected and sited to produce a hardy and drought-resistant landscape area. Selection of the plants should include consideration of soil type, and depth, the amount of maintenance required, spacing, exposure to sun and wind, the slope and contours of the site, and compatibility with existing native vegetation preserved on the site.

Response: Appropriate plant material has been selected to meet the applicable standards for the specific space and purpose. Irrigation will be provided by a fully automatic, underground system. Plants will cover the landscaping islands without overgrowth. Construction plans and specifications will be prepared to the required standards and show adequate plant health and topsoil preparation. Planting notes are provided on the landscaping plans. These criteria are met or will be met at the time of construction plan submittal.

C. Existing Vegetation

1. All developments subject to site plan review per Section 16.90.020 and required to submit landscaping plans per this section shall preserve existing trees, woodlands and vegetation on the site to the maximum extent possible, as determined by the Review Authority, in addition to complying with the provisions of Section 16.142.(Parks, Trees and Open Space) and Chapter 16.144 (Wetland, Habitat, and Natural Resources).
2. Existing vegetation, except those plants on the Nuisance Plants list as identified in the "Suggested Plant Lists for Required Landscaping Manual" may be used to meet the landscape standards, if protected and maintained during the construction phase of the development.
 - a. If existing trees are used, each tree six (6) inches or less in diameter counts as one (1) medium tree.
 - b. Each tree that is more than six (6) inches and up to nine (9) inches in diameter counts as two (2) medium trees.
 - c. Each additional three (3) inch diameter increment above nine (9) inches counts as an additional medium tree.

Response: The Existing Conditions Plan, included in Exhibit A, shows the trees currently on-site and the vegetation to be maintained. The Preliminary Landscape Plan reflects the applicable requirements in Section 16.142, which are addressed in the responses below. The applicable criteria are met.

D. Non-Vegetative Features

1. Landscaped areas as required by this Chapter may include architectural features interspersed with planted areas, such as sculptures, benches, masonry or stone walls, fences, rock groupings, bark dust, semi-pervious decorative paving, and graveled areas.
2. Impervious paving shall not be counted toward the minimum landscaping requirements unless adjacent to at least one (1) landscape strip and serves as a pedestrian pathway.
3. Artificial plants are prohibited in any required landscaped area.

Response: Required landscaping will be planted with trees, ground cover, and shrubs. No non-vegetative features are planned. These standards are met.

16.92.030 - Site Area Landscaping and Perimeter Screening Standards

A. Perimeter Screening and Buffering

1. Perimeter Screening Separating Residential Zones:
A minimum six-foot high sight-obscuring wooden fence, decorative masonry wall, or evergreen screen, shall be required along property lines separating single and two-family uses from multi-family uses, and along property lines

separating residential zones from commercial, institutional/public or industrial zones subject to the provisions of Chapter 16.48.020 (Fences, Walls and Hedges).

- a. For new uses adjacent to inventoried environmentally sensitive areas, screening requirements shall be limited to vegetation only to preserve wildlife mobility. In addition, the Review Authority may require plants and other landscaping features in locations and sizes necessary to protect the privacy of residences and buffer any adverse effects of adjoining uses.
- b. The required screening shall have breaks, where necessary, to allow pedestrian access to the site. The design of the wall or screening shall also provide breaks or openings for visual surveillance of the site and security.
- c. Evergreen hedges used to comply with this standard shall be a minimum of thirty-six (36) inches in height at maturity, and shall be of such species, number and spacing to provide the required screening within one (1) year after planting.

Response: The project site does not directly abut residential zones. The property abuts a residential zone southeast of the SW Oregon Street/SW Murdock Road roundabout. This area is the location of the Rock Creek corridor, a wetland and floodplain, and is not planned to be used for industrial development. This area is planned to remain as-is; therefore, these criteria do not apply.

2. Perimeter Landscaping Buffer

- a. A minimum ten (10) foot wide landscaped strip comprised of trees, shrubs and ground cover shall be provided between off-street parking, loading, or vehicular use areas on separate, abutting, or adjacent properties.

Response: A 10-foot or greater width landscaped strip is provided along the perimeter of the site. Along the southern and eastern edges of the site, this landscaped buffer is 10 feet in width. Along the northern and western edges of the site, this buffer is between 15 to +200 feet in width. This criterion is met.

- b. The access drives to a rear lots in the residential zone (i.e. flag lot) shall be separated from abutting property(ies) by a minimum of forty-two-inch sight-obscuring fence or a forty-two-inch to an eight (8) feet high landscape hedge within a four-foot wide landscape buffer. Alternatively, where existing mature trees and vegetation are suitable, Review Authority may waive the fence/buffer in order to preserve the mature vegetation.

Response: The project site does not abut access drives within a residential zone. These criteria do not apply.

[...]

B. Parking Area Landscaping

1. Purpose

The standard is a landscape treatment that uses a combination of trees, shrubs, and ground cover to provide shade, storm water management, aesthetic benefits, and screening to soften the impacts of large expanses of pavement and vehicle movement. It is applied to landscaped areas within and around the parking lot and loading areas.

2. Definitions

a. **Parking Area Landscaping:** Any landscaped area on the site that is not required as perimeter landscaping § 16.92.030 (Site Landscaping and Screening).

b. **Canopy Factor**

(1) Landscape trees are assigned a canopy factor to determine the specific number of required trees to be planted. The canopy factor is calculated based on the following formula:

$$\text{Canopy Factor} = \text{Mature Height (in feet)} \times \text{Canopy Spread (in feet)} \times \text{Growth Rate Factor} \times .01$$

(2) **Growth Rate Factor:** The growth rate factor is three (3) for fast-growing trees, two (2) for medium growing trees, and one (1) for slow growing trees. The growth rate of a tree is identified in the "Suggested Plant Lists for Required Landscaping Manual."

3. Required Landscaping

There shall be at least forty-five (45) square feet parking area landscaping for each parking space located on the site. The amount of required plant materials are based on the number of spaces as identified below.

Response: The Preliminary Site Plan shows 185 parking spaces, which require 8,325 square feet of landscaping. The Preliminary Landscape Plan shows greater than ±20,410 square feet of interior parking lot landscaping and greater than ±134,881 square feet of landscaping with the inclusion of the stormwater facility as specified below.

The proposed tree canopy at maturity has been estimated at ±185,105 square feet, exceeding 30 percent of the site (±104,256 square feet).

The Preliminary Landscape Plan is available as Sheet P13 of the Preliminary Plans (Exhibit A). Parking lot landscaping areas have been illustrated on Sheet EX-2 of Exhibit A. These criteria are met.

4. Amount and Type of Required Parking Area Landscaping

a. **Number of Trees required based on Canopy Factor**

Small trees have a canopy factor of less than forty (40), medium trees have a canopy factor from forty (40) to ninety (90), and large trees have a canopy factor greater than ninety (90);

- (1) Any combination of the following is required:
 - (i) One (1) large tree is required per four (4) parking spaces;
 - (ii) One (1) medium tree is required per three (3) parking spaces; or
 - (iii) One (1) small tree is required per two (2) parking spaces.
 - (iv) At least five (5) percent of the required trees must be evergreen.
- (2) Street trees may be included in the calculation for the number of required trees in the parking area.

Response: The Preliminary Landscape Plan (Exhibit A) shows 89 trees are proposed with a combination of large (Marshall’s Green Ash, Austrian Pine, and Green Vase Sawleaf Zelkova) and small (Vine Maple) tree selections to meet the canopy factor required.

Based on the planned provision of 185 parking spaces and the following calculations, the parking lot canopy requirements are met:

Vine Maple is a small tree (Canopy Factor 10). There are 27 planned within the landscaped areas on the site. These trees provide canopy for 54 parking spaces (27 trees x (2 parking spaces/1 small tree) = 54 parking spaces).

Marshall’s Green Ash is classified as a large tree (Canopy Factor 200) and provides canopy for 92 parking spaces (23 trees x (4 parking spaces/1 large tree) = 92 parking spaces).

Austrian Pine is classified as a large tree (Canopy Factor 100). The eight plantings provide canopy for 32 parking spaces (8 trees x (4 parking spaces/1 large tree) = 32 parking spaces).

Western Red Cedar is an evergreen species and nine are provided within the landscaping areas. These trees provide a mature canopy of up to 70 feet in diameter, classifying them as a large tree (Canopy Factor 105) and providing canopy for 36 parking spaces (9 trees x (4 parking spaces/1 large tree) = 36 parking spaces).

Green Vase Sawleaf Zelkova is another large tree with a Canopy Factor of 192. The 22 plantings will provide canopy for 88 parking spaces (22 trees x (4 parking spaces/1 large tree) = 88 parking spaces).

Street tree species proposed include Paperbark Maple (Canopy Factor 10 – Small) and American Linden (Canopy Factor 150 – Large). Thirty-one maples are planned, providing canopy for an additional 62 parking spaces at the small tree rate (2 parking spaces/1 small tree). Canopy for 164 parking spaces is provided by the American Linden plantings (41 trees x (4 parking spaces/1 large tree) = 164 parking spaces).

Per the above calculations, canopy is provided for 152 parking spaces on-site. Parking lot tree canopy is provided for 436 parking spaces; however, only 185 parking spaces are proposed. Therefore, the planned landscaping exceeds the canopy factor requirements.

- b. Shrubs:
 - (1) Two (2) shrubs are required per each space.
 - (2) For spaces where the front two (2) feet of parking spaces have been landscaped instead of paved, the standard requires one (1) shrub per space. Shrubs may be evergreen or deciduous.
- c. Ground cover plants:
 - (1) Any remainder in the parking area must be planted with ground cover plants.
 - (2) The plants selected must be spaced to cover the area within three (3) years. Mulch does not count as ground cover.

Response: Based on the planned provision of 185 parking spaces, minus 51 parking spaces abutting landscaped areas instead of paved areas, 319 shrubs are required, and 683 shrub plantings are proposed, 419 of which are adjacent to parking areas. The remainder of the parking area landscaping will be planted with ground cover. The selected plants are anticipated to cover their respective planting areas within three years of planting. These criteria are met.

5. Individual Landscape Islands Requirements

- a. Individual landscaped areas (islands) shall be at least ninety (90) square feet in area and a minimum width of five (5) feet and shall be curbed to protect the landscaping.
- b. Each landscape island shall be planted with at least one (1) tree.
- c. Landscape islands shall be evenly spaced throughout the parking area.
- d. Landscape islands shall be distributed according to the following:
 - [...]
 - (3) Industrial uses: one (1) island for every twelve (12) contiguous parking spaces.

Response: The Preliminary Landscape Plan (Exhibit A) shows individual landscaped areas will be at least 90 square feet and have a minimum width of 5 feet. Islands contain at least one tree and will be curbed to protect landscaping. Islands are distributed as necessary to ensure there are no more than 12 contiguous parking spaces. These criteria are met.

- e. Storm water bio-swales may be used in lieu of the parking landscape areas and may be included in the calculation of the required landscaping amount.

Response: The planted stormwater facility is generally adjacent to the parking area; therefore, the landscape area has been included as part of the calculation of required parking lot landscaping. This criterion is met.

f. **Exception to Landscape Requirement**

Linear raised or marked sidewalks and walkways within the parking areas connecting the parking spaces to the on-site buildings may be included in the calculation of required site landscaping provide that it:

- (1) Trees are spaced a maximum of thirty (30) feet on at least one (1) side of the sidewalk.
- (2) The minimum unobstructed sidewalk width is at least six (6) feet wide.
- (3) The sidewalk is separated from the parking areas by curbs, bollards, or other means on both sides.

Response: Exceptions to the landscaping requirements are not anticipated as part of this application. These criteria do not apply.

6. **Landscaping at Points of Access**

When a private access-way intersects a public right-of-way or when a property abuts the intersection of two (2) or more public rights-of-way, landscaping shall be planted and maintained so that minimum sight distances shall be preserved pursuant to Section 16.58.010.

Response: The Preliminary Landscape Plan (Exhibit A) shows plantings near the planned access points have been designed not to obstruct minimum sight distances. The criterion is met.

7. **Exceptions**

- a. For properties with an environmentally sensitive area and/or trees or woodlands that merit protection per Chapters 16.142 (Parks, Trees and Open Space) and 16.144 (Wetland, Habitat and Natural Areas) the landscaping standards may be reduced, modified or "shifted" on-site where necessary in order to retain existing vegetation that would otherwise be removed to meet the above referenced landscaping requirements.
- b. The maximum reduction in required landscaping buffer permitted through this exception process shall be no more than fifty (50) percent. The resulting landscaping buffer after reduction may not be less than five (5) feet in width unless otherwise permitted by the underlying zone. Exceptions to the required landscaping may only be permitted when reviewed as part of a land use action application and do not require a separate variance permit.

Response: The landscaping has not been planned to require alteration or reduction due to existing environmentally sensitive areas, trees, or woodlands.

C. Screening of Mechanical Equipment, Outdoor Storage, Service and Delivery Areas

All mechanical equipment, outdoor storage and manufacturing, and service and delivery areas, shall be screened from view from all public streets and any adjacent residential zones. If unfeasible to fully screen due to policies and standards, the applicant shall make efforts to minimize the visual impact of the mechanical equipment.

Response: Where the location of mechanical equipment, outdoor storage, and service and delivery areas are known, the Preliminary Plans (Exhibit A) demonstrate that they will be sited or sufficiently screened to restrict their visibility from public streets. Adjacent residential zones are located ±630 feet to the west, beyond both the site’s stormwater facility and the Rock Creek corridor, and are sufficiently screened. This criterion is met.

D. Visual Corridors

Except as allowed by subsection 6. above, new developments shall be required to establish landscaped visual corridors along Highway 99W and other arterial and collector streets, consistent with the Natural Resources and Recreation Plan Map, Appendix C of the Community Development Plan, Part II, and the provisions of Chapter 16.142 (Parks, Trees, and Open Space). Properties within the Old Town Overlay are exempt from this standard.

Response: As the project site abuts two arterial streets, SW Oregon Street and SW Tonquin Road, visual corridors are required along those frontages. Fifteen-foot visual corridors have been illustrated on the Preliminary Site Plan and Preliminary Landscape Plan (Exhibit A). These criteria are met.

16.92.040 - Installation and Maintenance Standards

A. Installation

All required landscaping must be in-ground, except when in raised planters that are used to meet minimum Clean Water Services storm water management requirements. Plant materials must be installed to current nursery industry standards. Plant materials must be properly supported to ensure survival. Support devices such as guy wires or stakes must not interfere with vehicular or pedestrian movement.

B. Maintenance and Mitigation of Landscaped Areas

1. Maintenance of existing non-invasive native vegetation is encouraged within a development and required for portions of the property not being developed.
2. All landscaping shall be maintained in a manner consistent with the intent of the approved landscaping plan.
3. Any required landscaping trees removed must be replanted consistent with the approved landscaping plan and comply with § 16.142, (Parks, Trees and Open Space).

C. Irrigation

The intent of this standard is to ensure that plants will survive the critical establishment period when they are most vulnerable due to lack of watering. All landscaped areas must provide an irrigation system, as stated in Option 1, 2, or 3.

1. Option 1: A permanent built-in irrigation system with an automatic controller installed.
2. Option 2: An irrigation system designed and certified by a licensed landscape architect or other qualified professional as part of the landscape plan, which provides sufficient water to ensure that the plants become established. The system does not have to be permanent if the plants chosen can survive independently once established.
3. Option 3: Irrigation by hand. If the applicant chooses this option, an inspection will be required one (1) year after final inspection to ensure that the landscaping has become established.

Response: The landscaping has been proposed to be planted in-ground and be permanently irrigated with an automatic controller. This criterion is met.

[...]

Chapter 16.94 - OFF-STREET PARKING AND LOADING

16.94.010 - General Requirements

A. Off-Street Parking Required

No site shall be used for the parking of vehicles until plans are approved providing for off-street parking and loading space as required by this Code. Any change in uses or structures that reduces the current off-street parking and loading spaces provided on site, or that increases the need for off-street parking or loading requirements shall be unlawful and a violation of this Code, unless additional off-street parking or loading areas are provided in accordance with Section 16.94.020, or unless a variance from the minimum or maximum parking standards is approved in accordance with Chapter 16.84 Variances.

B. Deferral of Improvements

Off-street parking and loading spaces shall be completed prior to the issuance of occupancy permits, unless the City determines that weather conditions, lack of available surfacing materials, or other circumstances beyond the control of the applicant make completion impossible. In such circumstances, security equal to one hundred twenty five (125) percent of the cost of the parking and loading area is provided the City. "Security" may consist of a performance bond payable to the City, cash, certified check, or other assurance of completion approved by the City. If the installation of the parking or loading area is not completed within one (1) year, the security may be used by the City to complete the installation.

[...]

D. Prohibited Uses

Required parking, loading and maneuvering areas shall not be used for long-term storage or sale of vehicles or other materials, and shall

not be rented, leased or assigned to any person or organization not using or occupying the building or use served.

Response: These standards, as applicable, are understood. Parking has been proposed and provided per the applicable code provisions. Deferral of improvements, shared parking, and prohibited uses have not been proposed.

E. Location

[...]

2. For other uses, required off-street parking spaces may include adjacent on-street parking spaces, nearby public parking and shared parking located within five hundred (500) feet of the use. The distance from the parking, area to the use shall be measured from the nearest parking space to a building entrance, following a sidewalk or other pedestrian route. The right to use private off-site parking must be evidenced by a recorded deed, lease, easement, or similar written notarized letter or instrument.

3. Vehicle parking is allowed only on improved parking shoulders that meet City standards for public streets, within garages, carports and other structures, or on driveways or parking lots that have been developed in conformance with this code. Specific locations and types of spaces (car pool, compact, etc.) for parking shall be indicated on submitted plans and located to the side or rear of buildings where feasible.

a. All new development with forty (40) employees or more shall include preferential spaces for carpool/vanpool designation. Carpool and vanpool parking spaces shall be located closer to the main employee entrance than all other parking spaces with the exception of ADA parking spaces. Carpool/vanpool spaces shall be clearly marked as reserved for carpool/vanpool only.

[...]

Response: The Preliminary Site Plan (Exhibit A) shows that required off-street parking for the planned industrial project can be accommodated entirely on-site. The project will accommodate greater than 40 employees. Therefore, a carpool/vanpool parking space is required and is illustrated on the Preliminary Site Plan (Exhibit A). These criteria are met.

F. Marking

All parking, loading or maneuvering areas shall be clearly marked and painted. All interior drives and access aisles shall be clearly marked and signed to show the direction of flow and maintain vehicular and pedestrian safety.

Response: All parking, loading, and maneuvering areas are planned to be marked, as shown on the preliminary plans. The planned markings will clearly show the direction of flow and maintain safety for vehicles and pedestrians. The criterion is met.

G. Surface and Drainage

-
1. All parking and loading areas shall be improved with a permanent hard surface such as asphalt, concrete or a durable pervious surface. Use of pervious paving material is encouraged and preferred where appropriate considering soils, location, anticipated vehicle usage and other pertinent factors.
 2. Parking and loading areas shall include storm water drainage facilities approved by the City Engineer or Building Official.

Response: All parking and loading areas will be improved with a permanent hard surface such as asphalt pavement. Stormwater will be captured on-site and conveyed to the planned stormwater facility located at the western edge of the subject site. The criteria are met.

[...]

I. Parking and Loading Plan

An off-street parking and loading plan, drawn to scale, shall accompany requests for building permits or site plan approvals, except for single and two-family dwellings, and manufactured homes on residential lots. The plan shall show but not be limited to:

1. Delineation of individual parking and loading spaces and dimensions.
2. Circulation areas necessary to serve parking and loading spaces.
3. Location of accesses to streets, alleys and properties to be served, and any curb cuts.
4. Landscaping as required by Chapter 16.92.
5. Grading and drainage facilities.
6. Signing and bumper guard specifications.
7. Bicycle parking facilities as specified in Section 16.94.020.C.
8. Parking lots more than one (1) acre in size shall provide street-like features including curbs, sidewalks, and street trees or planting strips.

Response: The Preliminary Plans (Exhibit A) included with this application provide the information listed above. The criteria are met.

[...]

16.94.020 - Off-Street Parking Standards

A. Generally

Where square feet are specified, the area measured shall be the gross building floor area primary to the functioning of the proposed use. Where employees are specified, persons counted shall be those working on the premises, including proprietors, during the largest shift at peak season. Fractional space requirements shall be counted as a whole space. The Review Authority may determine alternate off - street parking and loading requirements for a use not specifically listed in this Section based upon the requirements of comparable uses.

Table 1: Minimum and Maximum Parking Standards (Metro spaces are based on 1 per 1,000 sq ft of gross leasable area)			
	Minimum Parking Standard	Maximum Permitted Parking Zone A ¹	Maximum Permitted Parking Zone B ²
Industrial	1.6	None	None

¹ Parking Zone A reflects the maximum number of permitted vehicle parking spaces allowed for each listed land use. Parking Zone A areas include those parcels that are located within one-quarter (1/4) mile walking distance of bus transit stops, one-half (1/2) mile walking distance of light rail station platforms, or both, or that have a greater than twenty-minute peak hour transit service.

² Parking Zone B reflects the maximum number of permitted vehicle parking spaces allowed for each listed land use. Parking Zone B areas include those parcels that are located at a distance greater than one-quarter (1/4) mile walking distance of bus transit stops, one-half (1/2) mile walking distance of light rail station platforms, or both.

Response: Based on the planned ±115,170 square feet of gross floor area of the buildings, the planned uses, and the parking ratios listed above, 185 parking spaces are required. The Preliminary Site Plan (Exhibit A) shows 185 planned parking spaces. Maximum parking does not apply to industrial uses. These criteria are met.

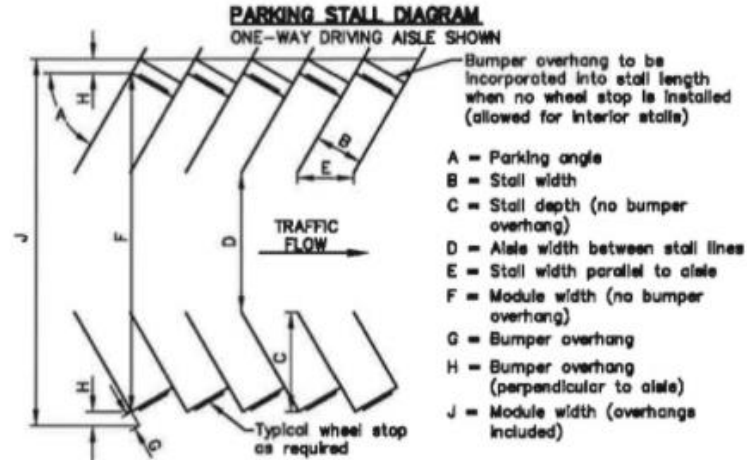
B. Dimensional and General Configuration Standards

1. Dimensions For the purpose of this Chapter, a "parking space" means a stall nine (9) feet in width and twenty (20) feet in length. Up to twenty five (25) percent of required parking spaces may have a minimum dimension of eight (8) feet in width and eighteen (18) feet in length so long as they are signed as compact car stalls.

Response: The Preliminary Site Plan (Exhibit A) shows at least 75 percent of parking spaces are planned to be full size spaces, per the required dimensions above and Table 3, below. Compact parking spaces are not planned. These criteria are met.

2. Layout

Parking space configuration, stall and access aisle size shall be of sufficient width for all vehicle turning and maneuvering. Groups of more than four (4) parking spaces shall be served by a driveway so as to minimize backing movements or other maneuvering within a street, other than an alley. All parking areas shall meet the minimum standards shown in the following table and diagram.



**Table 3: Two-Way Driving Aisle
(Dimensions in Feet)**

A	B	C	D	E	F	G	H	J
45°	8.0	16.5	24.0	11.3	57.0	3.0	2.5	62.0
	9.0	18.5	24.0	12.7	61.0	3.0	2.5	66.0
60°	8.0	17.0	24.0	9.2	58.0	3.0	2.5	63.0
	9.0	19.5	24.0	10.4	63.0	3.0	2.5	68.0
75°	8.0	16.5	26.0	8.3	59.0	3.0	3.0	65.0
	9.0	19.0	24.0	9.3	62.0	3.0	3.0	68.0
90°	8.0	15.0	26.0	8.0	56.0	3.0	3.0	62.0
	9.0	17.0	24.0	9.0	58.0	3.0	3.0	64.0

Response: The Preliminary Site Plan (Exhibit A) shows all parking spaces will be served by drive aisles that meet the applicable requirements for 90-degree parking. The criterion is met.

3. Wheel Stops

- a. Parking spaces along the boundaries of a parking lot or adjacent to interior landscaped areas or sidewalks shall be provided with a wheel stop at least four (4) inches high, located three (3) feet back from the front of the parking stall as shown in the above diagram.
- b. Wheel stops adjacent to landscaping, bio-swaales or water quality facilities shall be designed to allow storm water runoff.
- c. The paved portion of the parking stall length may be reduced by three (3) feet if replaced with three (3) feet of low lying landscape or hardscape in lieu of a wheel stop; however, a curb is still required. In other words, the traditional three-foot vehicle overhang from a wheel stop may be low-lying landscaping rather than an impervious surface.

[...]

Response: Wheel stops are planned as shown on the Preliminary Site Plan (Exhibit A). As such, parking stalls are planned to have limited overhang onto sidewalks and landscaped areas. The applicable criteria are met.

6. **Reduction in Required Parking Spaces**

Developments utilizing Engineered storm water bio-swales or those adjacent to environmentally constrained or sensitive areas may reduce the amount of required parking spaces by ten (10) percent when twenty-five (25) through forty-nine (49) parking spaces are required, fifteen (15) percent when fifty (50) and seventy-four (74) parking spaces are required and twenty (20) percent when more than seventy-five (75) parking spaces are required, provided the area that would have been used for parking is maintained as a habitat area or is generally adjacent to an environmentally sensitive or constrained area.

Response: The proposed project provides the required number of parking spaces. Therefore, a decrease to the minimum number of parking stalls is not required. This standard does not apply.

C. **Bicycle Parking Facilities**

1. **General Provisions**

- a. **Applicability.** Bicycle parking spaces shall be provided for new development, changes of use, and major renovations, defined as construction valued at twenty-five (25) percent or more of the assessed value of the existing structure.
- b. **Types of Spaces.** Bicycle parking facilities shall be provided in terms of short-term bicycle parking and long-term bicycle parking. Short-term bicycle parking is intended to encourage customers and other visitors to use bicycles by providing a convenient and readily accessible place to park bicycles. Long-term bicycle parking provides employees, students, residents, commuters, and others who generally stay at a site for at least several hours a weather-protected place to park bicycles.
- c. **Minimum Number of Spaces.** The required total minimum number of bicycle parking spaces for each use category is shown in Table 4, Minimum Required Bicycle Parking Spaces.
- d. **Minimum Number of Long-term Spaces.** If a development is required to provide eight (8) or more required bicycle parking spaces in Table 4, at least twenty-five (25) percent shall be provided as long-term bicycle with a minimum of one (1) long-term bicycle parking space.
- e. **Multiple Uses.** When there are two or more primary uses on a site, the required bicycle parking for the site is the sum of the required bicycle parking for the individual primary uses.

Response: Per the ratio of “2 or 1 per 40 spaces, whichever is greater” in Table 4, five bicycle parking spaces are required for the planned industrial use. The Preliminary Site Plan (Exhibit A) shows the planned bicycle parking location. Long-term spaces are neither planned nor required as the industrial development is required to provide less than eight bicycle parking spaces. The applicable criteria are met.

2. Location and Design.

a. General Provisions

- (1) Each space must be at least two (2) feet by six (6) feet in area, be accessible without moving another bicycle, and provide enough space between the rack and any obstructions to use the space properly.
- (2) There must be an aisle at least five (5) feet wide behind all required bicycle parking to allow room for bicycle maneuvering. Where the bicycle parking is adjacent to a sidewalk, the maneuvering area may extend into the right-of-way.
- (3) Lighting. Bicycle parking shall be at least as well lit as vehicle parking for security.
- (4) Reserved Areas. Areas set aside for bicycle parking shall be clearly marked and reserved for bicycle parking only.
- [...]
- (6) Hazards. Bicycle parking shall not impede or create a hazard to pedestrians. Parking areas shall be located so as to not conflict with vision clearance standards.

Response: Planned bicycle parking has been located and designed to accommodate the design standards listed above. Per Table 4, five bicycle spaces are required for the planned industrial uses. The Preliminary Site Plan (Exhibit A) illustrates the planned bicycle parking locations distributed throughout the site. Per the submitted Preliminary Site Lighting Plan (Sheet P20 – Exhibit A), fixtures are planned to adequately light each bicycle parking space. Upon submittal of a final site plan review application, concurrent with a building permit submittal, a final photometric plan is anticipated to be submitted to demonstrate compliance with the bicycle parking lighting requirement. The applicable criteria are met.

b. Short-term Bicycle Parking

- (1) Provide lockers or racks that meet the standards of this section.
- (2) Locate inside or outside the building within thirty (30) feet of the main entrance to the building or at least as close as the nearest vehicle parking space, whichever is closer.

Response: The Preliminary Site Plan (Exhibit A) shows the planned location of short-term bicycle parking. Because building entrances are spread throughout the industrial campus, bicycle

racks are distributed throughout the site, but generally planned to be located within 30 feet of a building entrance. These criteria are met.

- c. Long-term Bicycle Parking
 - (1) Provide racks, storage rooms, or lockers in areas that are secure or monitored (e.g., visible to employees or customers or monitored by security guards).
 - (2) Locate the outside bicycle parking spaces within one hundred (100) feet of the entrance that will be accessed by the intended users.
 - (3) All of the spaces shall be covered.
- d. Covered Parking (Weather Protection)
 - (1) When required, covered bicycle parking shall be provided in one (1) of the following ways: inside buildings, under roof overhangs or awnings, in bicycle lockers, or within or under other structures.
 - (2) Where required covered bicycle parking is not within a building or locker, the cover must be permanent and designed to protect the bicycle from rainfall and provide seven-foot minimum overhead clearance.
 - (3) Where required bicycle parking is provided in lockers, the lockers shall be securely anchored.

Table 4: Minimum Required Bicycle Parking Spaces

Use Categories	Minimum Required Spaces
Industrial Categories	
Industrial	2 or 1 per 40 spaces, whichever is greater

Response: The Preliminary Site Plan (Exhibit A) shows the planned locations for five required bicycle parking spaces (±4.63 for 185 vehicle parking spaces). Long-term or covered spaces are neither planned nor required. The applicable criteria have been met.

16.94.030 - Off-Street Loading Standards

- A. Minimum Standards
 - [...]
 - 2. The minimum loading area for non-residential uses shall not be less than ten (10) feet in width by twenty-five (25) feet in length and shall have an unobstructed height of fourteen (14) feet.
 - 3. Multiple uses on the same parcel or adjacent parcels may utilize the same loading area if it is shown in the development application that the uses will not have substantially overlapping delivery times.

-
4. The following additional minimum loading space is required for buildings in excess of twenty thousand (20,000) square feet of gross floor area:
 - a. Twenty thousand (20,000) to fifty (50,000) sq. ft. - five hundred (500) sq. ft.
 - b. Fifty (50,000) sq. ft. or more - seven hundred fifty (750) sq. ft.

Response: The Preliminary Site Plan (Exhibit A) illustrates loading areas meeting these minimum requirements. The loading areas are at least 10 feet in width by 25 feet in length with an unobstructed height of at least 14 feet. Greater than 50,000 square feet of gross floor area is planned; therefore, the additional minimum loading space of at least 750 square feet is planned to be provided. These criteria are met.

B. Separation of Areas

Any area to be used for the maneuvering of delivery vehicles and the unloading or loading of materials shall be separated from designated off-street parking areas and designed to prevent the encroachment of delivery vehicles onto off-street parking areas or public streets. Off-street parking areas used to fulfill the requirements of this Chapter shall not be used for loading and unloading operations.

Response: Areas designated for the maneuvering of delivery vehicles and loading areas are planned to be separated from off-street parking areas. These areas are designed to prevent the encroachment of delivery vehicles onto off-street parking areas or public streets. Loading and unloading is not planned within required parking areas. These criteria are met.

[...]

Chapter 16.96 - ON-SITE CIRCULATION

16.96.010 - On-Site Pedestrian and Bicycle Circulation

A. Purpose

On-site facilities shall be provided that accommodate safe and convenient pedestrian access within new subdivisions, multi-family developments, planned unit developments, shopping centers and commercial districts, and connecting to adjacent residential areas and neighborhood activity centers within one-half mile of the development. Neighborhood activity centers include but are not limited to existing or planned schools, parks, shopping areas, transit stops or employment centers. All new development, (except single-family detached housing), shall provide a continuous system of private pathways/sidewalks.

B. Maintenance

No building permit or other City permit shall be issued until plans for ingress, egress and circulation have been approved by the City. Any change increasing any ingress, egress or circulation requirements, shall be a violation of this Code unless additional facilities are provided in accordance with this Chapter.

C. Joint Access

Two (2) or more uses, structures, or parcels of land may utilize the same ingress and egress when the combined ingress and egress of all

uses, structures, or parcels of land satisfied the other requirements of this Code, provided that satisfactory legal evidence is presented to the City in the form of deeds, easements, leases, or contracts to clearly establish the joint use.

D. Connection to Streets

1. Except for joint access per this Section, all ingress and egress to a use or parcel shall connect directly to a public street, excepting alleyways with paved sidewalk.
2. Required private sidewalks shall extend from the ground floor entrances or the ground floor landing of stairs, ramps or elevators to the public sidewalk or curb of the public street which provides required ingress and egress.

Response: The proposed development will connect directly to public streets, SW Oregon Street and SW Laurelwood Way. Ingress and egress per SZCDC are planned, with private sidewalks extending from the ground floor entrances to the public sidewalk via connections to SW Oregon Street and SW Laurelwood Way. Therefore, these criteria are met.

E. Maintenance of Required Improvements

Required ingress, egress and circulation improvements shall be kept clean and in good repair.

F. Access to Major Roadways

Points of ingress or egress to and from Highway 99W and arterials designated on the Transportation Plan Map, attached as Appendix C of the Community Development Plan, Part II, shall be limited as follows:

[...]

2. Other private ingress or egress from Highway 99W and arterial roadways shall be minimized. Where alternatives to Highway 99W or arterials exist or are proposed, any new or altered uses developed after the effective date of this Code shall be required to use the alternative ingress and egress.
3. All site plans for new development submitted to the City for approval after the effective date of this Code shall show ingress and egress from existing or planned local or collector streets, consistent with the Transportation Plan Map and Section VI of the Community Development Plan.

G. Service Drives

Service drives shall be provided pursuant to Section 16.94.030.

Response: The proposed development is not required to provide greater than one driveway, per Section 16.96.030. Therefore, only one access to SW Laurelwood Way has been planned. The access to a local street meets the above requirements minimizing access to surrounding arterial streets. These criteria are met.

16.96.030 - Minimum Non-Residential Standards

Minimum standards for private, on-site circulation improvements in non-residential developments:

A. Driveways

[...]

2. Industrial: Improved hard surfaced driveways are required as follows:

Required		Minimum Width	
Parking Spaces	# Driveways	One-Way Pair	Two-Way
1 – 249	1	15 feet	24 feet
250 & Above	2	15 feet	24 feet

3. Surface materials are encouraged to be pervious when appropriate considering soils, anticipated vehicle usage and other pertinent factors.

Response: The Preliminary Site Plan (Exhibit A) demonstrates that the driveway is planned to exceed the minimum 24-foot width requirement. Based on anticipated vehicle usage, pervious surfaces are not planned. These criteria are met.

B. Sidewalks and Curbs

1. A private pathway/sidewalk system extending throughout the development site shall be required to connect to existing development, to public rights-of-way with or without improvements, to parking and storage areas, and to connect all building entrances to one another. The system shall also connect to transit facilities within five hundred (500) feet of the site, future phases of development, and whenever possible to parks and open spaces.
2. Curbs shall also be required at a standard approved by the Hearing Authority. Private pathways/sidewalks shall be connected to public rights-of-way along driveways but may be allowed other than along driveways if approved by the Hearing Authority.
3. Private Pathway/Sidewalk Design. Private pathway surfaces shall be concrete, asphalt, brick/masonry pavers, or other pervious durable surface. Primary pathways connecting front entrances to the right of way shall be at least 6 feet wide and conform to ADA standards. Secondary pathways between buildings and within parking areas shall be a minimum of four (4) feet wide and/or conform to ADA standards. Where the system crosses a parking area, driveway or street, it shall be clearly marked with contrasting paving materials or raised crosswalk (hump). At a minimum all crosswalks shall include painted striping.
4. Exceptions. Private pathways/sidewalks shall not be required where physical or topographic conditions make a connection impracticable, where buildings or other existing development on adjacent lands physically preclude a connection now or in the future considering the potential for redevelopment; or pathways would violate provisions of leases, restrictions or other agreements.

Response: The Preliminary Site Plan (Exhibit A) illustrates an accessible connection extending from the building entrances to other buildings on the site and extending to the multiuse path (Ice Age Trail) planned along SW Oregon Street and the public sidewalk planned along SW Laurelwood Way. Raised walkways with curbs are provided to separate vehicles and

pedestrians. Walkways are planned to be constructed of a durable and hard surface, meet applicable Americans with Disabilities Act (ADA) standards, and meet the applicable dimensional requirements. Driveway crossings will be marked, as applicable. These criteria, where applicable, are met.

16.96.040 - On-Site Vehicle Circulation

[...]

C. Connection to Streets

1. Except for joint access per this Section, all ingress and egress to a use or parcel shall connect directly to a public street, excepting alleyways.
2. Required private sidewalks shall extend from the ground floor entrances or the ground floor landing of stairs, ramps or elevators to the public sidewalk or curb of the public street which provides required ingress and egress.

[...]

Response: On-site vehicular circulation and direct vehicular access are planned to be provided to SW Laurelwood Way. Private sidewalks will connect ground floor entrances of each building to the multiuse path planned on SW Oregon Street and public sidewalk planned on SW Laurelwood Way. These criteria are met.

Chapter 16.98 - ON-SITE STORAGE*

16.98.020 - Solid Waste and Recycling Storage

All uses shall provide solid waste and recycling storage receptacles which are adequately sized to accommodate all solid waste generated on site. All solid waste and recycling storage areas and receptacles shall be located out of public view. Solid waste and recycling receptacles for multi-family, commercial, industrial and institutional uses shall be screened by six (6) foot high sight-obscuring fence or masonry wall and shall be easily accessible to collection vehicles.

Response: Trash and recycling enclosures have been planned throughout the site for ease of access by tenants of the industrial space. The enclosures consist of 6-foot-tall masonry walls to provide screening. The final location and orientation of the trash enclosures will be coordinated with Pride Disposal Company. These criteria are met.

16.98.030 - Material Storage

- A. Generally. Except as otherwise provided herein, external material storage is prohibited, except in commercial and industrial zones where storage areas are approved by the Review Authority as part of a site plan or per Section 16.98.040.
- B. Standards. Except as per Section 16.98.040, all service, repair, storage, and merchandise display activities carried on in connection with any commercial or industrial activity, and not conducted within an enclosed building, shall be screened from the view of all adjacent properties and adjacent streets by a six (6) foot to eight (8) foot high, sight obscuring fence subject to chapter 16.58.020. In addition, unless adjacent parcels to the side and rear of the storage area have existing solid evergreen screening or sight-obscuring fencing in place, new evergreen screening no less than three (3) feet in height shall be

planted along side and rear property lines. Where other provisions of this Code require evergreen screening, fencing, or a landscaped berm along side and rear property lines, the additional screening stipulated by this Section shall not be required.

- C. Hazardous Materials. Storage of hazardous, corrosive, flammable, or explosive materials, if such storage is otherwise permitted by this Code, shall comply with all local fire codes, and Federal and State regulations.

Response: Material storage has not been proposed. Any material storage which does take place on-site will meet the above standards. These criteria are met.

Division VI. - PUBLIC INFRASTRUCTURE

Chapter 16.106 - TRANSPORTATION FACILITIES

16.106.010 – Generally

A. Creation

Public streets shall be created in accordance with provisions of this Chapter. Except as otherwise provided, all street improvements and rights-of-way shall conform to standards for the City's functional street classification, as shown on the Transportation System Plan (TSP) Map (Figure 17) and other applicable City standards. The following table depicts the guidelines for the street characteristics.

Type of Street	Right of Way Width	Number of Lanes	Minimum Lane Width	On Street Parking Width	Bike Lane Width	Sidewalk Width	Landscape Strip (exclusive of Curb)	Median Width
Arterial	60-102'	2-5	12'	Limited	6 feet	6-8'	5'	14' if required
40' Commercial/Industrial Not Exceeding 3000 vehicles per day	64'	2	20'	8'	None	6'	5'	none

Response: The site abuts two arterial streets (SW Oregon Street and SW Tonquin Road) and one industrial street not exceeding 3,000 vehicles per day (SW Laurelwood Way). The planned streets meet the requirements listed above. Cross sections and other details are included within Exhibit A. With the addition of SW Laurelwood Way, these criteria are met.

B. Street Naming

1. All streets created by subdivision or partition will be named prior to submission of the final plat.
2. Any street created by a public dedication shall be named prior to or upon acceptance of the deed of dedication.
3. An action to name an unnamed street in the City may be initiated by the Council or by a person filing a petition as described in this Section.
4. All streets named shall conform to the general requirements as outlined in this Section. 5. At the request of the owner(s), the City may approve a private street name and address. Private streets are subject to the same street name standards as are public streets. All private street signs will be provided at the owner(s) expense.

C. Street Name Standards

1. All streets named or renamed shall comply with the following criteria:
 - a. Major streets and highways shall maintain a common name or number for the entire alignment.
 - b. Whenever practicable, names as specified in this Section shall be utilized or retained.51 {00785312; 1 } 65
 - c. Hyphenated or exceptionally long names shall be avoided.
 - d. Similar names such as Farview and Fairview or Salzman and Saltzman shall be avoided.
 - e. Consideration shall be given to the continuation of the name of a street in another jurisdiction when it is extended into the City.
2. The following classifications (suffixes) shall be utilized in the assignment of all street names:

[...]

 - d. Streets: Continuous, east-west collectors or extensions thereof.
3. Except as provided for by this section, no street shall be given a name that is the same as, similar to, or pronounced the same as any other street in the City unless that street is an extension of an already-named street.
4. All proposed street names shall be approved, prior to use, by the City.

D. Preferred Street Names Whenever practicable, historical names will be considered in the naming or renaming of public roads. Historical factors to be considered shall include, but not be limited to the following:

[...]

Response: SW Laurelwood Way is a new street. The street name was proposed by City of Sherwood staff as a reference to site soils (Laurelwood Silt Loam). The criteria are met.

16.106.020 - Required Improvements

A. Generally

Except as otherwise provided, all developments containing or abutting an existing or proposed street, that is either unimproved or substandard in right-of-way width or improvement, shall dedicate the necessary right-of-way prior to the issuance of building permits and/or complete acceptable improvements prior to issuance of occupancy permits. Right-of-way requirements are based on functional classification of the street network as established in the Transportation System Plan, Figure 17.

B. Existing Streets

Except as otherwise provided, when a development abuts an existing street, the improvements requirement shall apply to that portion of

the street right-of-way located between the centerline of the right-of-way and the property line of the lot proposed for development. In no event shall a required street improvement for an existing street exceed a pavement width of thirty (30) feet.

D. Extent of Improvements

1. Streets required pursuant to this Chapter shall be dedicated and improved consistent with Chapter 6 of the Community Development Plan, the TSP and applicable City specifications included in the City of Sherwood Construction Standards. Streets shall include curbs, sidewalks, catch basins, street lights, and street trees. Improvements shall also include any bikeways designated on the Transportation System Plan map. Applicant may be required to dedicate land for required public improvements only when the exaction is directly related to and roughly proportional to the impact of the development, pursuant to Section 16.106.090.
2. If the applicant is required to provide street improvements, the City Engineer may accept a future improvements guarantee in lieu of street improvements if one or more of the following conditions exist, as determined by the City:
 - a. A partial improvement is not feasible due to the inability to achieve proper design standards;
 - b. A partial improvement may create a potential safety hazard to motorists or pedestrians.
 - c. Due to the nature of existing development on adjacent properties it is unlikely that street improvements would be extended in the foreseeable future and the improvement associated with the project under review does not, by itself, provide a significant improvement to street safety or capacity;
 - d. The improvement would be in conflict with an adopted capital improvement plan;
 - e. The improvement is associated with an approved land partition on property zoned residential use and the proposed land partition does not create any new streets; or
 - f. Additional planning work is required to define the appropriate design standards for the street and the application is for a project that would contribute only a minor portion of the anticipated future traffic on the street.

Response: The subject property fronts SW Oregon Street, SW Tonquin Road, future SW Laurelwood Way along the eastern property boundary, and an unnamed right-of-way to the south of the site. Access to the site is currently gained from SW Oregon Street, which requires a dedication of right-of-way to reach the desired 45 feet from the centerline.

Future access to the site will be obtained from the soon-to-be constructed SW Laurelwood Way. Appropriate dedication of right-of-way has been proposed to allow construction of this new local street.

A dedication of right-of-way was also required along SW Tonquin Road and additional right-of-way allocated for a Transportation System Plan/Capital Improvement Plan-identified roundabout at the intersection of SW Oregon Street and SW Tonquin Road (Project No. D3).

Improvements have not been proposed for the unnamed street south of the site. As the intersecting street in this location does not meet Washington County spacing standards from the SW Tonquin Road/SW Oregon Street intersection and the development will not gain access from this street, improvement of this street has not been considered.

With these improvements, the applicable criteria are met.

16.106.030 - Location

A. Generally

The location, width and grade of streets shall be considered in their relation to existing and planned streets, topographical conditions, and proposed land uses. The proposed street system shall provide adequate, convenient and safe traffic and pedestrian circulation, and intersection angles, grades, tangents, and curves shall be adequate for expected traffic volumes. Street alignments shall be consistent with solar access requirements as per Chapter 16.156, and topographical considerations.

B. Street Connectivity and Future Street Systems

1. Future Street Systems. The arrangement of public streets shall provide for the continuation and establishment of future street systems as shown on the Local Street Connectivity Map contained in the adopted Transportation System Plan (Figure 16).

Response: The proposed plans demonstrate compliance with the Sherwood Transportation System Plan (TSP), namely Figure 18 (the appropriate TSP figure); the Tonquin Employment Area (TEA) Concept Plan; and the Oregon Street Access Management Plan (AMP). This criterion is met.

2. Connectivity Map Required. New residential, commercial, and mixed use development involving the construction of new streets shall be submitted with a site plan that implements, responds to and expands on the Local Street Connectivity map contained in the TSP.

a. A project is deemed to be consistent with the Local Street Connectivity map when it provides a street connection in the general vicinity of the connection(s) shown on the map, or where such connection is not practicable due to topography or other physical constraints; it shall provide an alternate connection approved by the decision-maker.

b. Where a developer does not control all of the land that is necessary to complete a planned street connection, the development shall provide for as much of the designated connection as practicable

and not prevent the street from continuing in the future.

- c. Where a development is disproportionately impacted by a required street connection, or it provides more than its proportionate share of street improvements along property line (i.e., by building more than 3/4 width street), the developer shall be entitled to System Development charge credits, as determined by the City Engineer.
- d. Driveways that are more than 24 feet in width shall align with existing streets or planned streets as shown in the Local Street Connectivity Map in the adopted Transportation System Plan (Figure 17), except where prevented by topography, rail lines, freeways, pre-existing development, or leases, easements, or covenants.

Response: The project demonstrates the build-out of SW Laurelwood Way to the southern property boundary. The street illustrated is consistent with the Oregon Street AMP and plans approved as part of the adjacent Sherwood Commerce Center project (LU2021-012 SP/CUP/VAR). The proposed driveway is greater than 24 feet in width; however, existing or planned streets are not located opposite the driveway on SW Laurelwood Way. Therefore, this standard does not apply.

- 3. **Block Length.** For new streets except arterials, block length shall not exceed 530 feet. The length of blocks adjacent to arterials shall not exceed 1,800 feet.

Response: The Applicant has not proposed a street over 530 feet in length. SW Laurelwood Way is a new street that exceeds 530 feet; however, this street was approved as part of a previous project on an adjacent site.

- 4. Where streets must cross water features identified in Title 3 of the Urban Growth Management Functional Plan (UGMFP), provide crossings at an average spacing of 800 to 1,200 feet, unless habitat quality or length of crossing prevents a full street connection.
- 5. Where full street connections over water features identified in Title 3 of the UGMFP cannot be constructed in centers, main streets and station communities (including direct connections from adjacent neighborhoods), or spacing of full street crossings exceeds 1,200 feet, provide bicycle and pedestrian crossings at an average spacing of 530 feet, unless exceptional habitat quality or length of crossing prevents a connection.

Response: The proposed project does not involve a water crossing. These standards do not apply.

- 6. **Pedestrian and Bicycle Connectivity.** Paved bike and pedestrian accessways consistent with cross section standards in Figure 8-6 of the TSP shall be provided on public easements or right-of-way when full street connections are not possible, with spacing between connections of no more than 300 feet. Multi-use paths shall

be built according to the Pedestrian and Bike Master Plans in the adopted TSP.

Response: The proposed full street connections are feasible; therefore, pedestrian and bicycle easements have not been proposed. The Ice Age Trail multiuse path has been illustrated as required by the City's TSP. This criterion is met.

7. Exceptions. Streets, bike, and pedestrian connections need not be constructed when any of the following conditions exists:
 - a. Physical or topographic conditions make a street or accessway connection impracticable. Such conditions include but are not limited to freeways, railroads, steep slopes, wetlands or other bodies of water where a connection could not reasonably be provided.
 - b. Buildings or other existing development on adjacent lands physically preclude a connection now or in the future considering the potential for redevelopment; or
 - c. Where streets or accessways would violate provisions of leases, easements, covenants, restrictions or other agreements existing as of May 1, 1995, which preclude a required street or accessway connection.

Response: Exceptions to these standards have not been proposed. These standards do not apply.

C. Underground Utilities

All public and private underground utilities, including sanitary sewers and storm water drains, shall be constructed prior to the surfacing of streets. Stubs for service connections shall be long enough to avoid disturbing the street improvements when service connections are made.

Response: This standard is understood and, if required, undergrounding of utilities will be accomplished with as little disturbance of the street as feasible. Where a new street has been planned and utilities and connections required, those improvements will be constructed prior to street surfacing. These standards are met.

D. Additional Setbacks

Generally additional setbacks apply when the width of a street right-of-way abutting a development is less than the standard width under the functional classifications in Section VI of the Community Development Plan. Additional setbacks are intended to provide unobstructed area for future street right-of-way dedication and improvements, in conformance with Section VI. Additional setbacks shall be measured at right angles from the centerline of the street.

	Classification	Additional Setback
2.	Arterial	37 feet
5.	Local	26 feet

Response: The site is located adjacent to two arterial streets and one planned local (industrial) street. Greater than the minimum 37-foot setback is planned from the roadway centerline

along the SW Oregon Street and SW Tonquin Road frontages. Greater than the minimum 26-foot setback is planned from the roadway centerline along the SW Laurelwood Way frontage. This requirement is satisfied.

16.106.040 – Design

Standard cross sections showing street design and pavement dimensions are located in the City of Sherwood's Engineering Design Manual.

[...]

A. Reserve Strips

Reserve strips or street plugs controlling access or extensions to streets are not allowed unless necessary for the protection of the public welfare or of substantial property rights. All reserve strips shall be dedicated to the appropriate jurisdiction that maintains the street.

B. Alignment

All proposed streets shall, as far as practicable, be in alignment with existing streets. In no case shall the staggering of streets create a "T" intersection or a dangerous condition. Street offsets of less than one hundred (100) feet are not allowed.

C. Future Extension

Where necessary to access or permit future subdivision or development of adjoining land, streets must extend to the boundary of the proposed development and provide the required roadway width. Dead-end streets less than 100' in length must comply with the Engineering Design Manual. A durable sign must be installed at the applicant's expense. The sign is required to notify the public of the intent to construct future streets. The sign must read as follows: "This road will be extended with future development. For more information contact the City of Sherwood Engineering Department."

Response: The creation of SW Laurelwood Way has been proposed to serve this subarea of the Tonquin Employment Area. As such, the future street system shown within this application is consistent with plans for the area. Reserve strips are not required or planned, the street alignment meets City requirements for SW Laurelwood Way, and where appropriate, future street extension signage will be made available. These criteria are met.

D. Intersection Angles

Streets shall intersect as near to ninety (90) degree angles as practical, except where topography requires a lesser angle. In all cases, the applicant shall comply with the Engineering Design Manual.

Response: SW Laurelwood Way will connect to SW Oregon Street at a 90-degree angle and follow the predetermined alignment for this new street. This criterion is met.

E. Cul-de-sacs

1. All cul-de-sacs shall be used only when exceptional topographical constraints, existing development patterns, or compliance with other standards in this code preclude a street extension and circulation. A cul-de-sac shall not be more than two hundred (200) feet in length and shall not provide access to more than 25 dwelling units.

-
2. All cul-de-sacs shall terminate with a turnaround in accordance with the specifications in the Engineering Design Manual. The radius of circular turnarounds may be larger when they contain a landscaped island, parking bay in their center, Tualatin Valley Fire and Rescue submits a written request, or an industrial use requires a larger turnaround for truck access.
 3. Public easements, tracts, or right-of-way shall provide paved pedestrian and bicycle access ways at least 6 feet wide where a cul-de-sac or dead-end street is planned, to connect the ends of the streets together, connect to other streets, or connect to other existing or planned developments in accordance with the standards of this Chapter, the TSP, the Engineering Design Manual or other provisions identified in this Code for the preservation of trees.

Response: No cul-de-sacs have been proposed. These standards do not apply.

F. Grades and Curves

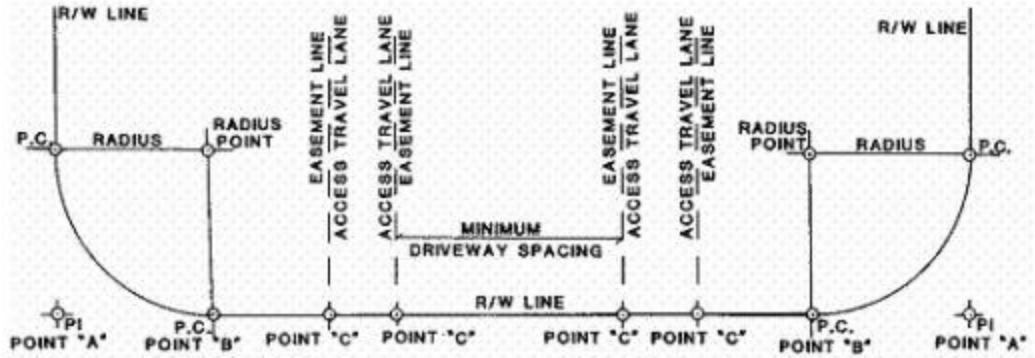
Grades shall be evaluated by the City Engineer and comply with the Engineering Design Manual.

Response: Grades and curves have been designed to meet the requirements of the City Engineer and comply with the Engineering Design Manual. This criterion is met.

M. Vehicular Access Management

All developments shall have legal access to a public road. Access onto public streets shall be permitted upon demonstration of compliance with the provisions of adopted street standards in the Engineering Design Manual.

1. Measurement: See the following access diagram where R/W = Right-of-Way; and P.I. = Point-of-Intersection where P.I. shall be located based upon a 90 degree angle of intersection between ultimate right-of-way lines.
 - a. Minimum right-of-way radius at intersections shall conform to City standards.
 - b. All minimum distances stated in the following sections shall be governed by sight distance requirements according to the Engineering Design Manual.
 - c. All minimum distances stated in the following sections shall be measured to the nearest easement line of the access or edge of travel lane of the access on both sides of the road.
 - d. All minimum distances between accesses shall be measured from existing or approved accesses on both sides of the road.
 - e. Minimum spacing between driveways shall be measured from Point "C" to Point "C" as shown below:



Response: The Preliminary Site Plan attached as part of Exhibit A demonstrates that the project will be served by a driveway that conforms to all applicable geometric requirements to establish legal access to SW Laurelwood Way. These criteria are met.

2. Roadway Access

No use will be permitted to have direct access to a street or road except as specified below. Access spacing shall be measured from existing or approved accesses on either side of a street or road. The lowest functional classification street available to the legal lot, including alleys within a public easement, shall take precedence for new access points.

- a. Local Streets: Minimum right-of-way radius is fifteen (15) feet. Access will not be permitted within ten (10) feet of Point "B," if no radius exists, access will not be permitted within twenty-five (25) feet of Point "A." Access points near an intersection with a Neighborhood Route, Collector or Arterial shall be located beyond the influence of standing queues of the intersection in accordance with AASHTO standards. This requirement may result in access spacing greater than ten (10) feet.

Response: Access to arterial streets has not been proposed. Only one access is required for a development of this type and area; therefore, only one access is planned to SW Laurelwood Way. The driveway is proposed greater than 15 feet from "Point B" per the above drawing and will be located outside of the influence of queuing areas at nearby intersections. Therefore, these criteria are met.

16.106.060 – Sidewalks

A. Required Improvements

- 1. Except as otherwise provided, sidewalks shall be installed on both sides of a public street and in any special pedestrian way within new development.
- 2. For Highway 99W, arterials, or in special industrial districts, the City Manager or designee may approve a development without sidewalks if alternative pedestrian routes are available.

B. Design Standards

- 1. Arterial and Collector Streets

Arterial and collector streets shall have minimum six (6) or eight (8) foot wide sidewalks/multi-use paths, located as required by this Code. Residential areas shall have a minimum of a six (6) foot wide sidewalk and commercial industrial areas shall have a minimum of an eight (8) foot wide sidewalk.

C. Pedestrian and Bicycle Paths

Provide bike and pedestrian connections on public easements or right-of-way when full street connections are not possible, with spacing between connections of no more than 330 feet except where prevented by topography, barriers such as railroads or highways, or environmental constraints such as rivers and streams.

Response: The Preliminary Plans (Exhibit A) demonstrate sidewalks along SW Tonquin Road, SW Oregon Street, and SW Laurelwood Way. Planned sidewalks are 12 feet in width adjacent to arterial streets to accommodate the planned Ice Age Trail. Sidewalks along SW Laurelwood Way are shown at 6 feet in width. These criteria are met.

16.106.070 - Bike Lanes

If shown in Figure 13 of the Transportation System Plan, bicycle lanes shall be installed in public rights-of-way, in accordance with City specifications. Bike lanes shall be installed on both sides of designated roads, should be separated from the road by a twelve-inch stripe or other means approved by Engineering Staff, and should be a minimum of five (5) feet wide.

Response: Bicycle lanes are currently provided along both sides of SW Oregon Street. Bicycle lanes are not currently provided along both sides of SW Tonquin Road. Right-of-way is planned for dedication along SW Tonquin Road to provide for future improvements related to the SW Oregon Street/SW Tonquin Road roundabout and bicycle lanes leading to the intersection. SW Laurelwood Way is not planned to provide bicycle lanes. This criterion is met.

16.106.080 - Traffic Impact Analysis (TIA)

A. Purpose

The purpose of this section is to implement Sections 660-012-0045(2)(b) and -0045(2)(e) of the State Transportation Planning Rule (TPR), which require the City to adopt performance standards and a process to apply conditions to land use proposals in order to minimize impacts on and protect transportation facilities. This section establishes requirements for when a traffic impact analysis (TIA) must be prepared and submitted; the analysis methods and content involved in a TIA; criteria used to review the TIA; and authority to attach conditions of approval to minimize the impacts of the proposal on transportation facilities.

This section refers to the TSP for performance standards for transportation facilities as well as for projects that may need to be constructed as mitigation measures for a proposal's projected impacts. This section also relies on the City's Engineering Design Manual to provide street design standards and construction specifications for improvements and projects that may be constructed as part of the proposal and mitigation measures approved for the proposal.

B. Applicability

A traffic impact analysis (TIA) shall be required to be submitted to the City with a land use application at the request of the City Engineer or if the proposal is expected to involve one (1) or more of the following:

1. An amendment to the Sherwood Comprehensive Plan or zoning map.
2. A new direct property approach road to Highway 99W is proposed.
3. The proposed development generates fifty (50) or more PM peak-hour trips on Highway 99W, or one hundred (100) PM peak-hour trips on the local transportation system.
4. An increase in use of any adjacent street or direct property approach road to Highway 99W by ten (10) vehicles or more per day that exceed the twenty thousand-pound gross vehicle weight.
5. The location of an existing or proposed access driveway does not meet minimum spacing or sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles are likely to queue or hesitate at an approach or access connection, thereby creating a safety hazard.
6. A change in internal traffic patterns that may cause safety problems, such as back up onto the highway or traffic crashes in the approach area.

C. Requirements

The following are typical requirements that may be modified in coordination with Engineering Staff based on the specific application.

1. **Pre-application Conference.** The applicant shall meet with the City Engineer prior to submitting an application that requires a TIA. This meeting will be coordinated with Washington County and ODOT when an approach road to a County road or Highway 99W serves the property, so that the TIA will meet the requirements of all relevant agencies.
2. **Preparation.** The TIA shall be prepared by an Oregon Registered Professional Engineer qualified to perform traffic Engineering analysis and will be paid for by the applicant.
3. **Typical Average Daily Trips and Peak Hour Trips.** The latest edition of the Trip Generation Manual, published by the Institute of Transportation Engineers (ITE), shall be used to gauge PM peak hour vehicle trips, unless a specific trip generation study that is approved by the City Engineer indicates an alternative trip generation rate is appropriate.
4. **Intersection-level Analysis.** Intersection-level analysis shall occur at every intersection where the analysis shows that fifty (50) or more peak hour vehicle trips can be expected to result from the development.
5. **Transportation Planning Rule Compliance.** The requirements of OAR 660-012-0060 shall apply to those land

use actions that significantly affect the transportation system, as defined by the Transportation Planning Rule.

D. Study Area

The following facilities shall be included in the study area for all TIAs:

1. All site-access points and intersections (signalized and unsignalized) adjacent to the proposed development site. If the site fronts an arterial or collector street, the analysis shall address all intersections and driveways along the site frontage and within the access spacing distances extending out from the boundary of the site frontage.
2. Roads and streets through and adjacent to the site.
3. All intersections needed for signal progression analysis.
4. In addition to these requirements, the City Engineer may require analysis of any additional intersections or roadway links that may be adversely affected as a result of the proposed development.

E. Analysis Periods

To adequately assess the impacts of a proposed land use action, the following study periods, or horizon years, should be addressed in the transportation impact analysis where applicable:

1. Existing Year.
2. Background Conditions in Project Completion Year. The conditions in the year in which the proposed land use action will be completed and occupied, but without the expected traffic from the proposed land use action. This analysis should account for all City-approved developments that are expected to be fully built out in the proposed land use action horizon year, as well as all planned transportation system improvements.
3. Full Buildout Conditions in Project Completion Year. The background condition plus traffic from the proposed land use action assuming full build-out and occupancy.
4. Phased Years of Completion. If the project involves construction or occupancy in phases, the applicant shall assess the expected roadway and intersection conditions resulting from major development phases. Phased years of analysis will be determined in coordination with City staff.
5. Twenty-Year or TSP Horizon Year. For planned unit developments, comprehensive plan amendments or zoning map amendments, the applicant shall assess the expected future roadway, intersection, and land use conditions as compared to approved comprehensive planning documents.

F. Approval Criteria

When a TIA is required, a proposal is subject to the following criteria, in addition to all criteria otherwise applicable to the underlying land use proposal:

1. The analysis complies with the requirements of 16.106.080.C;

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2. The analysis demonstrates that adequate transportation facilities exist to serve the proposed development or identifies mitigation measures that resolve identified traffic safety problems in a manner that is satisfactory to the City Engineer and, when County or State highway facilities are affected, to Washington County and ODOT;
 3. For affected non-highway facilities, the TIA demonstrates that mobility and other applicable performance standards established in the adopted City TSP have been met; and
 4. Proposed public improvements are designed and will be constructed to the street standards specified in Section 16.106.010 and the Engineering Design Manual, and to the access standards in Section 16.106.040.
 5. Proposed public improvements and mitigation measures will provide safe connections across adjacent right-of-way (e.g., protected crossings) when pedestrian or bicycle facilities are present or planned on the far side of the right-of-way.

G. Conditions of Approval

The City may deny, approve, or approve a development proposal with conditions needed to meet operations and safety standards and provide the necessary right-of-way and improvements to ensure consistency with the future planned transportation system. Improvements required as a condition of development approval, when not voluntarily provided by the applicant, shall be roughly proportional to the impact of the development on transportation facilities, pursuant to Section 16.106.090. Findings in the development approval shall indicate how the required improvements are directly related to and are roughly proportional to the impact of development.

Response: A Traffic Impact Analysis (TIA) has been prepared for the project and is attached to this application as Exhibit G. The TIA meets the applicable requirements listed above.

16.106.090 - Rough Proportionality

A. Purpose

The purpose of this section is to ensure that required transportation facility improvements are roughly proportional to the potential impacts of the proposed development. The rough proportionality requirements of this section apply to both frontage and non-frontage improvements. A proportionality analysis will be conducted by the City Engineer for any proposed development that triggers transportation facility improvements pursuant to this chapter. The City Engineer will take into consideration any benefits that are estimated to accrue to the development property as a result of any required transportation facility improvements. A proportionality determination can be appealed pursuant to Chapter 16.76. The following general provisions apply whenever a proportionality analysis is conducted.

- B. Mitigation of impacts due to increased demand for transportation facilities associated with the proposed development shall be provided in rough proportion to the transportation impacts of the proposed development. When applicable, anticipated impacts will be**

determined by the TIA in accordance with Section 16.106.080. When no TIA is required, anticipated impacts will be determined by the City Engineer.

- C. The following shall be considered when determining proportional improvements:
1. Condition and capacity of existing facilities within the impact area in relation to City standards. The impact area is generally defined as the area within a one-half-mile radius of the proposed development. If a TIA is required, the impact area is the TIA study area.
 2. Existing vehicle, bicycle, pedestrian, and transit use within the impact area.
 3. The effect of increased demand on transportation facilities and other approved, but not yet constructed, development projects within the impact area that is associated with the proposed development.
 4. Applicable TSP goals, policies, and plans.
 5. Whether any route affected by increased transportation demand within the impact area is listed in any City program including school trip safety; neighborhood traffic management; capital improvement; system development improvement, or others.
 6. Accident history within the impact area.
 7. Potential increased safety risks to transportation facility users, including pedestrians and cyclists.
 8. Potential benefit the development property will receive as a result of the construction of any required transportation facility improvements.
 9. Other considerations as may be identified in the review process pursuant to Chapter 16.72.

Response: Proportionate share is reviewed as part of the attached Traffic Impact Analysis (Exhibit G). Proportionate share in the amount of \$45,833.33 was determined as an appropriate contribution to City TSP Project Number D33 (Construct Northbound Left Turn Lane & Southbound Right Turn Lane).

Appropriate mitigation for Project D3 (SW Oregon Street/SW Tonquin Road roundabout) was determined to be the dedication of the necessary right-of-way.

Further details are available within the Oregon Street Business Park Transportation Impact Analysis (Exhibit G). These criteria are met.

Chapter 16.108 - IMPROVEMENT PLAN REVIEW

16.108.010 - Preparation and Submission

An improvement plan shall be prepared and stamped by a Registered Civil Engineer certifying compliance with City specifications. Two (2) sets of the plan shall be submitted to the City for review. An improvements plan shall be accompanied by a review fee as per this Section.

- A. Review Fee

Plan review fees are calculated as a percentage of the estimated total cost of improvements and are set by the "Schedule of Development and Business Fees" adopted by Resolution of the Council. This schedule is included herein for the purposes of information, but is deemed to be separate from and independent of this Code.

B. Engineering Agreement

A copy of an agreement or contract between the applicant and Registered Civil Engineer for:

1. Surveying sufficient to prepare construction plans.
2. Preparation of construction plans and specifications.
3. Construction staking, and adequate inspection.
4. Construction notes sufficient to develop accurate as-built plans.
5. Drawing of accurate as-built plans and submission of reproducible mylars for finals to the City.
6. Certificate stating that construction was completed in accordance with required plans and specifications.

Response: The project proposes the construction of new public facilities. Plans prepared by a registered Civil Engineer certifying compliance with City specifications will be submitted as part of construction permit submittal. These criteria are met.

Chapter 16.110 - SANITARY SEWERS

16.110.010 - Required Improvements

Sanitary sewers shall be installed to serve all new developments and shall connect to existing sanitary sewer mains. Provided, however, that when impractical to immediately connect to a trunk sewer system, the use of septic tanks may be approved, if sealed sewer laterals are installed for future connection and the temporary system meets all other applicable City, Clean Water Services, Washington County and State sewage disposal standards.

16.110.020 - Design Standards

A. Capacity

Sanitary sewers shall be constructed, located, sized, and installed at standards consistent with this Code, the Sanitary Sewer Service Plan Map in the Sanitary Sewer Master Plan, and other applicable Clean Water Services and City standards, in order to adequately serve the proposed development and allow for future extensions.

B. Over-Sizing

1. When sewer facilities will, without further construction, directly serve property outside a proposed development, gradual reimbursement may be used to equitably distribute the cost of that over-sized system.
2. Reimbursement shall be in an amount estimated by the City to be a proportionate share of the cost for each connection made to the sewer by property owners outside of the development, for a period of ten (10) years from the time of installation of the sewers. The boundary of the reimbursement area and the method of determining proportionate shares shall be determined by the City.

Reimbursement shall only be made as additional connections are made and shall be collected as a surcharge in addition to normal connection charges.

16.110.030 - Service Availability

Approval of construction plans for new facilities pursuant to Chapter 16.106, and the issuance of building permits for new development to be served by existing sewer systems shall include certification by the City that existing or proposed sewer facilities are adequate to serve the development.

Response: Planned improvements related to sanitary sewer are shown on the Preliminary Sanitary and Water Plan in Exhibit A. The project proposes to route the site's private sanitary system to a public sanitary main, constructed by others under separate permit, within the no-name right-of-way south of the site. This main line then routes the sanitary sewer to an existing line northwest of the SW Oregon Street/SW Tonquin Road intersection. These criteria are met.

Chapter 16.112 - WATER SUPPLY*

16.112.010 - Required Improvements

Water lines and fire hydrants conforming to City and Fire District standards shall be installed to serve all building sites in a proposed development. All waterlines shall be connected to existing water mains or shall construct new mains appropriately sized and located in accordance with the Water System Master Plan.

16.112.020 - Design Standards

A. Capacity

Water lines providing potable water supply shall be sized, constructed, located and installed at standards consistent with this Code, the Water System Master Plan, the City's Design and Construction Manual, and with other applicable City standards and specifications, in order to adequately serve the proposed development and allow for future extensions.

B. Fire Protection

All new development shall comply with the fire protection requirements of Chapter 16.116, the applicable portions of Chapter 7 of the Community Development Plan, and the Fire District.

C. Over-Sizing

1. When water mains will, without further construction, directly serve property outside a proposed development, gradual reimbursement may be used to equitably distribute the cost of that over-sized system.

2. Reimbursement shall be in an amount estimated by the City to be the proportionate share of the cost of each connection made to the water mains by property owners outside the development, for a period of ten (10) years from the time of installation of the mains. The boundary of the reimbursement area and the method of determining proportionate shares shall be determined by the City. Reimbursement shall only be made as additional connections are made and shall be collected as a surcharge in addition to normal connection charges.

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3. When over-sizing is required in accordance with the Water System Master Plan, it shall be installed per the Water System Master Plan. Compensation for over-sizing may be provided through direct reimbursement, from the City, after mainlines have been accepted. Reimbursement of this nature would be utilized when the cost of over-sizing is for system wide improvements.

16.112.030 - Service Availability

Approval of construction plans for new water facilities pursuant to Chapter 16.106, and the issuance of building permits for new development to be served by existing water systems shall include certification by the City that existing or proposed water systems are adequate to serve the development.

Response: According to comments provided by the City's Engineering Department in conjunction with the pre-application conference (PAC 20-10), there are currently a 24-inch and a 12-inch diameter public water line within SW Oregon Street adjacent to the site. Planned improvements related to water lines are shown on the Preliminary Sanitary and Water Plan in Exhibit A. The applicable standards are met.

Chapter 16.114 - STORM WATER*

16.114.010 - Required Improvements

Storm water facilities, including appropriate source control and conveyance facilities, shall be installed in new developments and shall connect to the existing downstream drainage systems consistent with the Comprehensive Plan and the requirements of the Clean Water Services water quality regulations contained in their Design and Construction Standards R&O 04-9, or its replacement.

16.114.020 - Design Standards

A. Capacity

Storm water drainage systems shall be sized, constructed, located, and installed at standards consistent with this Code, the Storm Drainage Master Plan Map, attached as Exhibit E, Chapter 7 of the Community Development Plan, other applicable City standards, the Clean Water Services Design and Construction standards R&O 04-9 or its replacement, and hydrologic data and improvement plans submitted by the developer.

B. On-Site Source Control

Storm water detention and groundwater recharge improvements, including but not limited to such facilities as dry wells, detention ponds, and roof top ponds shall be constructed according to Clean Water Services Design and Construction Standards.

C. Conveyance System

The size, capacity and location of storm water sewers and other storm water conveyance improvements shall be adequate to serve the development and accommodate upstream and downstream flow. If an upstream area discharges through the property proposed for development, the drainage system shall provide capacity to the receive storm water discharge from the upstream area. If downstream drainage systems are not sufficient to receive an increase in storm water caused by new development, provisions shall be made by the developer to increase the downstream capacity or to provide

detention such that the new development will not increase the storm water caused by the new development.

16.114.030 - Service Availability

Approval of construction plans for new storm water drainage facilities pursuant to Chapter 16.106, and the issuance of building permits for new development to be served by existing storm water drainage systems shall include certification by the City that existing or proposed drainage facilities are adequate to serve the development.

Response: Planned improvements related to stormwater are shown on the Preliminary Sanitary and Water Plan in Exhibit A. A Preliminary Stormwater Report is attached as Exhibit D. A CWS Service Provider Letter is attached as Exhibit J. The applicable standards are or will be met.

Chapter 16.116 - FIRE PROTECTION*

16.116.010 - Required Improvements

When land is developed so that any commercial or industrial structure is further than two hundred and fifty (250) feet or any residential structure is further than five hundred (500) feet from an adequate water supply for fire protection, as determined by the Fire District, the developer shall provide fire protection facilities necessary to provide adequate water supply and fire safety.

16.116.020 - Standards

A. Capacity

All fire protection facilities shall be approved by and meet the specifications of the Fire District, and shall be sized, constructed, located, and installed consistent with this Code, Chapter 7 of the Community Development Plan, and other applicable City standards, in order to adequately protect life and property in the proposed development.

B. Fire Flow

Standards published by the Insurance Services Office, entitled "Guide for Determination of Required Fire Flows" shall determine the capacity of facilities required to furnish an adequate fire flow. Fire protection facilities shall be adequate to convey quantities of water, as determined by ISO standards, to any outlet in the system, at no less than twenty (20) pounds per square inch residual pressure. Water supply for fire protection purposes shall be restricted to that available from the City water system. The location of hydrants shall be taken into account in determining whether an adequate water supply exists.

C. Access to Facilities

Whenever any hydrant or other appurtenance for use by the Fire District is required by this Chapter, adequate ingress and egress shall be provided. Access shall be in the form of an improved, permanently maintained roadway or open paved area, or any combination thereof, designed, constructed, and at all times maintained, to be clear and unobstructed. Widths, height clearances, ingress and egress shall be adequate for District firefighting equipment. The Fire District, may further prohibit vehicular parking along private accessways in order

to keep them clear and unobstructed, and cause notice to that effect to be posted.

D. Hydrants

Hydrants located along private, accessways shall either have curbs painted yellow or otherwise marked prohibiting parking for a distance of at least fifteen (15) feet in either direction, or where curbs do not exist, markings shall be painted on the pavement, or signs erected, or both, given notice that parking is prohibited for at least fifteen (15) feet in either direction.

Response: Adequate water supply consisting of a 12-inch-diameter public water main within SW Oregon Street is available along the property frontage. Fire hydrants will be placed at locations approved by the City and Tualatin Valley Fire & Rescue to ensure adequate access and flows for the proposed structures. No deficiencies have been identified. Tualatin Valley Fire & Rescue provided comments which will be addressed with building permit applications and prior to occupancy of the structures. The applicable criteria are met.

16.116.030 - Miscellaneous Requirements

A. Timing of Installation

When fire protection facilities are required, such facilities shall be installed and made serviceable prior to or at the time any combustible construction begins on the land unless, in the opinion of the Fire District, the nature or circumstances of said construction makes immediate installation impractical.

B. Maintenance of Facilities

All on-site fire protection facilities, shall be maintained in good working order. The Fire District may conduct periodic tests and inspection of fire protection and may order the necessary repairs or changes be made within ten (10) days.

C. Modification of Facilities

On-site fire protection facilities, may be altered or repaired with the consent of the Fire District; provided that such alteration or repairs shall be carried out in conformity with the provisions of this Chapter.

Response: These standards are understood, and fire protection installation will be timed so as to be serviceable prior to or at the time that combustible construction begins on the project site. These criteria are met or will be met as applicable.

Chapter 16.118 - PUBLIC AND PRIVATE UTILITIES

16.118.010 - Purpose

Public telecommunication conduits as well as conduits for franchise utilities including, but not limited to, electric power, telephone, natural gas, lighting, and cable television shall be installed to serve all newly created lots and developments in Sherwood.

16.118.020 - Standard

A. Installation of utilities shall be provided in public utility easements and shall be sized, constructed, located and installed consistent with this Code, and applicable utility company and City standards.

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- B. Public utility easements shall be a minimum of eight (8) feet in width unless a reduced width is specifically exempted by the City Engineer. An eight-foot wide public utility easement (PUE) shall be provided on private property along all public street frontages. This standard does not apply to developments within the Old Town Overlay.
 - C. Where necessary, in the judgment of the City Manager or his designee, to provide for orderly development of adjacent properties, public and franchise utilities shall be extended through the site to the edge of adjacent property(ies).
 - D. Franchise utility conduits shall be installed per the utility design and specification standards of the utility agency.
 - E. Public Telecommunication conduits and appurtenances shall be installed per the City of Sherwood telecommunication design standards.
 - F. Exceptions: Installation shall not be required if the development does not require any other street improvements. In those instances, the developer shall pay a fee in lieu that will finance installation when street or utility improvements in that location occur.

Response: The required 8-foot PUE is shown on the Preliminary Plans attached as Exhibit A. Franchise utilities are anticipated to be located and installed consistent with the SZCDC, City, and utility company standards. These criteria are met.

16.118.030 - Underground Facilities

Except as otherwise provided, all utility facilities, including but not limited to, electric power, telephone, natural gas, lighting, cable television, and telecommunication cable, shall be placed underground, unless specifically authorized for above ground installation, because the points of connection to existing utilities make underground installation impractical, or for other reasons deemed acceptable by the City.

16.118.040 - Exceptions

Surface-mounted transformers, surface-mounted connection boxes and meter cabinets, temporary utility service facilities during construction, high capacity electric and communication feeder lines, and utility transmission lines operating at fifty thousand (50,000) volts or more may be located above ground. The City reserves the right to approve location of all surface-mounted transformers.

Response: A number of overhead utilities are currently located along the SW Oregon Street and SW Tonquin Road frontages. These utilities will be placed underground where appropriate and required. The location of surface-mounted transformers, connection boxes, and meter cabinets are planned to be determined with construction plans. These criteria are met.

Division VIII. - ENVIRONMENTAL RESOURCES

Chapter 16.134 - FLOODPLAIN (FP) OVERLAY

16.134.010 - Generally

Special resource zones are established to provide for preservation, protection, and management of unique natural and environmental resources in the City that are deemed to require additional standards beyond those contained elsewhere in this Code. Special resource zones may be implemented as

underlying or overlay zones depending on patterns of property ownership and the nature of the resource. A property or properties may be within more than one resource zone. In addition, the City may identify special resource areas and apply a PUD overlay zone in advance of any development in order to further protect said resources.

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled, "The Flood Insurance Study for Washington County, Oregon and Incorporated Areas," (flood insurance study) dated October 19, 2018, with accompanying Flood Insurance Maps are hereby adopted by reference and declared to be a part of this ordinance. The Flood Insurance Study is on file with the Sherwood City Engineer at Sherwood City Hall.

16.134.020 - Purpose

The purpose of this ordinance is to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by complying with the provisions of this chapter.

- A. The FP zoning district is an overlay district that controls and regulates flood hazard areas in order to protect the public health, safety and general welfare; to reduce potential flood damage losses; and to protect floodways and natural drainageways from encroachment by uses which may adversely affect water quality and water flow and subsequent upstream or downstream flood levels. The FP zone shall be applied to all areas within the base flood, and shall supplement the regulations of the underlying zoning district.
- B. FP zoning districts are areas within the base flood as identified by the Federal Emergency Management Agency (FEMA) in a Flood Insurance Study (FIS) and in Flood Insurance Rate Maps (FIRM) published for the City and surrounding areas, or as otherwise identified in accordance with Section 16.134.020C. These FEMA documents are adopted by reference as part of this Code, and are on file at the City.
- C. When base flood elevation data is not available from the FIS or FIRM, the City shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state, or other source, and standards developed by the FEMA, in order to administer the provisions of this Code.
- D. In areas where a regulatory floodway has not been designated, and where the Flood Insurance Study indicates that it is possible to calculate a floodway, no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

16.134.030 - Greenways

The FP zoning districts overlaying the Rock Creek and Cedar Creek floodplains are designated greenways in accordance with Chapter 5 of the Community Development Plan. All development in these two floodplains shall be governed by the policies in Division V, Chapter 16.142 of this Code, in addition to the requirements of this Section and the Clean Water Services Design and Construction Standards R&O 07-20, or its replacement.

Response:

The western portion of the site nearest the intersection of SW Oregon Street and SW Tonquin Road has been designated a floodplain. This portion of the site is not planned to be improved for structures. Part of the area will be dedicated as right-of-way for the eventual construction of a roundabout. The remainder of the floodplain area is planned to be used as a stormwater facility for the management of stormwater runoff from the project site.

16.134.040 - Development Review and Floodplain Administrator Duties

- A. The City Engineer is the designated local Floodplain Administrator and is responsible for maintaining local floodplain management records for the City.
- B. Provided land is not required to be dedicated as per Section 16.134.030, a conditional use permit (CUP) is required before any use, construction, fill, or alteration of a floodplain, floodway, or watercourse, or any other development begins within any FP zone, except as provided in Section 16.134.050.
- C. Application for a CUP for development in a floodplain shall conform to the requirements of Chapter 16.82 and may include, but is not limited to, plans and scale drawings showing the nature, location, dimensions, and elevations of the area in question, existing or proposed structures, fill, storage of materials, and drainage facilities.
- D. The following specific information is required in a floodplain CUP application and shall be certified and verified by a registered civil engineer or architect. The City shall maintain such certifications as part of the public record. All certifications shall be based on the as-built elevations of lowest building floors.
 - 1. Elevations in relation to the current FIRM and FIS of the lowest floor (including basement) of all structures;
 - 2. Elevations in relation to the current FIRM and FIS to which any structure has been flood proofed.
 - 3. That the flood proofing methods for any structure meet the requirements of this section, Floodplain Structures.
 - 4. Description of the extent to which any watercourse will be altered or relocated as a result of the proposed development.
 - 5. A base flood survey and impact study made by a registered civil engineer.
 - 6. Proof all necessary notifications have been sent to, and permits have been obtained from, those federal, state, or other local government agencies for which prior approval of the proposed development is required.
 - 7. Any other information required by this section, by any applicable federal regulations, or as otherwise determined by the City to be necessary for the full and proper review of the application.
- E. The floodplain administrator shall review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of Section 16.134.070.F are met.

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- F. Where base flood elevation data is provided through the Flood Insurance Study, FIRM or required under Section 16.134.020.C the local Floodplain Administrator shall:
1. Obtain and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new and substantially improved structures, and
 2. If the structure has been floodproofed in accordance with Sections 16.134.090.A.3 and D.1.a, then obtain the elevation (in relation to mean sea level) to which the structure was floodproofed, and
 3. Maintain all elevation and floodproofing certificates required under Section 16.134.040.D, and
 4. Maintain for public inspection all records pertaining to the provisions of this ordinance.
- G. Where elevation data is not available as per subsection D of this section, or from other sources as per Section 16.134.020.C, a floodplain CUP shall be reviewed using other relevant data, as determined by the City, such as historical information, high water marks, and other evidence of past flooding. The City may require utility structures and habitable building floor elevations, and building flood proofing, to be at least two feet above the probable base flood elevation, in such circumstances where more definitive flood data is not available.
- H. The floodplain administrator shall:
1. Notify adjacent communities, the Department of Land Conservation and Development and other appropriate state and federal agencies, prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration as required in Section 16.134.100.C.
 2. Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.
- I. The floodplain administrator shall make interpretations where needed, as to exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation. Such appeals shall be granted consistent with the standards of Section 60.6 of the Rules and Regulations of the National Flood Insurance Program (44 CFR 59-76).
- J. Variances to any standard within the floodplain overlay shall comply with the provisions of the Code of Federal Regulations (CFR) section 44 CFR 60.6(a)(1)—(7).

16.134.050 - Permitted Uses

In the FP zone the following uses are permitted outright, and do not require a CUP, provided that floodway flow, or floodplain capacity, will not be impeded, as determined by the City, and when greenway dedication is not required as per Section 16.134.030.

-
- A. Agricultural uses, provided that associated structures are not allowed, except for temporary building and boundary fences that do not impede the movement of floodwaters and flood-carried materials.
 - B. Open space, park and recreational uses, and minor associated structures, if otherwise allowed in the underlying zoning district that do not impede the movement of floodwaters and flood-carried materials.
 - C. Public streets and appurtenant structures, and above and underground utilities, subject to the provisions of Sections 16.134.080 and 16.134.090.
 - D. Other accessory uses allowed in the underlying zoning district that do not involve structures, and will not, in the City's determination, materially alter the stability or storm drainage absorption capability of the floodplain.

Response: The project does not plan industrial development within the floodplain zones present on the property. The provision of public streets, sidewalks, and underground utilities, if required, is planned within the FP-zoned areas of the property. These uses are permitted outright through Sections C and D, above; therefore, these criteria are met.

16.134.060 - Conditional Uses

In the FP zone the following uses are permitted as conditional uses, subject to the provisions of this Section and Chapter 16.82, when greenway dedication is not required as per this Section.

Greenways:

- A. Any permitted or conditional use allowed in the underlying zoning district, when located in the flood fringe only, as specifically defined by this Code.

16.134.070 - Prohibited Uses

In the FP zone the following uses are expressly prohibited:

- A. The storage or processing of materials that are buoyant, flammable, contaminants, explosive, or otherwise potentially injurious to human, animal or plant life.
- B. Public and private sewerage treatment systems, including drainfields, septic tanks and individual package treatment plants.
- C. Any use or activity not permitted in the underlying zoning district.
- D. Any use or activity that, in the City's determination, will materially alter the stability or storm drainage absorption capability of the floodplain.
- E. Any use or activity that, in the City's determination, could create an immediate or potential hazard to the public health, safety and welfare, if located in the floodplain.
- F. Any use, activity, or encroachment located in the floodway, including fill, new construction, improvements to existing developments, or other development, except as otherwise allowed by Section 16.134.050 and unless certification by a registered professional engineer or architect is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the use, activity, or encroachment will not

result in any increase to flood levels during the occurrence of the base flood discharge.

a. If paragraph F of this section is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard provisions of Sections 16.134.080 and .090, or ASCE 24, whichever is more stringent.

G. The storage of recreational vehicles. This is the most restrictive provision wherein.

Response: Prohibited activities have not been proposed within the floodplain areas. These criteria are met.

16.134.080 - Floodplain Development

A. Floodplain Alterations

1. Floodplain Survey

The floodplain, including the floodway and flood fringe areas, shall be surveyed by a registered land surveyor or civil engineer, and approved by the City, based on the findings of the flood insurance study and other available data. Such delineation shall be based on the current FIRM and FIS data and be field-located from recognized valid benchmarks.

2. Grading Plan

Alteration of the existing topography of floodplain areas may be made upon approval of a grading plan by the City. The plan shall include both existing and proposed topography and a plan for alternate drainage. Contour intervals for existing and proposed topography shall be included and shall be not more than one foot for ground slopes up to five percent (5%) and for areas immediately adjacent to a stream or drainage way, two feet for ground slopes between five and ten percent (5% to 10%), and five feet for greater slopes.

3. Fill and Diked Lands

a. Proposed floodplain fill or diked lands may be developed if a site plan for the area to be altered within the floodplain is prepared and certified by a registered civil engineer and approved by the Commission pursuant to the applicable provisions of this Code.

b. Vehicular access shall be provided from a street above the elevation of the base flood to any proposed fill or dike area if the area supports structures for human occupancy. Unoccupied fill or dike areas shall be provided with emergency vehicle access.

4. Alteration Site Plan

a. The certified site plan prepared by a registered civil engineer or architect for an altered floodplain area shall show that:

(1) Proposed improvements will not alter the flow of surface water during flooding such

as to cause a compounding of flood hazards or changes in the direction or velocity of floodwater flow.

- (2) No structure, fill, storage, impervious surface or other uses alone, or in combination with existing or future uses, will materially reduce the capacity of the floodplain or increase in flood heights.
- (3) Proposed floodplain fill or diked areas will benefit the public health, safety and welfare and incorporate adequate erosion and storm drainage controls, such as pumps, dams and gates.
- (4) No serious environmental degradation shall occur to the natural features and existing ecological balance of upstream and downstream areas.
- (5) On-going maintenance of altered areas is provided so that flood-carrying capacity will not be diminished by future erosion, settling, or other factors.

- b. Applicants must obtain a conditional letter of map revision (CLOMR) from FEMA before any encroachment, including fill, new construction, substantial improvement, or other development, in the regulatory floodway is permitted. Applicants are responsible for preparing technical data to support the CLOMR application and paying any processing or application fees to FEMA.

Response: Encroachment into floodplain areas has not been planned as these areas are generally located within the bisected portion of the lot on the west side of SW Tonquin Road or within areas to be dedicated as right-of-way. These criteria do not apply.

Chapter 16.136 – PROCEDURES

16.136.010 – Applicability

The standards of this Chapter, and applicable portions of Chapter 5 of the Community Development Plan, shall apply to any new uses or changes to existing uses in commercial, industrial and institutional zones, except as per Section 16.136.050.

16.136.020 – Conformance

Conformance with the standards of this Chapter shall, at a minimum, be certified in writing by a professional engineer and submitted with the application for site plan review required by Chapter 16.90, except as per Section 16.136.050. The written certification shall include:

- A. Statement certifying that the proposed commercial, industrial or institutional use, if properly managed and operated, will comply with City environmental performance standards, and citing evidence supporting the certification.

-
- B. Copies of any applicable State permits or recent test results, if available, which would indicate compliance with City environmental performance standards.

16.136.030 - Additional Information

- A. Prior to accepting any land use application to which this Chapter applies, the City Manager or his or her designee, may determine that additional expertise in evaluating the application, due to the complexity of its impact on environmental resources, is warranted. Under such circumstances, the City may contract with a professional engineer or other qualified consultant to evaluate and make recommendations on specific application elements relative to City environmental resource standards.
- B. Upon the City's determination that additional expertise is needed, the applicant shall deposit a sum equal to the estimated cost, as determined by the City, of such professional services. If the actual cost of such services is more than estimated, the applicant shall be responsible for the difference, provided however, that the applicant's financial responsibilities will not exceed ten percent (10%) of the estimate without prior written authorization. If the cost of such services is less than the estimate, the balance of the deposit shall be returned to the applicant upon final action on their land use application.

16.136.040 - Referenced Statutes and Rules

The Federal, State or regional statutes and rules cited in this Chapter are made part of this Code by reference. The statutes and rules cited are as current at the time of adoption of this Code. If a referenced statute or rule is amended by Federal, State or regional agencies, this Code must be amended for the new statute or rule to take precedence.

16.136.050 - Exceptions

The City shall make an initial determination whether a proposed development is subject to any of the standards of this Chapter, or whether the development is exempt. The City Manager or his or her designee is authorized to waive all or some of these standards when a proposed development clearly does not represent a substantial impact on the City's environmental resource standards as per this Chapter. The findings of the City Manager or his or her designee shall be made in writing, and copies shall be forwarded to the applicant and the Commission. The action of the City Manager or his or her designee may be appealed as per Chapter 16.76.

Response: Encroachment into floodplain areas has not been planned as these areas are generally located within the bisected portion of the lot on the west side of SW Tonquin Road or within areas to be dedicated as right-of-way. These criteria do not apply.

Chapter 16.140 - SOLID WASTE

16.140.030 - Accessory Use Solid Waste Facilities

- A. The following solid waste facilities are permitted, subject to the applicable regulations of the zone, as an accessory use to a permitted

or conditional use without being subject to the conditional use review:

1. Household hazardous waste depot, provided the facility is accessory to a public facility or to a use in an industrial zone.
2. Small scale specialized incinerator, provided the facility complies with Section 16.140.020 and does not accept more than two-hundred twenty (220) pounds per day of waste from off-site.
3. Recycling drop boxes, provided they also comply with Section 16.140.090.E.5.

Response: The aforementioned uses are not planned for the project at this time. Solid waste uses outlined within Chapter 16.140 are not proposed; therefore, these criteria are not applicable.

Chapter 16.142 - PARKS, TREES AND OPEN SPACES

16.142.040 - Visual Corridors

A. Corridors Required

New developments located outside of the Old Town Overlay with frontage on Highway 99W, or arterial or collector streets designated on Figure 8-1 of the Transportation System Plan shall be required to establish a landscaped visual corridor according to the following standards:

	Category	Width
2	Arterial	15 feet

In residential developments where fences are typically desired adjoining the above described major street the corridor may be placed in the road right-of-way between the property line and the sidewalk. In all other developments, the visual corridor shall be on private property adjacent to the right-of-way.

Response: The project site is located outside of the Old Town Overlay district with frontage on two arterial streets, SW Oregon Street and SW Tonquin Road; therefore, a 15-foot-wide landscaped visual corridor is required adjacent to the arterial rights-of-way. These corridors are shown on the Preliminary Site Plan and Preliminary Landscape Plan contained within Exhibit A. These criteria are met.

B. Landscape Materials

The required visual corridor areas shall be planted as specified by the review authority to provide a continuous visual and/or acoustical buffer between major streets and developed uses. Except as provided for above, fences and walls shall not be substituted for landscaping within the visual corridor. Uniformly planted, drought resistant street trees and ground cover, as specified in Section 16.142.060, shall be planted in the corridor by the developer. The improvements shall be included in the compliance agreement. In no case shall trees be removed from the required visual corridor.

Response: Landscaping materials within the required visual corridors are planned to be planted in order to provide a continuous visual and acoustical buffer between major streets and the project site. Fences and walls have not been substituted for landscaping within the planned visual corridor. Uniformly planted, drought-resistant street trees and ground

cover, as specified by Section 16.142.060, have been planned within these areas. These criteria are met.

C. Establishment and Maintenance

Designated visual corridors shall be established as a portion of landscaping requirements pursuant to Chapter 16.92. To assure continuous maintenance of the visual corridors, the review authority may require that the development rights to the corridor areas be dedicated to the City or that restrictive covenants be recorded prior to the issuance of a building permit.

Response: These standards are understood, and visual corridor areas are planned to be maintained as a portion of site landscaping. These criteria are met.

D. Required Yard

Visual corridors may be established in required yards, except that where the required visual corridor width exceeds the required yard width, the visual corridor requirement shall take precedence. In no case shall buildings be sited within the required visual corridor, with the exception of front porches on townhomes, as permitted in Section 16.44.010(E)(4)(c).

Response: The Preliminary Landscape and Site Plans attached show the planned visual corridors, required yards, or yards for which a variance is requested, meeting the applicable requirements of this section. These criteria are met.

16.142.060 - Street Trees

A. Installation of Street Trees on New or Redeveloped Property.

Trees are required to be planted to the following specifications along public streets abutting or within any new development or re-development. Planting of such trees shall be a condition of development approval. The City shall be subject to the same standards for any developments involving City-owned property, or when constructing or reconstructing City streets. After installing street trees, the property owner shall be responsible for maintaining the street trees on the owner's property or within the right-of-way adjacent to the owner's property.

1. Location: Trees shall be planted within the planter strip along a newly created or improved streets. In the event that a planter strip is not required or available, the trees shall be planted on private property within the front yard setback area or within public street right-of-way between front property lines and street curb lines or as required by the City.

Response: Street trees are illustrated on the attached Preliminary Landscape Plan (Exhibit A) within the planter strips adjacent to SW Oregon Street, SW Tonquin Road, and SW Laurelwood Way. These criteria are met.

2. Size: Trees shall have a minimum trunk diameter of two (2) caliper inches, which is measured six inches above the soil line, and a minimum height of six (6) feet when planted.

3. Types: Developments shall include a variety of street trees. The trees planted shall be chosen from those listed in 16.142.080 of this Code.

Response: Street trees have been specified to meet the minimum specifications at planting. Varieties have been chosen from those listed in SZCDC 16.142.080. These criteria are met.

4. Required Street Trees and Spacing:

- a. The minimum spacing is based on the maximum canopy spread identified in the recommended street tree list in section 16.142.080 with the intent of providing a continuous canopy without openings between the trees. For example, if a tree has a canopy of forty (40) feet, the spacing between trees is forty (40) feet. If the tree is not on the list, the mature canopy width must be provided to the planning department by a certified arborist.
- b. All new developments shall provide adequate tree planting along all public streets. The number and spacing of trees shall be determined based on the type of tree and the spacing standards described in a. above and considering driveways, street light locations and utility connections. Unless exempt per c. below, trees shall not be spaced more than forty (40) feet apart in any development.
- c. A new development may exceed the forty-foot spacing requirement under section b. above, under the following circumstances:
 - (1) Installing the tree would interfere with existing utility lines and no substitute tree is appropriate for the site; or
 - (2) There is not adequate space in which to plant a street tree due to driveway or street light locations, vision clearance or utility connections, provided the driveways, street light or utilities could not be reasonably located elsewhere so as to accommodate adequate room for street trees; and
 - (3) The street trees are spaced as close as possible given the site limitations in (1) and (2) above.
 - (4) The location of street trees in an ODOT or Washington County right-of-way may require approval, respectively, by ODOT or Washington County and are subject to the relevant state or county standards.
 - (5) For arterial and collector streets, the City may require planted medians in lieu of paved twelve-foot wide center turning lanes, planted with trees to the specifications of this subsection.

Response: Street trees have been spaced per the above standards of SZCDC and based upon the maximum canopy spread of the selected tree variety. Since both SW Oregon Street and SW Tonquin Road are Washington County roadways, the placement of street trees must meet their standards and will be accomplished with right-of-way permitting. These

streets are arterial streets; however, these street sections are not planned to provide planted medians in lieu of turning lanes or planter strips. These standards have been met.

16.142.070 - Trees on Property Subject to Certain Land Use Applications

A. Generally

The purpose of this Section is to establish processes and standards which will minimize cutting or destruction of trees and woodlands within the City. This Section is intended to help protect the scenic beauty of the City; to retain a livable environment through the beneficial effect of trees on air pollution, heat and glare, sound, water quality, and surface water and erosion control; to encourage the retention and planting of tree species native to the Willamette Valley and Western Oregon; to provide an attractive visual contrast to the urban environment, and to sustain a wide variety and distribution of viable trees and woodlands in the community over time.

B. Applicability

All applications including a Type II - IV land use review, shall be required to preserve trees or woodlands, as defined by this Section to the maximum extent feasible within the context of the proposed land use plan and relative to other codes, policies, and standards of the City Comprehensive Plan.

C. Inventory

1. To assist the City in making its determinations on the retention of trees and woodlands, land use applications including Type II - IV development shall include a tree and woodland inventory and report. The report shall be prepared by a qualified professional and must contain the following information:

- a. Tree size (in DBH and canopy area)
- b. Tree species
- c. The condition of the tree with notes as applicable explaining the assessment
- d. The location of the tree on the site
- e. The location of the tree relative to the planned improvements
- f. Assessment of whether the tree must be removed to accommodate the development
- g. Recommendations on measures that must be taken to preserve trees during the construction that are not proposed to be removed.

Response: The required materials, prepared by an arborist, are attached as part of Exhibit A. The required items have been inventoried for all trees on-site. These criteria are met.

2. In addition to the general requirements of this Section, the tree and woodland inventory's mapping and report shall also include, but is not limited to, the specific information outlined in the appropriate land use application materials packet.

Response: The attached materials contain the Preliminary Tree Preservation and Removal Plan (Exhibit A), illustrating trees that are marked for preservation and removal with the listed required information. These criteria are met.

3. Definitions for the inventory purposes of this Section

- a. A tree is a living woody plant having a trunk diameter as specified below at Diameter at Breast Height (DBH). Trees planted for commercial agricultural purposes, and/or those subject to farm forest deferral, such as nut and fruit orchards and Christmas tree farms, are excluded from this definition and from regulation under this Section, as are any living woody plants under six (6) inches at DBH. All trees six (6) inches or greater shall be inventoried.
- b. A woodland is a biological community dominated by trees covering a land area of 20,000 square feet or greater at a density of at least fifty (50) trees per every 20,000 square feet with at least fifty percent (50%) of those trees of any species having a six (6) inches or greater at DBH. Woodlands planted for commercial agricultural purposes and/or subject to farm forest deferral, such as nut and fruit orchards and Christmas tree farms, are excluded from this definition, and from regulation under this Section.
- c. A large stature tree is over 20 feet tall and wide with a minimum trunk diameter of 30 inches at DBH.

D. Retention requirements

- 1. Trees may be considered for removal to accommodate the development including buildings, parking, walkways, grading etc., provided the development satisfies of D.2 or D.3, below.

Response: Trees have been considered for removal based on the need to accommodate the construction of buildings, parking, walkways, and grading on the site. The tree canopy requirements are addressed below. This criterion is met.

[...]

3. Required Tree Canopy - Non-Residential and Multi-family Developments

Each net development site shall provide a variety of trees to achieve a minimum total tree canopy of 30 percent. The canopy percentage is based on the expected mature canopy of each tree by using the equation πr^2 to calculate the expected square footage of each tree. The expected mature canopy is counted for each tree even if there is an overlap of multiple tree canopies.

The canopy requirement can be achieved by retaining existing trees or planting new trees. Required landscaping trees can be used toward the total on site canopy required to meet this standard. The expected mature canopy spread of the new trees will be counted toward the required canopy

cover. A certified arborist or other qualified professional shall provide an estimated tree canopy for all proposed trees to the planning department for review as a part of the land use review process.

	Commercial, Industrial, Institutional Public, and Multi-Family
Canopy Requirement	30%
Counted Toward the Canopy Requirement	
Street trees included in canopy requirement	No
Landscaping requirements included in canopy requirement	Yes
Existing trees onsite	Yes x2
Planting new trees onsite	Yes
Mature Canopy in Square Feet Equation πr^2 or $(3.14159 * \text{radius}^2)$ (This is the calculation to measure the square footage of a circle. The Mature Canopy is given in diameter. In gardening and horticulture reference books, therefore to get the radius you must divide the diameter in half.	
Canopy Calculation Example: Pin Oak Mature canopy = 35' $(3.14159 * 17.5^2) = 962$ square feet	

Response: The subject property contains existing trees that must be removed for site development because of planned building and improvement locations and grading requirements. Trees that do not interfere with the development of the site are planned to be preserved. The Preliminary Landscape Plan (Exhibit A) shows 89 new trees are planned in order to comply with the 30 percent tree canopy requirement. Therefore, these criteria are met to the extent that they apply.

The Preliminary Landscape Plan (Exhibit A) shows, paired with the calculations above, an expected tree canopy coverage of ±180,082 square feet, ±51.8 percent of the total site area. The criteria applicable to this industrial project are met.

4. The City may determine that, regardless of D.1 through D.3, that certain trees or woodlands may be required to be retained. The basis for such a decision shall include; specific findings that retention of said trees or woodlands furthers the purposes and goals of this Section, is feasible and practical both within the context of the proposed land use plan and relative to other policies and standards of the City Comprehensive Plan, and are:
 - a. Within a Significant Natural Area, 100-year floodplain, City greenway, jurisdictional wetland or other existing or future public park or natural area designated by the City Comprehensive Plan, or
 - b. A landscape or natural feature as per applicable policies of the City Comprehensive Plan, or are necessary to keep other identified trees or woodlands on or near the site from being damaged or destroyed due to windfall, erosion, disease or other natural processes, or

- c. Necessary for soil stability and the control of erosion, for managing and preserving surface or groundwater quantities or quality, or for the maintenance of a natural drainageway, as per Clean Water Services stormwater management plans and standards of the City Comprehensive Plan, or
- d. Necessary in required buffers between otherwise incompatible land uses, or from natural areas, wetlands and greenways, or
- e. Otherwise merit retention because of unusual size, size of the tree stand, historic association or species type, habitat or wildlife preservation considerations, or some combination thereof, as determined by the City.

Response: These standards are understood. These situations are not anticipated on the project site.

[...]

- 7. All trees, woodlands, and vegetation located on any private property accepted for dedication to the City for public parks and open space, greenways, Significant Natural Areas, wetlands, floodplains, or for storm water management or for other purposes, as a condition of a land use approval, shall be retained outright, irrespective of size, species, condition or other factors. Removal of any such trees, woodlands, and vegetation prior to actual dedication of the property to the City shall be cause for reconsideration of the land use plan approval.

Response: This standard is understood, but not applicable to this project.

E. Tree Preservation Incentive

Retention of existing native trees on site which are in good health can be used to achieve the required mature canopy requirement of the development. The expected mature canopy can be calculated twice for existing trees. For example, if one existing tree with an expected mature canopy of 10 feet (78.5 square feet) is retained it will count as twice the existing canopy (157 square feet).

Response: Trees designated for preservation have been calculated, where applicable, towards the mature canopy requirements for the proposed development at the specified rate.

F. Additional Preservation Incentives

- 1. **General Provisions.** To assist in the preservation of trees, the City may apply one or more of the following flexible standards as part of the land use review approval. To the extent that the standards in this section conflict with the standards in other sections of this Title, the standards in this section shall apply except in cases where the City determines there would be an unreasonable risk to public health, safety, or welfare. Flexibility shall be requested by the applicant with justification provided within the tree preservation and protection report as part of the land use review process and is only applicable to trees that are eligible for credit towards the effective tree canopy cover of the site. A separate

adjustment application as outlined in Section 16.84.030.A is not required.

2. Flexible Development Standards. The following flexible standards are available to applicants in order to preserve trees on a development site. These standards cannot be combined with any other reductions authorized by this code.
 - a. Lot size averaging. To preserve existing trees in the development plan for any Land Division under Division VII, lot size may be averaged to allow lots less than the minimum lot size required in the underlying zone as long as the average lot area is not less than that allowed by the underlying zone. No lot area shall be less than 80 percent of the minimum lot size allowed in the zone;

Response: Land division is not planned as part of this project; therefore, these criteria do not apply.

- b. Setbacks. The following setback reductions will be allowed for lots preserving existing trees using the criteria in subsection (1) below. The following reductions shall be limited to the minimum reduction necessary to protect the tree.

(1) Reductions allowed:

- (a.) Front yard - up to a 25 percent reduction of the dimensional standard for a front yard setback required in the base zone. Setback of garages may not be reduced by this provision.
- (b.) Interior setbacks - up to a 40 percent reduction of the dimensional standards for an interior side and/or rear yard setback required in the base zone.
- (c.) Perimeter side and rear yard setbacks shall not be reduced through this provision.

Response: Preservation of many of the trees currently on-site is not possible due to their location within future rights-of-way or where future improvement is needed. Therefore, these criteria do not apply.

c. Approval criteria:

- (1.) A demonstration that the reduction requested is the least required to preserve trees; and
- (2.) The reduction will result in the preservation of tree canopy on the lot with the modified setbacks; and
- (3.) The reduction will not impede adequate emergency access to the site and structure.

Response: A setback reduction to preserve trees has not been sought; therefore, these criteria do not apply.

3. Sidewalks. Location of a public sidewalk may be flexible in order to preserve existing trees or to plant new large stature street trees. This flexibility may be accomplished through a curb-tight sidewalk or a meandering public sidewalk easement recorded over private property and shall be reviewed on a case by case basis in accordance with the provisions of the Engineering Design Manual, Street and Utility Improvement Standards. For preservation, this flexibility shall be the minimum required to achieve the desired effect. For planting, preference shall be given to retaining the planter strip and separation between the curb and sidewalk wherever practicable. If a preserved tree is to be utilized as a street tree, it must meet the criteria found in the Street Tree section, 16.142.060.

Response: Existing large trees and utilities are not within locations compatible for preservation with the use of curb-tight sidewalks; therefore, these sidewalks are not planned to be curb-tight or meandering. Plantings have been planned for the planter strip where practicable. These criteria are met.

4. Adjustments to Commercial and Industrial development Standards. Adjustments to Commercial or Industrial Development standards of up to 20 feet additional building height are permitted provided;
 - a. At least 50% of a Significant Tree stand's of canopy within a development site (and not also within the sensitive lands or areas that areas dedicated to the City) is preserved;
 - b. The project arborist or qualified professional certifies the preservation is such that the connectivity and viability of the remaining significant tree stand is maximized;
 - c. Applicable buffering and screening requirements are met;
 - d. Any height adjustments comply with state building codes;
 - e. Significant tree stands are protected through an instrument or action subject to approval by the City Manager or the City manager's designee that demonstrates it will be permanently preserved and managed as such;
 - (1.) A conservation easement;
 - (2.) An open space tract;
 - (3.) A deed restriction; or
 - (4.) Through dedication and acceptance by the City.

Response: Adjustments to industrial building height have not been planned. These criteria do not apply.

G. Tree Protection During Development

The applicant shall prepare and submit a final Tree and Woodland Plan prior to issuance of any construction permits, illustrating how identified trees and woodlands will be retained, removed or protected as per the Notice of Decision. Such plan shall specify how trees and woodlands will be protected from damage or destruction by construction activities, including protective fencing, selective pruning and root treatments, excavation techniques, temporary drainage systems, and like methods. At a minimum, trees to be protected shall have the area within the drip line of the tree protected from grading, stockpiling, and all other construction related activity unless specifically reviewed and recommended by a certified arborist or other qualified professional. Any work within the dripline of the tree shall be supervised by the project arborist or other qualified professional onsite during construction.

Response: Trees that have been planned for preservation are illustrated on the Preliminary Tree Preservation and Removal Table (Exhibit A). This plan specifies how trees and woodlands, where applicable, will be protected from damage by construction activities by methods such as those listed. These criteria are met.

16.142.090 - Recommended Street Trees

A. Recommended Street Trees:

[Section table skipped for brevity.]

B. Recommended Street Trees under Power Lines:

[Section text skipped for brevity.]

C. Prohibited Street Trees:

Acer, Silver Maple

Acer, Boxelder

Ailanthus, gladiolosa - Tree-of-heaven

Betula; common varieties of Birch

Ulmus; common varieties of Elm

Morus; common varieties of Mulberry

Salix; common varieties of willow

Coniferous Evergreen (Fir, Pine, Cedar, etc.)

Populus; common varieties of poplar, cottonwood and aspen

Female Ginkgo

D. Alternative Street Trees: Trees that are similar to those on the recommended street tree list can be proposed provided that they are non-fruit bearing, non-invasive and not listed on the prohibited street tree list. A letter from a certified arborist must be submitted, explaining why the tree is an equivalent or better street tree than the recommended street trees that are identified in this section.

Response: The required street trees have been selected from the Recommended Street Trees list and do not include varieties from the Prohibited Street Trees list as demonstrated on the Preliminary Landscape Plan (Exhibit A). Existing trees adjacent to SW Oregon Street

planned for removal are Fir trees, which are not appropriate street trees. These standards are met.

Chapter 16.144 - WETLAND, HABITAT AND NATURAL AREAS

16.144.010 - Generally

Unless otherwise permitted, residential, commercial, industrial, and institutional uses in the City shall comply with the following wetland, habitat and natural area standards if applicable to the site as identified on the City's Wetland Inventory, the Comprehensive Plan Natural Resource Inventory, the Regionally Significant Fish and Wildlife Habitat Area map adopted by Metro, and by reference into this Code and the Comprehensive Plan. Where the applicability of a standard overlaps, the more stringent regulation shall apply.

Response: Metro Regional Services' (Metro's) Regionally Significant Fish and Wildlife Habitat Map shows this property as having Class I Riparian Habitat and Class A Upland Habitat.

16.144.020 - Standards

A. The applicant shall identify and describe the significance and functional value of wetlands on the site and protect those wetlands from adverse effects of the development. A facility complies with this standard if it complies with the criteria of subsections A.1.a and A.1.b, below:

1. The facility will not reduce the area of wetlands on the site, and development will be separated from such wetlands by an area determined by the Clean Water Services Design and Construction Standards R&O 00-7 or its replacement provided Section 16.140.090 does not require more than the requested setback.

Response: Wetlands were identified on the project site, located at the southwest corner adjacent to the SW Tonquin Road/SW Oregon Street intersection. The functional value of these areas was determined, and a plan created to address the protection of these areas. The Wetland Delineation Report (Exhibit E) outlines the two wetland areas—Wetland A, which is nearest the project site on the east side of SW Tonquin Road, and Wetland B, which is located on the bifurcated portion of the site west of SW Tonquin Road, and which extends along the Rock Creek corridor. Wetland A is planned for removal, while Wetland B is planned to remain. The project plans to enhance vegetative corridors and purchase mitigation bank credits for permanent impacts to the wetlands.

The planned site improvements are planned to comply with the prescribed Clean Water Services Design and Construction Standards. Additional details can be found in the project Wetland Delineation Report (Exhibit E) and CWS Service Provider Letter (Exhibit J). These criteria are met.

- a. A natural condition such as topography, soil, vegetation or other feature isolates the area of development from the wetland.

Response: The project site features topography and vegetation that isolate the site improvements from Wetland B. Plans have been created to reflect and preserve this separation. Additional details can be found in the project Wetland Delineation Report (Exhibit E). This criterion is met.

-
- b. Impact mitigation measures will be designed, implemented, and monitored to provide effective protection against harm to the wetland from sedimentation, erosion, loss of surface or ground water supply, or physical trespass.

Response: The project has been designed to provide the wetland protection from sedimentation, erosion, loss of surface or ground water supply, and physical trespass, including implementation and monitoring. Additional details can be found in the project Wetland Delineation Report (Exhibit E) and CWS Service Provider Letter (Exhibit J). These criteria are met.

- c. A lesser setback complies with federal and state permits, or standards that will apply to state and federal permits, if required.

Response: A lesser setback has not been requested. This criterion does not apply.

- 2. If existing wetlands are proposed to be eliminated by the facility, the applicant shall demonstrate that the project can, and will develop or enhance an area of wetland on the site or in the same drainage basin that is at least equal to the area and functional value of wetlands eliminated.

Response: Existing wetlands are planned to be replaced by a stormwater facility. Conditions have been issued by CWS (Exhibit J) for the stormwater facility and work within wetlands. Mitigation for the loss of Wetland A is planned through the purchase of ±0.26 acres of credits from the Tualatin Valley Environmental Bank. This criterion is met.

- B. The applicant shall provide appropriate plans and text that identify and describe the significance and functional value of natural features on the site (if identified in the Community Development Plan, Part 2) and protect those features from impacts of the development or mitigate adverse effects that will occur. A facility complies with this standard if:

Response: The appropriate plans and text have been provided, and additional details can be found in the attached Wetland Delineation Report (Exhibit E) and CWS Service Provider Letter (Exhibit J). These documents identify and describe the significance and functional value of the site's natural features and describe the measures for protection of the resource and the prevention of adverse effects. These criteria are met.

- 1. The site does not contain an endangered or threatened plant or animal species or a critical habitat for such species identified by Federal or State government (and does not contain significant natural features identified in the Community Development Plan, Part 2, Natural Resources and Recreation Plan).

Response: Endangered or threatened plant or animal species or their critical habitats were not identified within the site's natural resource areas. These criteria do not apply.

- 2. The facility will comply with applicable requirements of the zone.

Response: The planned improvements comply with all applicable requirements of the zone; therefore, this criterion is met.

3. The applicant will excavate and store topsoil separate from subsurface soil, and shall replace the topsoil over disturbed areas of the site not covered by buildings or pavement or provide other appropriate medium for re-vegetation of those areas, such as yard debris compost.

Response: Where applicable, these standards are planned to be met.

4. The applicant will retain significant vegetation in areas that will not be covered by buildings or pavement or disturbed by excavation for the facility; will replant areas disturbed by the development and not covered by buildings or pavement with native species vegetation unless other vegetation is needed to buffer the facility; will protect disturbed areas and adjoining habitat from potential erosion until replanted vegetation is established; and will provide a plan or plans identifying each area and its proposed use.

Response: Where possible, significant vegetation has been planned to be retained. These areas are largely within the natural areas at the southwestern bifurcated portion of the site. Other areas of the site are planned to be revegetated as needed with native species. The project plans to protect disturbed areas and their adjoining habitats from potential erosion until vegetation is established. Plans have been provided identifying each area, the preservation of the resources on-site, and the plantings planned. These criteria are met.

5. Development associated with the facility will be set back from the edge of a significant natural area by an area determined by the Clean Water Services Design and Construction standards R&O 00-7 or its replacement, provided Section 16.140.090A does not require more than the requested setback. Lack of adverse effect can be demonstrated by showing the same sort of evidence as in subsection A.1 above.

Response: Site improvements are not expected to reduce the area of wetlands planned to remain and are planned to comply with the prescribed Clean Water Services Design and Construction Standards. Additional details can be found in the project Wetland Delineation Report (Exhibit E) and the CWS Service Provider Letter (Exhibit J). These criteria are met.

- C. When the Regionally Significant Fish and Wildlife Habitat map indicates there are resources on the site or within 50 feet of the site, the applicant shall provide plans that show the location of resources on the property. If resources are determined to be located on the property, the plans shall show the value of environmentally sensitive areas using the methodologies described in Sections 1 and 2 below.

The Metro Regionally Significant Fish and Wildlife Habitat map shall be the basis for determining the location and value of environmentally sensitive habitat areas. In order to specify the exact locations on site, the following methodology shall be used to determine the appropriate boundaries and habitat values:

-
1. Verifying boundaries of inventoried riparian habitat. Locating habitat and determining its riparian habitat class is a four-step process:
 - a. Located the Water Feature that is the basis for identifying riparian habitat.
 1. Locate the top of bank of all streams, rivers, and open water within 200 feet of the property.
 2. Locate all flood areas within 100 feet of the property.
 3. Locate all wetlands within 150 feet of the property based on the Local Wetland Inventory map and on the Metro 2002 Wetland Inventory map (available from the Metro Data Resource Center, 600 NE Grand Ave., Portland, OR 97232). Identified wetlands shall be further delineated consistent with methods currently accepted by the Oregon Division of State Lands and the US Army Corps of Engineers.
 - b. Identify the vegetative cover status of all areas on the property that are within 200 feet of the top of bank of streams, rivers, and open water, are wetlands or are within 150 feet of wetlands, and are flood areas or are within 100 feet of flood areas. Vegetative cover status shall be as identified on the Metro Vegetative Cover map. In the event of a discrepancy between the Metro Vegetative Cover map and the existing site conditions, document the actual vegetative cover based on the following definitions along with a 2002 aerial photograph of the property;
 1. Low structure vegetation or open soils — Areas that are part of a contiguous area one acre or larger of grass, meadow, crop-lands, or areas of open soils located within 300 feet of a surface stream (low structure vegetation areas may include areas of shrub vegetation less than one acre in size if they are contiguous with areas of grass, meadow, crop-lands, orchards, Christmas tree farms, holly farms, or areas of open soils located within 300 feet of a surface stream and together form an area of one acre in size or larger).
 2. Woody vegetation — Areas that are part of a contiguous area one acre or larger of shrub or open or scattered forest canopy (less than 60% crown-closure) located within 300 feet of a surface stream.
 3. Forest canopy — Areas that are part of a contiguous grove of trees of one acre or

larger in area with approximately 60% or greater crown closure, irrespective of whether the entire grove is within 200 feet of the relevant water feature.

- c. Determine whether the degree that the land slopes upward from all streams, rivers, and open water within 200 feet of the property is greater than or less than 25% (using the Clean Water Services Vegetated Corridor methodology); and
- d. Identify the riparian habitat classes applicable to all areas on the property using Table 8-1 below:

Distance in feet from Water Feature	Development/Vegetation Status			
	Developed areas not providing vegetative cover	Low structure vegetation or open soils	Woody vegetation (shrub and scatted forest canopy)	Forest Canopy (closed to open forest canopy)
Surface Streams				
0-50	Class II	Class I	Class I	Class I
50-100		Class II	Class I	Class I
100-150		Class II if slope >25%	Class II if slope >25%	Class II
150-200		Class II if slope >25%	Class II if slope >25%	Class II if slope >25%
Wetlands (Wetland feature itself is a Class I Riparian Area)				
0-100			Class I	Class I
100-150				Class II
Flood Areas (undeveloped portion of a flood area is a Class I Riparian area)				
0-100			Class II	Class II

- 2. Verifying boundaries of inventoried upland habitat. Upland habitat was identified based on the existence of contiguous patches of forest canopy, with limited canopy openings. The "forest canopy" designation is made based on analysis of aerial photographs, as part of determining the vegetative cover status of land within the region. Upland habitat shall be as identified on the HCA map. The perimeter of an area delineated as "forest canopy" on the Metro Vegetative Cover map may be adjusted to more precisely indicate the drip line of the trees within the canopied area.

Response: The required boundaries were identified for all water features on the property. Further information is available within the Preliminary Plans (Exhibit A) and the Wetland Delineation Report (Exhibit E).

16.144.030 - Exceptions to Standards

In order to protect environmentally sensitive areas that are not also governed by floodplain, wetland and Clean Water Services vegetated corridor regulations, the City allows flexibility of the specific standards in exchange for the specified amount of protection inventoried environmentally sensitive areas as defined in this code.

A. Process

The flexibility of standards is only applicable when reviewed and approved as part of a land use application and shall require no additional fee or permit provided criteria is addressed. In the absence of a land use application, review may be processed as a Type 1 administrative interpretation.

B. Standards modified

1. Lot size — Notwithstanding density transfers permitted through Chapter 16.40, when a development contains inventoried regionally significant fish and wildlife habitats as defined in Section 16.144.020 above, lot sizes may be reduced up to ten percent (10%) below the minimum lot size of the zone when an equal amount of inventoried resource above and beyond that already required to be protected is held in a public or private open space tract or otherwise protected from further development.
2. Setbacks — For residential zones, the setback may be reduced up to thirty percent (30%) for all setbacks except the garage setback provided the following criteria are satisfied:
 - a. The setback reduction must result in an equal or greater amount of significant fish and/or wildlife habitat protection. Protection shall be guaranteed with deed restrictions or public or private tracts.
 - b. In no case shall the setback reduction supersede building code and/or Tualatin Valley Fire and Rescue separation requirements.
 - c. In no case shall the setback be reduced to less than five feet unless otherwise provided for by the underlying zone.
3. Density — per Section 16.10.020 (Net Buildable Acre definition), properties with environmentally sensitive areas on site may opt to exclude the environmentally sensitive areas from the minimum density requirements provided the sensitive areas are protected via tract or restrictive easement. A proposal to remove said area from the density calculation must include: a delineation of the resource in accordance with Section 16.144.020C, the acreage being protected, and the net reduction below the normally required minimum for accurate reporting to Metro.

Response: These standards do not apply to the industrial development. The zone is industrial and has no minimum lot size, no residential setbacks, and no residential densities. Therefore, these standards cannot be adjusted, and these criteria do not apply.

4. Parking — Per Section 16.94.020.B.6, 10-25% of the required parking spaces may be reduced in order to protect

inventoried regionally significant fish and wildlife habitat areas, provided these resources are protected via deed restrictions or held in public or private tracts.

5. Landscaping — Per Section 16.92.030.B.6, exceptions may be granted to the landscaping standards in certain circumstances as outlined in that section.

Response: Adjustments to these standards have not been sought with this application for design review.

Chapter 16.146 - NOISE

16.146.010 - Generally

All otherwise permitted commercial, industrial, and institutional uses in the City shall comply with the noise standards contained in OAR 340-35-035. The City may require proof of compliance with OAR 340-35-035 in the form of copies of all applicable State permits or certification by a professional acoustical engineer that the proposed uses will not cause noise in excess of State standards.

16.146.020 - Noise Sensitive Uses

When proposed commercial and industrial uses do not adjoin land exclusively in commercial or industrial zones, or when said uses adjoin special care, institutional, or parks and recreational facilities, or other uses that are, in the City's determination, sensitive to noise impacts, then:

- A. The applicant shall submit to the City a noise level study prepared by a professional acoustical engineer. Said study shall define noise levels at the boundaries of the site in all directions.
- B. The applicant shall show that the use will not exceed the noise standards contained in OAR 340-35-035, based on accepted noise modeling procedures and worst case assumptions when all noise sources on the site are operating simultaneously.
- C. If the use exceeds applicable noise standards as per subsection B of this Section, then the applicant shall submit a noise mitigation program prepared by a professional acoustical engineer that shows how and when the use will come into compliance with said standards.

16.146.030 - Exceptions

This Chapter does not apply to noise making devices which are maintained and utilized solely as warning or emergency signals, or to noise caused by automobiles, trucks, trains, aircraft, and other similar vehicles when said vehicles are properly maintained and operated and are using properly designated rights-of-way, travel ways, flight paths or other routes. This Chapter also does not apply to noise produced by humans or animals. Nothing in this Chapter shall preclude the City from abating any noise problem as per applicable City nuisance and public safety ordinances.

Response: The subject site is surrounded by other land zoned industrial (either Employment Industrial, Light Industrial, or General Industrial) and does not directly adjoin residentially zoned lands. The project is buffered from residences and residential districts by the Rock Creek corridor. Noise levels expected would be similar to nearby industrial uses. Flex industrial spaces do not typically generate noise beyond that associated with traffic entering and leaving the site, along with other activities typical of an urban area. The

proposed use will be within the required standards, and there are no planned adverse impacts. These criteria are met.

Chapter 16.148 - VIBRATIONS

16.148.010 - Generally

All otherwise permitted commercial, industrial, and institutional uses shall not cause discernible vibrations that exceed a peak of 0.002 gravity at the property line of the originating use, except for vibrations that last five (5) minutes or less per day, based on a certification by a professional engineer.

16.148.020 - Exceptions

This Chapter does not apply to vibration caused by construction activities including vehicles accessing construction sites, or to vibrations caused by automobiles, trucks, trains, aircraft, and other similar vehicles when said vehicles are properly maintained and operated and are using properly designated rights-of-way, travelways, flight paths or other routes. Nothing in this Chapter shall preclude the City from abating any vibration problem as per applicable City nuisance and public safety ordinances.

Response: Vibration levels expected would be similar to nearby industrial uses. Elevated levels of vibration, beyond what is expected in an urban area, are not anticipated. Therefore, the proposed use will be within required standards, and there will be no adverse impacts. These criteria are met.

Chapter 16.150 - AIR QUALITY

16.150.010 - Generally

All otherwise permitted commercial, industrial, and institutional uses shall comply with applicable State air quality rules and statutes:

- A. All such uses shall comply with standards for dust emissions as per OAR 340-21-060.
- B. Incinerators, if otherwise permitted by Section 16.140.020, shall comply with the standards set forth in OAR 340-25-850 through 340-25-905.
- C. Uses for which a State Air Contaminant Discharge Permit is required as per OAR 340-20-140 through 340-20-160 shall comply with the standards of OAR 340-220 through 340-20-276.

16.150.020 - Proof of Compliance

Proof of compliance with air quality standards as per Section 16.150.010 shall be in the form of copies of all applicable State permits, or if permits have not been issued, submission by the applicant, and acceptance by the City, of a report certified by a professional engineer indicating that the proposed use will comply with State air quality standards. Depending on the nature and size of the use proposed, the applicant may, in the City's determination, be required to submit to the City a report or reports substantially identical to that required for issuance of State Air Contaminant Discharge Permits.

16.150.030 - Exceptions

Nothing in this Chapter shall preclude the City from abating any air quality problem as per applicable City nuisance and public safety ordinances.

Response: Air quality impacts are anticipated to be similar to nearby industrial uses. Odorous or unusual emissions, beyond what is expected in an urban area, are not anticipated. The

proposed use will be within required standards, and there will be no adverse impacts. These criteria are met.

Chapter 16.152 - ODORS

16.152.010 - Generally

All otherwise permitted commercial, industrial, and institutional uses shall incorporate the best practicable design and operating measures so that odors produced by the use are not discernible at any point beyond the boundaries of the development site.

16.152.020 - Standards

The applicant shall submit a narrative explanation of the source, type and frequency of the odorous emissions produced by the proposed commercial, industrial, or institutional use. In evaluating the potential for adverse impacts from odors, the City shall consider the density and characteristics of surrounding populations and uses, the duration of any odorous emissions, and other relevant factors.

16.152.030 - Exceptions

Nothing in this Chapter shall preclude the City from abating any odor problem as per applicable City nuisance and public safety ordinances.

Response: Odor impacts would be expected similar to nearby commercial or industrial uses. Odorous or unusual emissions, beyond what is expected in an urban area, are not anticipated. The proposed use will be within required standards, and there will be no adverse impacts. These criteria are met.

Chapter 16.154 - HEAT AND GLARE

16.154.010 - Generally

Except for exterior lighting, all otherwise permitted commercial, industrial, and institutional uses shall conduct any operations producing excessive heat or glare entirely within enclosed buildings. Exterior lighting shall be directed away from adjoining properties, and the use shall not cause such glare or lights to shine off site in excess of one-half (0.5) foot candle when adjoining properties are zoned for residential uses.

16.154.020 - Exceptions

Nothing in this Chapter shall preclude the City from abating any heat and glare problem as per applicable City nuisance and public safety ordinances.

Response: The subject site does not adjoin any properties designated for residential uses, as those are located across the SW Tonquin Road right-of-way. Exterior lighting is planned to be directed away from adjoining properties. These applicable criteria are met.

Chapter 16.156 - ENERGY CONSERVATION

16.156.010 - Purpose

This Chapter and applicable portions of Chapter 5 of the Community Development Plan provide for natural heating and cooling opportunities in new development. The requirements of this Chapter shall not result in development exceeding allowable densities or lot coverage, or the destruction of existing trees.

16.156.020 - Standards

- A. **Building Orientation** - The maximum number of buildings feasible shall receive sunlight sufficient for using solar energy systems for space, water or industrial process heating or cooling. Buildings and vegetation shall be sited with respect to each other and the topography of the site so that unobstructed sunlight reaches the south wall of the greatest possible number of buildings between the hours of 9:00 AM and 3:00 PM, Pacific Standard Time on December 21st.
- B. **Wind** - The cooling effects of prevailing summer breezes and shading vegetation shall be accounted for in site design. The extent solar access to adjacent sites is not impaired vegetation shall be used to moderate prevailing winter wind on the site.

Response: The proposed buildings are oriented in a north-south direction, generally consistent with the orientation of the lot. The buildings are set back from the southern property boundary and each other as needed, while still allowing truck and fire safety access circulation around the buildings. Therefore, the buildings are generally positioned to allow unobstructed sunlight access to their southern walls.

The site is not planned to contain any existing trees that may shade these future buildings or moderate winter winds. However, the Preliminary Landscape Plan shows that trees will be planted and, at maturity, will provide shade and a buffer to winter winds on the site. These criteria are met.

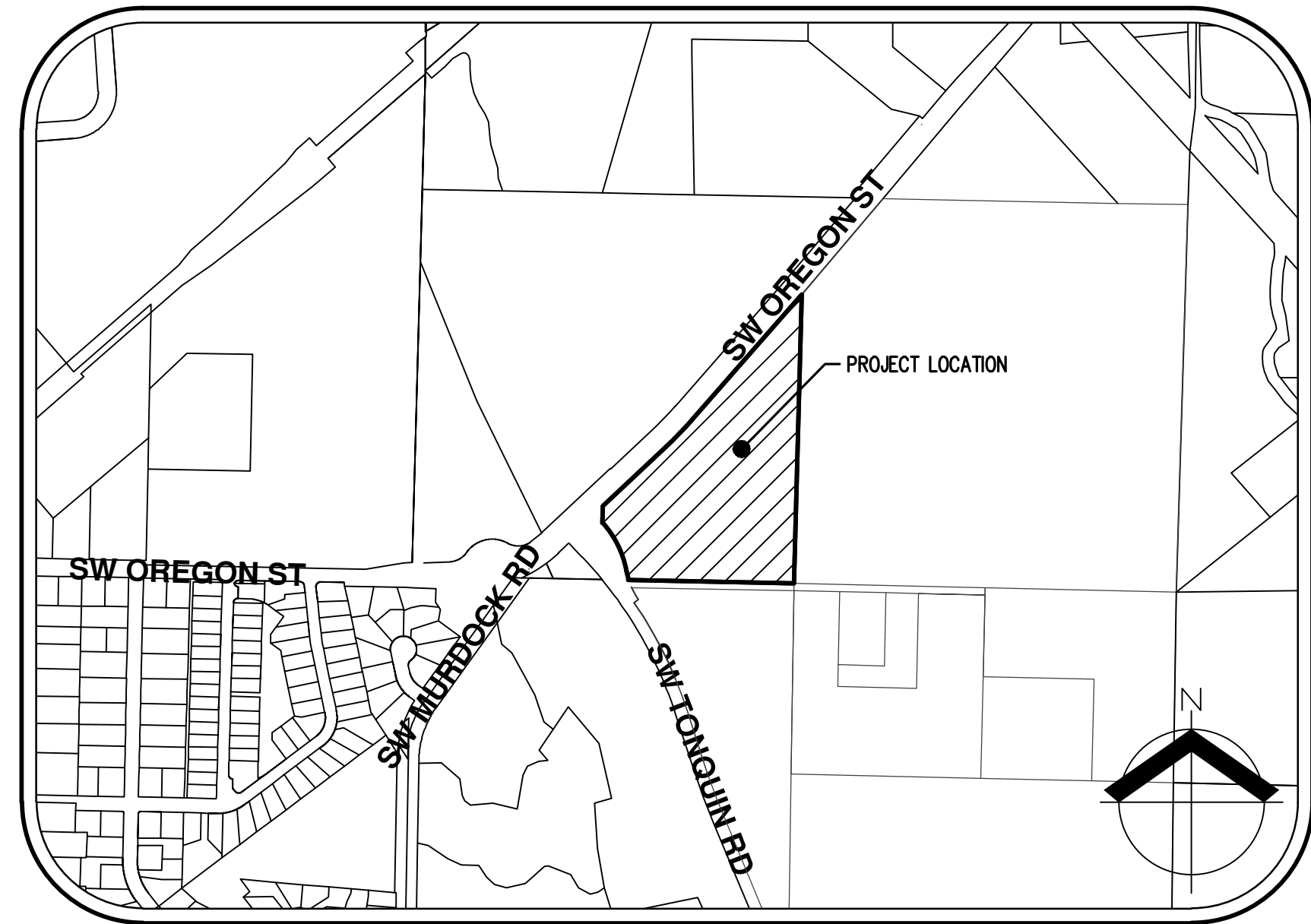
IV. Conclusion

The required findings have been made, and this narrative and accompanying documentation demonstrate the application is consistent with the applicable provisions of the City of Sherwood Zoning and Community Development Code. The evidence in the record is substantial and supports approval of the application. Therefore, the Applicant respectfully requests the City approve this site plan review and variance application.

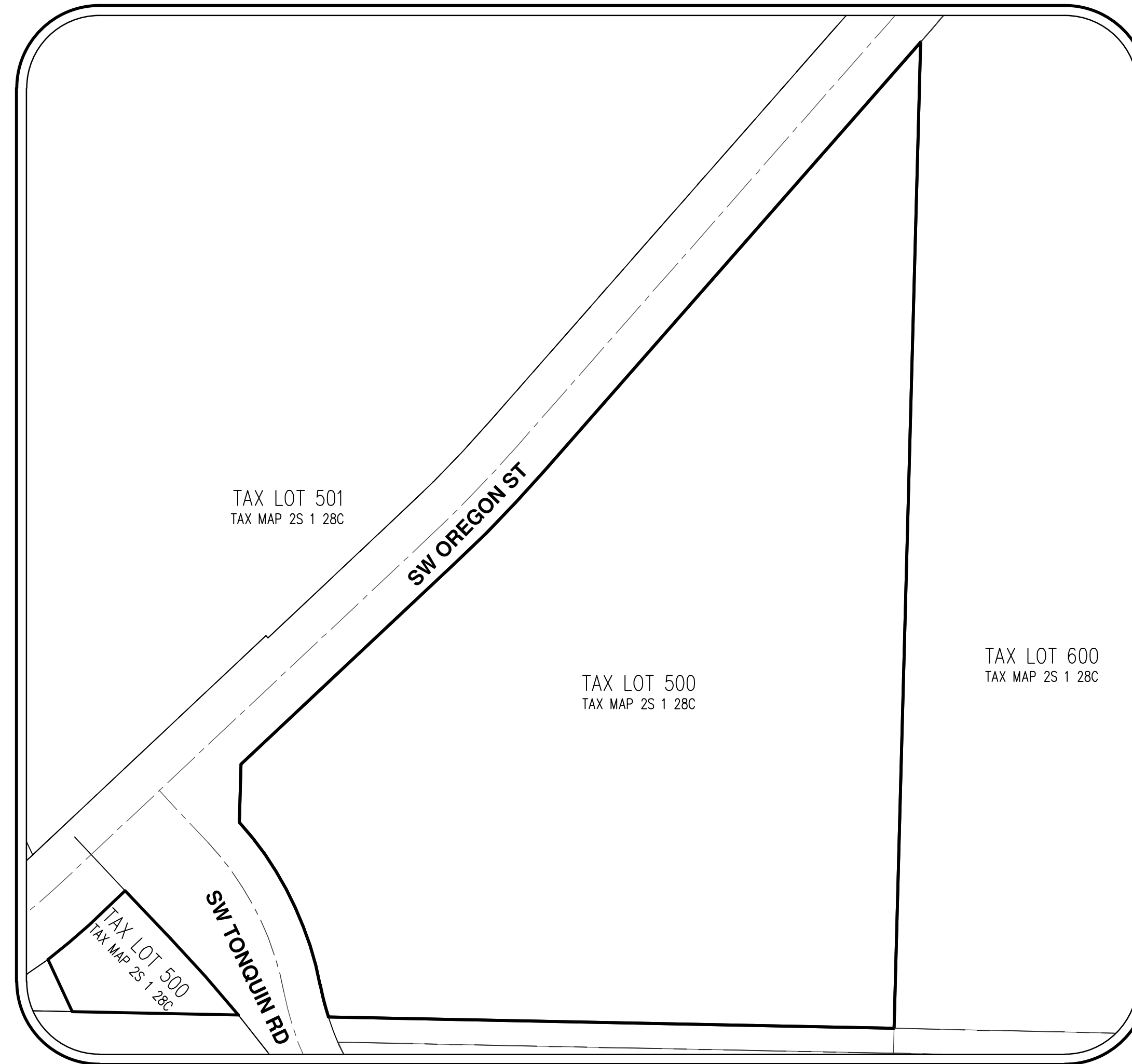
Exhibit A: Preliminary Plans

OREGON STREET BUSINESS PARK

APPLICATION DESIGN REVIEW PRELIMINARY PLANS



VICINITY MAP
SCALE: 1" = 500'



SITE MAP
SCALE: 1" = 100'

OWNER/APPLICANT
OREGON STREET BUSINESS PARK, LLC
PO BOX 1489
SHERWOOD, OR 97140

**LAND USE PLANNING /
LANDSCAPE ARCHITECTURE /
CIVIL ENGINEERING /
SURVEYING FIRM**

AKS ENGINEERING & FORESTRY, LLC
CONTACT: JOHN CHRISTIANSEN, PE
12965 SW HERMAN ROAD, SUITE 100
TUALATIN, OR 97062
PH: 503-563-6151
FAX: 503-563-6152

PROJECT LOCATION: AT THE INTERSECTION OF SW OREGON ST AND SW TONQUIN RD.

PROPERTY DESCRIPTION: TAX LOT 500 WASHINGTON COUNTY ASSESSOR'S MAP 2S 1W 28C LOCATED IN THE SOUTHWEST ONE-QUARTER OF SECTION 28, TOWNSHIP 2 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN, WASHINGTON COUNTY, OREGON.

TOTAL SITE AREA: ±9.53 AC

EXISTING LAND USE: EXISTING GRAVEL PARKING LOT, BUILDINGS AND FIELDS.

PROJECT PURPOSE: NEW INDUSTRIAL BUILDINGS, PARKING LOT AND STORMWATER FACILITY

VERTICAL DATUM: NAVD 88

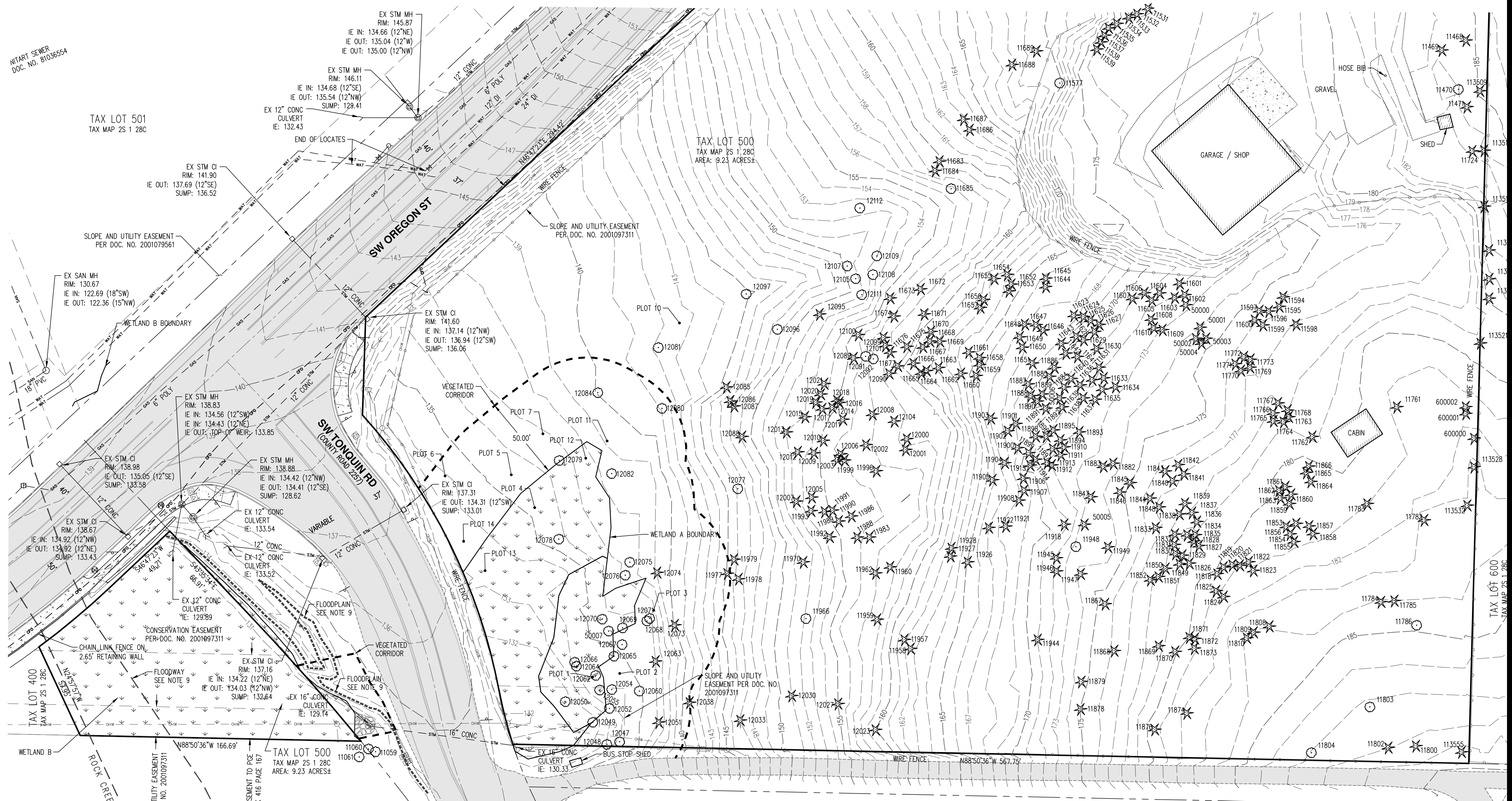
SHEET INDEX

- P01 COVER SHEET WITH VICINITY AND SITE MAPS
- P02 EXISTING CONDITIONS PLAN
- P03 EXISTING CONDITIONS PLAN
- P04 EXISTING CONDITIONS PLAN
- P05 PRELIMINARY SITE PLAN
- P06 PRELIMINARY FRONTAGE IMPROVEMENTS
- P07 PUBLIC STREET CROSS-SECTIONS
- P08 PRELIMINARY GRADING AND EROSION CONTROL PLAN
- P09 PRELIMINARY STORM DRAINAGE PLAN
- P10 PRELIMINARY SANITARY AND WATER PLAN
- P11 PRELIMINARY CIRCULATION PLAN
- P12 PRELIMINARY TRUCK TURNING MOVEMENTS PLAN
- P13 PRELIMINARY LANDSCAPE PLAN
- P14 PRELIMINARY DEMOLITION PLAN
- P15 PRELIMINARY TREE PRESERVATION AND REMOVAL PLAN
- P16 PRELIMINARY TREE PRESERVATION AND REMOVAL PLAN
- P17 PRELIMINARY TREE PRESERVATION AND REMOVAL TABLE
- P18 PRELIMINARY TREE PRESERVATION AND REMOVAL TABLE
- P19 PRELIMINARY SITE LIGHTING PLAN

LEGEND			
EXISTING	PROPOSED	EXISTING	PROPOSED
DECIDUOUS TREE		STORM DRAIN CLEAN OUT	
CONIFEROUS TREE		STORM DRAIN CATCH BASIN	
FIRE HYDRANT		STORM DRAIN AREA DRAIN	
WATER BLOWOFF		STORM DRAIN MANHOLE	
WATER METER		GAS METER	
WATER VALVE		GAS VALVE	
DOUBLE CHECK VALVE		GUY WIRE ANCHOR	
AIR RELEASE VALVE		UTILITY POLE	
SANITARY SEWER CLEAN OUT		POWER VAULT	
SANITARY SEWER MANHOLE		POWER JUNCTION BOX	
SIGN		POWER PEDESTAL	
STREET LIGHT		COMMUNICATIONS VAULT	
MAILBOX		COMMUNICATIONS JUNCTION BOX	
		COMMUNICATIONS RISER	
EXISTING		PROPOSED	
RIGHT-OF-WAY LINE		BOUNDARY LINE	
BOUNDARY LINE		PROPERTY LINE	
PROPERTY LINE		CENTERLINE	
CENTERLINE		DITCH	
DITCH		CURB	
CURB		EDGE OF PAVEMENT	
EDGE OF PAVEMENT		EASEMENT	
EASEMENT		FENCE LINE	
FENCE LINE		GRAVEL EDGE	
GRAVEL EDGE		POWER LINE	
POWER LINE		OVERHEAD WIRE	
OVERHEAD WIRE		COMMUNICATIONS LINE	
COMMUNICATIONS LINE		FIBER OPTIC LINE	
FIBER OPTIC LINE		GAS LINE	
GAS LINE		STORM DRAIN LINE	
STORM DRAIN LINE		SANITARY SEWER LINE	
SANITARY SEWER LINE		WATER LINE	
WATER LINE			

EXISTING CONDITIONS PLAN
OREGON STREET BUSINESS PARK
SHERWOOD, OR

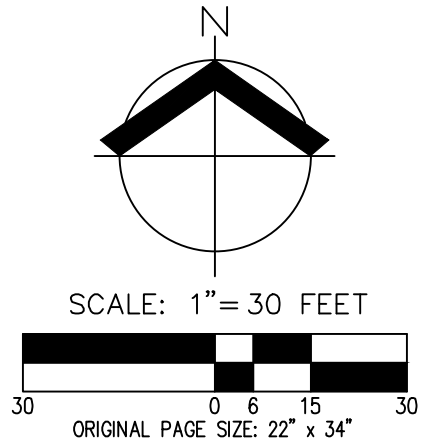
REGISTERED PROFESSIONAL LAND SURVEYOR
REVIEW COPY
 OREGON
 MARCH 14, 2017
 BENJAMIN R HUFF
 84738PLS
 RENEWS: 6/30/21
 JOB NUMBER: 7971
 DATE: 08/13/2020
 DESIGNED BY: AK
 DRAWN BY: BRH
 CHECKED BY: BRH



CURVE TABLE

CURVE	RADIUS	DELTA	LENGTH	CHORD
C3	1349.33'	531°00"	129.92'	N44°01'53"E 129.87'

- NOTES:**
- UTILITIES SHOWN ARE BASED ON UNDERGROUND UTILITY LOCATE MARKINGS AS PROVIDED BY OTHERS, PROVIDED PER UTILITY LOCATE TICKET NUMBER 19033288, 19033295, 19033297, 19033833, 19033890, 20150080, 20150117, AND 20150102. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND LOCATES REPRESENT THE ONLY UTILITIES IN THE AREA. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION.
 - FIELD WORK WAS CONDUCTED FEBRUARY 24, MARCH 3, JUNE 9-12, 15, 17, AND 24, 2020.
 - VERTICAL DATUM: ELEVATIONS REPORTED ARE ON NGVD 29 DATUM. ELEVATIONS WERE DERIVED FROM THE TRIMBLE VRS NOW NETWORK (NAVD 88) AND WERE ADJUSTED TO THE NGVD 29 DATUM USING A CENTRAL PROJECT POINT WITH A LATITUDE OF 45.362328 AND A LONGITUDE OF -122.818428 AND A VERTCON CALCULATED ELEVATION DIFFERENCE OF -3.471 FEET.
 - THIS IS NOT A BOUNDARY SURVEY TO BE RECORDED WITH THE COUNTY. BOUNDARIES MAY BE PRELIMINARY AND SHOULD BE CONFIRMED WITH THE STAMPING SURVEYOR PRIOR TO RELYING ON FOR DETAILED DESIGN OR CONSTRUCTION.
 - BUILDING FOOTPRINTS ARE MEASURED TO SIDINGS UNLESS NOTED OTHERWISE. CONTACT SURVEYOR WITH QUESTIONS REGARDING BUILDING TIES.
 - CONTOUR INTERVAL IS 1 FOOT.
 - TREES WITH DIAMETER OF 6" AND GREATER ARE SHOWN. TREE DIAMETERS WERE DETERMINED BY VISUAL INSPECTION. TREE INFORMATION IS SUBJECT TO CHANGE UPON ARBORIST INSPECTION.
 - WETLAND BOUNDARIES SHOWN WERE DELINEATED BY AKS ENGINEERING & FORESTRY, LLC ON 03/08/2021 AND WERE PROFESSIONALLY SURVEYED BY AKS ON 03/10/2021.
 - FLOODWAY IS A GRAPHICAL OVERLAY PER FLOOD INSURANCE RATE MAP NUMBER 41067C0602F WITH AN EFFECTIVE DATE OF NOVEMBER 4, 2016. FLOODPLAIN WAS DETERMINED TO BE 133.4 NGVD 29 (136.9 NAVD 88) PER FLOOD INSURANCE STUDY OF ROCK CREEK SOUTH WITH REVISED DATE OF OCTOBER 19, 2018.



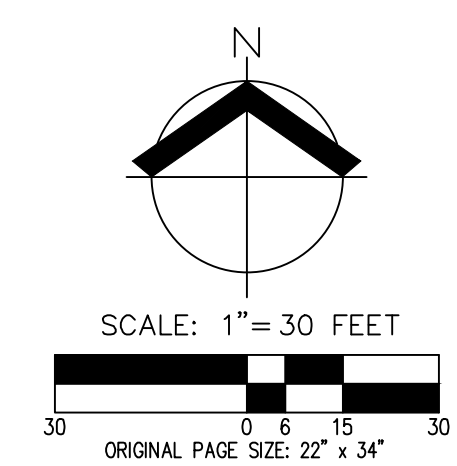
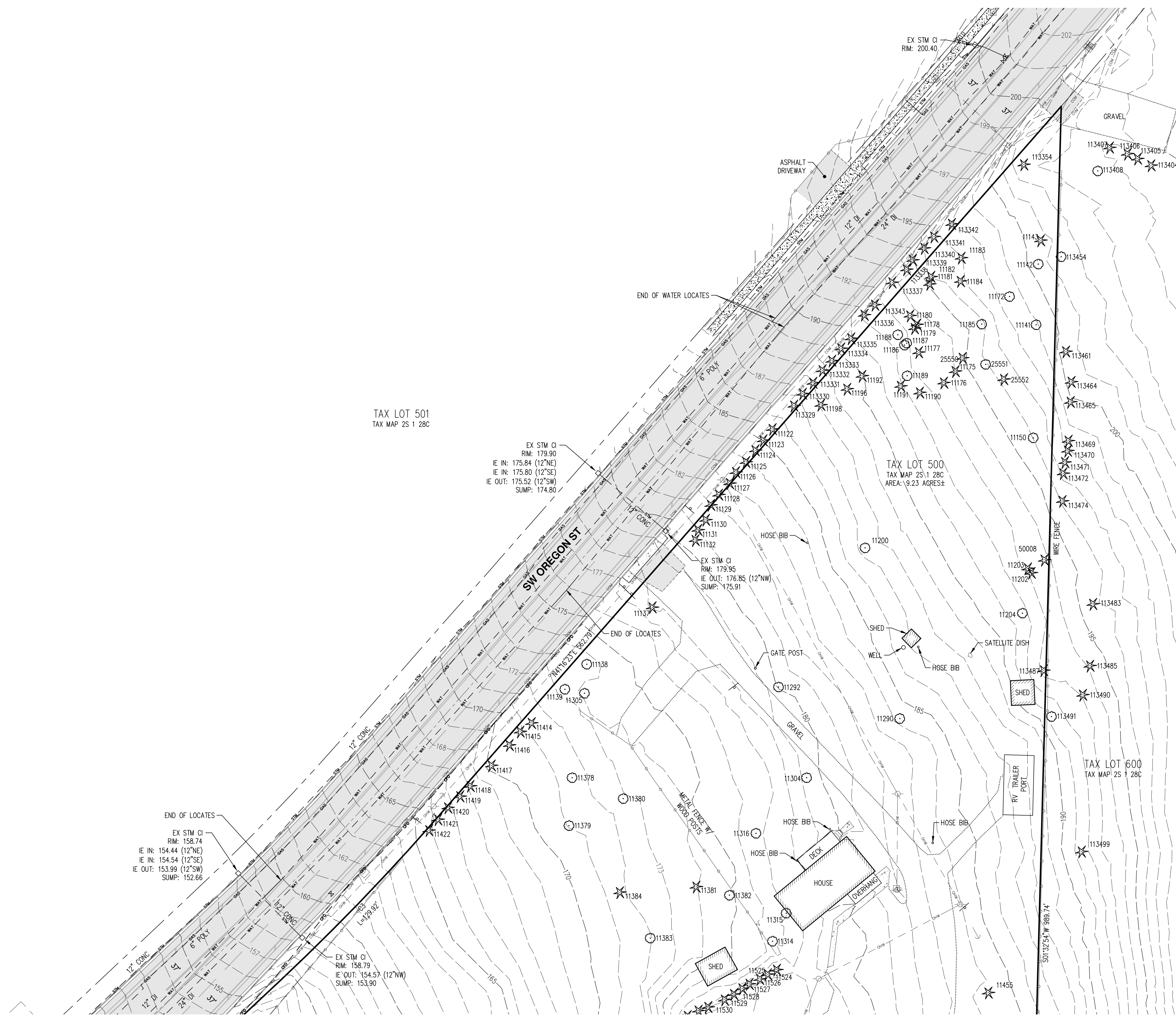
EXISTING CONDITIONS PLAN
OREGON STREET BUSINESS PARK
SHERWOOD, OR

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 84738PLS
 RENEWS: 6/30/21

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P03



TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
10936	DECIDUOUS	15
10944	DECIDUOUS	15
10949	DECIDUOUS	16
10955	DECIDUOUS	12
10964	DECIDUOUS	17
10967	DECIDUOUS	15
11059	DECIDUOUS	16
11060	DECIDUOUS	10
11061	DECIDUOUS	15
11122	CONIFEROUS	15
11123	CONIFEROUS	16
11124	CONIFEROUS	16
11125	CONIFEROUS	15
11126	CONIFEROUS	18
11127	CONIFEROUS	15
11128	CONIFEROUS	16
11129	CONIFEROUS	15
11130	CONIFEROUS	8
11131	CONIFEROUS	14
11132	CONIFEROUS	19
11137	CONIFEROUS	68
11138	DECIDUOUS	14
11139	DECIDUOUS	53
11181	CONIFEROUS	10
11182	CONIFEROUS	8
11183	CONIFEROUS	9
11188	DECIDUOUS	7
11191	CONIFEROUS	10,11
11192	CONIFEROUS	10
11196	CONIFEROUS	7
11198	CONIFEROUS	6
11305	DECIDUOUS	6
11414	CONIFEROUS	10
11415	CONIFEROUS	18
11416	CONIFEROUS	14
11417	CONIFEROUS	15
11418	CONIFEROUS	12
11419	CONIFEROUS	13
11420	CONIFEROUS	19
11421	CONIFEROUS	11
11422	CONIFEROUS	18
11471	CONIFEROUS	43

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
11803	DECIDUOUS	6,6,7,8
11804	DECIDUOUS	6,8
11949	CONIFEROUS	9
11977	CONIFEROUS	43
11978	CONIFEROUS	47
11979	CONIFEROUS	27
12033	CONIFEROUS	47
12038	CONIFEROUS	32
12047	DECIDUOUS	33
12048	DECIDUOUS	38
12049	DECIDUOUS	9
12050	DECIDUOUS	9
12051	CONIFEROUS	36
12052	DECIDUOUS	28
12053	DECIDUOUS	31
12054	DECIDUOUS	19
12055	DECIDUOUS	13
12056	DECIDUOUS	30
12057	DECIDUOUS	16
12058	DECIDUOUS	15
12059	DECIDUOUS	29
12060	DECIDUOUS	11
12061	DECIDUOUS	7
12063	CONIFEROUS	71
12064	DECIDUOUS	10
12065	DECIDUOUS	9
12066	DECIDUOUS	8
12067	DECIDUOUS	28
12068	DECIDUOUS	12
12069	DECIDUOUS	32
12070	DECIDUOUS	8
12071	DECIDUOUS	21
12073	CONIFEROUS	32
12074	CONIFEROUS	32
12075	DECIDUOUS	7
12076	DECIDUOUS	8
12078	DECIDUOUS	18
12079	DECIDUOUS	12
12082	DECIDUOUS	56
12084	DECIDUOUS	25
25550	CONIFEROUS	9
25551	DECIDUOUS	15

TREE TABLE		
TREE NUMBER	TYPE	DBH (IN.)
25552	CONIFEROUS	8
113329	CONIFEROUS	17
113330	CONIFEROUS	12
113331	CONIFEROUS	14
113332	CONIFEROUS	14
113333	CONIFEROUS	16
113334	CONIFEROUS	17
113335	CONIFEROUS	15
113336	CONIFEROUS	16
113337	CONIFEROUS	20
113338	CONIFEROUS	10
113339	CONIFEROUS	18
113340	CONIFEROUS	15
113341	CONIFEROUS	18
113342	CONIFEROUS	8
113343	CONIFEROUS	15
113354	CONIFEROUS	70
113404	CONIFEROUS	39
113405	CONIFEROUS	24
113406	CONIFEROUS	27
113407	CONIFEROUS	24
113408	DECIDUOUS	24
113454	DECIDUOUS	11
113461	CONIFEROUS	23
113464	CONIFEROUS	20
113465	CONIFEROUS	27
113469	CONIFEROUS	21
113470	CONIFEROUS	16
113471	CONIFEROUS	22
113472	CONIFEROUS	20
113474	CONIFEROUS	19
113483	CONIFEROUS	28
113485	CONIFEROUS	25
113490	CONIFEROUS	25
113491	DECIDUOUS	7
113499	CONIFEROUS	18,22,28
113515	CONIFEROUS	34
113517	CONIFEROUS	53
113518	CONIFEROUS	37
113519	CONIFEROUS	34
113521	CONIFEROUS	37

EXISTING CONDITIONS PLAN

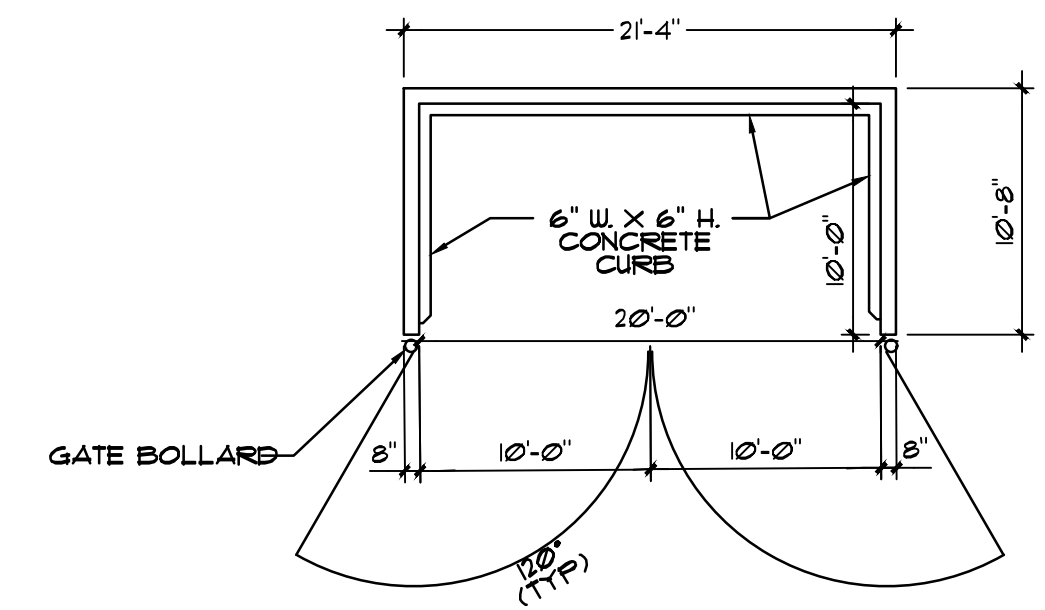
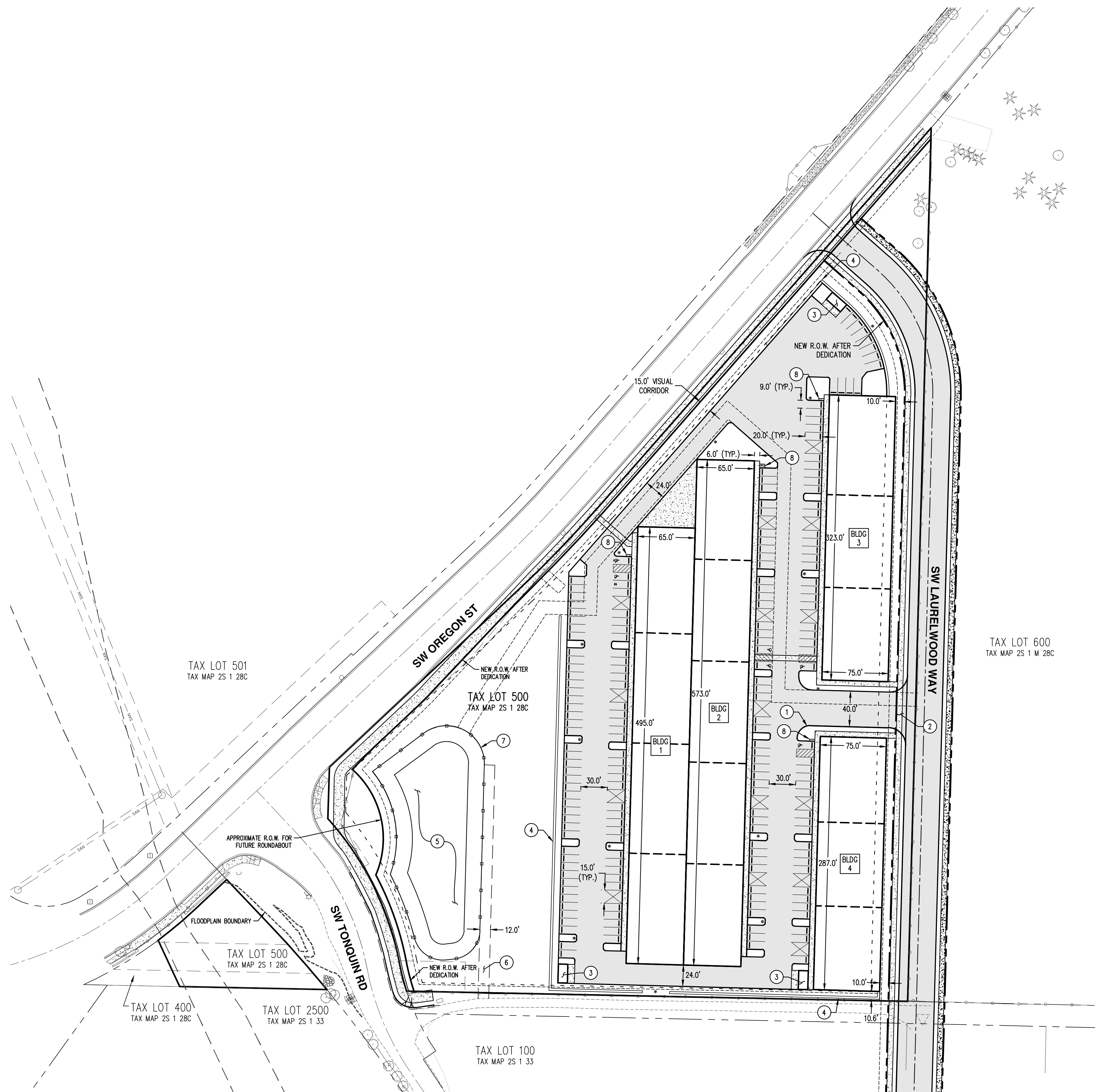
**OREGON STREET BUSINESS PARK
 SHERWOOD, OR**

REGISTERED
 PROFESSIONAL
 LAND SURVEYOR

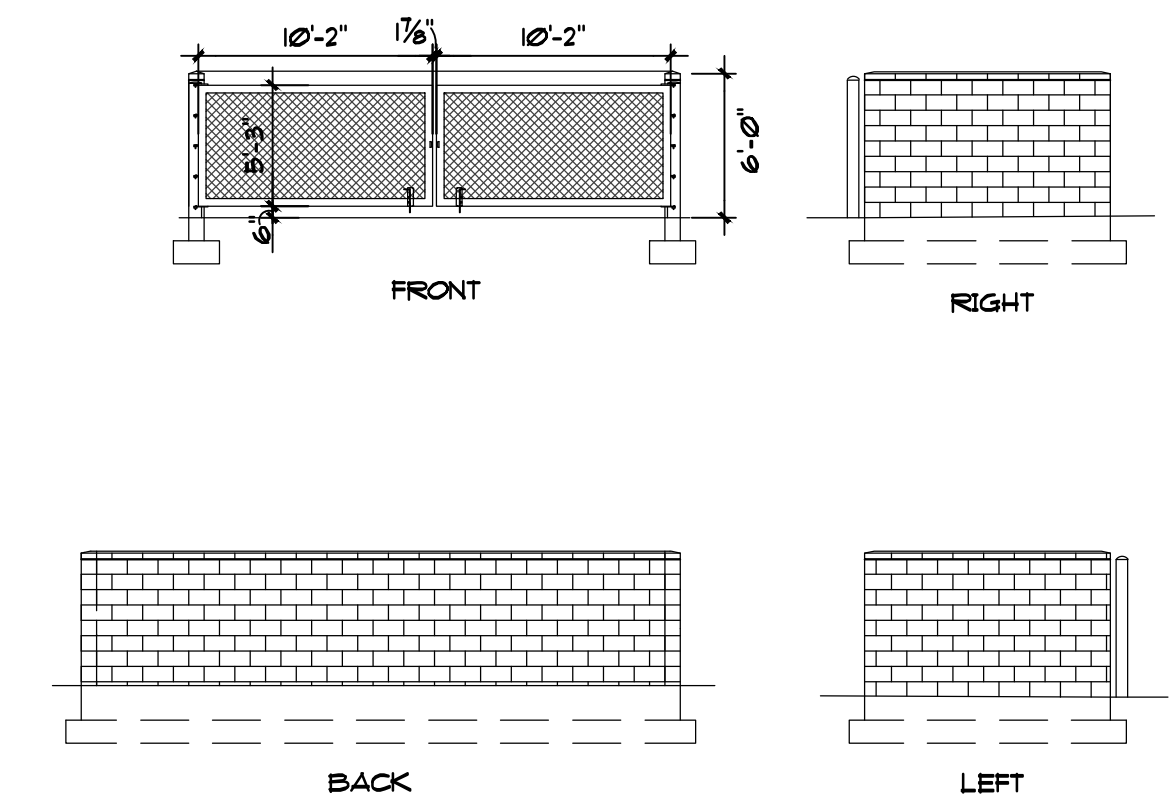
REVIEW COPY

OREGON
 MARCH 14, 2017
 BENJAMIN R HUFF
 84738PLS
 RENEWS: 6/30/21

JOB NUMBER: 7971
 DATE: 08/13/2020
 DESIGNED BY: AK
 DRAWN BY: BRH
 CHECKED BY: BRH



○ TYPICAL TRASH ENCLOSURE PLAN VIEW
NOT TO SCALE



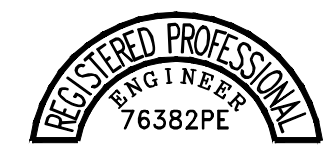
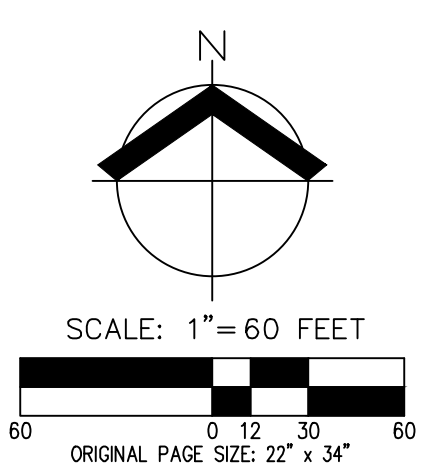
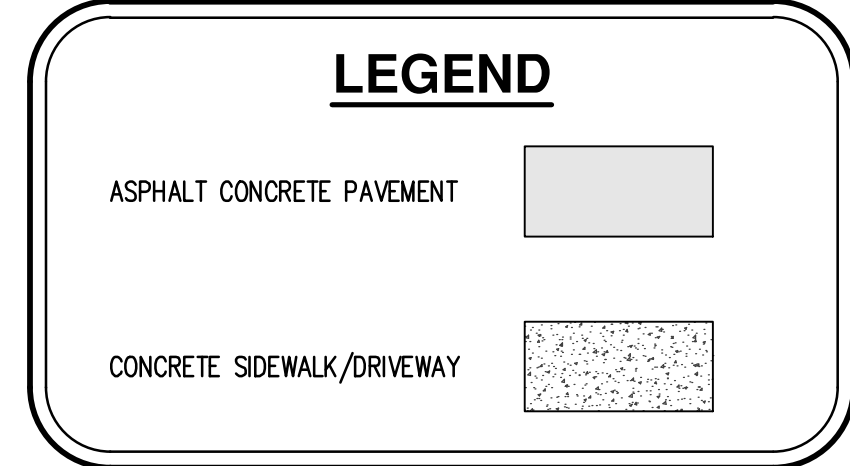
○ TYPICAL TRASH ENCLOSURE ELEVATIONS
NOT TO SCALE

NOTE
 1. SW LAURELWOOD WAY TO BE CONSTRUCTED UNDER SEPARATE PERMIT.

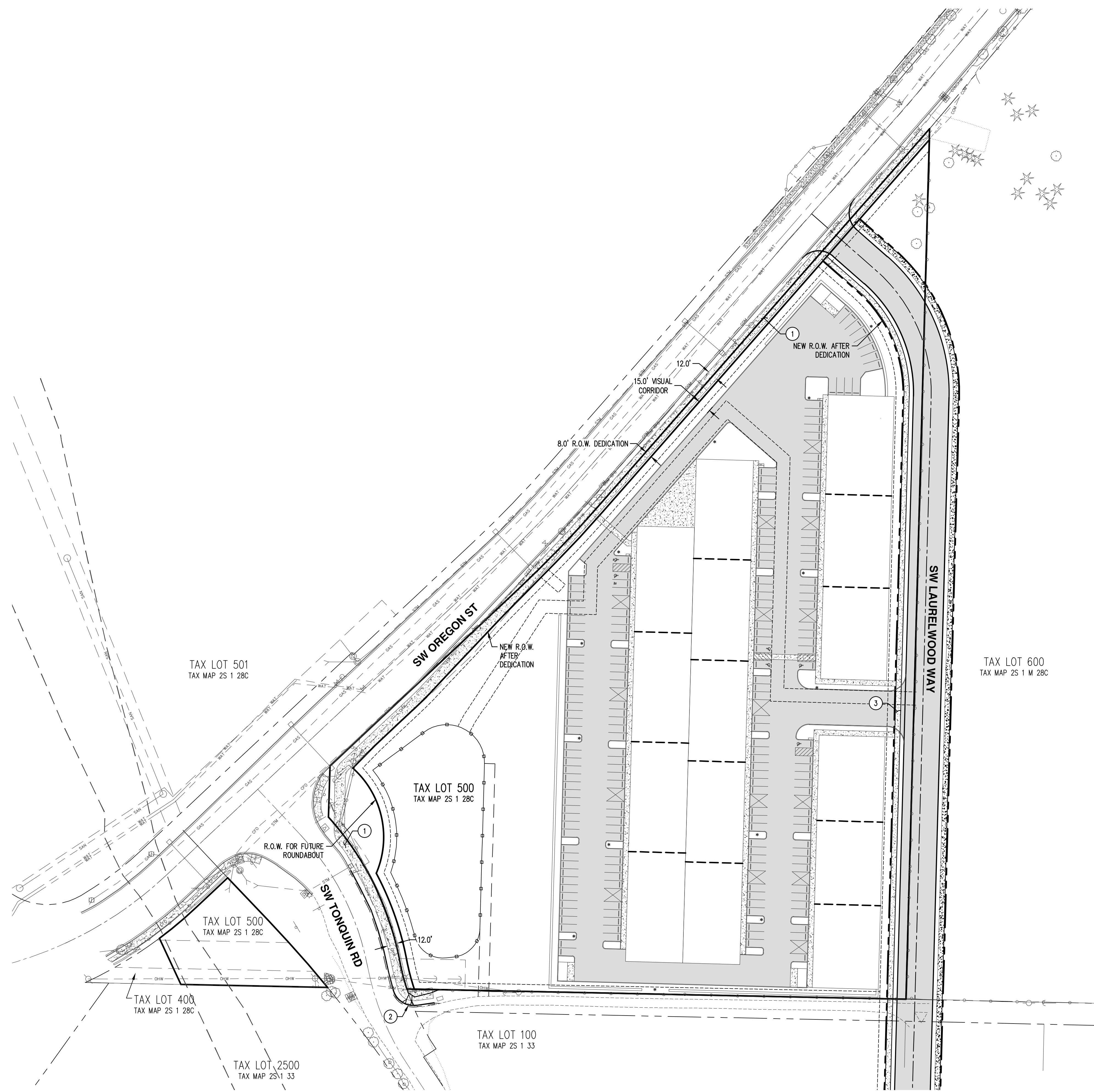
- KEYED NOTES**
1. NEW STANDARD CURB (TYP).
 2. NEW COMMERCIAL DRIVEWAY.
 3. NEW TRASH ENCLOSURE.
 4. NEW RETAINING WALL.
 5. NEW STORMWATER FACILITY.
 6. NEW ASPHALT ACCESS ROAD.
 7. NEW FENCE.
 8. BICYCLE PARKING.

BUILDING AREAS:
 BUILDING 1: 32,175 SF
 BUILDING 2: 37,245 SF
 BUILDING 3: 24,225 SF
 BUILDING 4: 21,525 SF
 TOTAL: 115,170 SF

PARKING SPACES:
 STANDARD: 178
 ADA: 6 (1 VAN ACCESSIBLE)
 VANPOOL: 1
 TOTAL: 185 SPACES (185 REQUIRED)
 BIKE PARKING: 5 (5 REQUIRED)

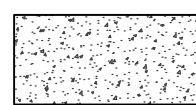


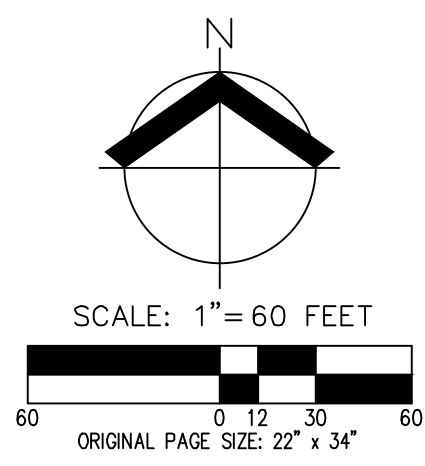
RENEWAL DATE: 12/31/23
 JOB NUMBER: 7971
 DATE: 05/31/2022
 DESIGNED BY: BDL
 DRAWN BY: BDL
 CHECKED BY: JPC



- NOTE**
 1. SW LAURELWOOD WAY TO BE CONSTRUCTED UNDER SEPARATE PERMIT.
- KEYED NOTES**
 1. NEW PORTLAND CEMENT CONCRETE (PCC) SIDEWALK.
 2. NEW CURB AND GUTTER.
 3. NEW COMMERCIAL DRIVEWAY.

LEGEND

CONCRETE SIDEWALK 

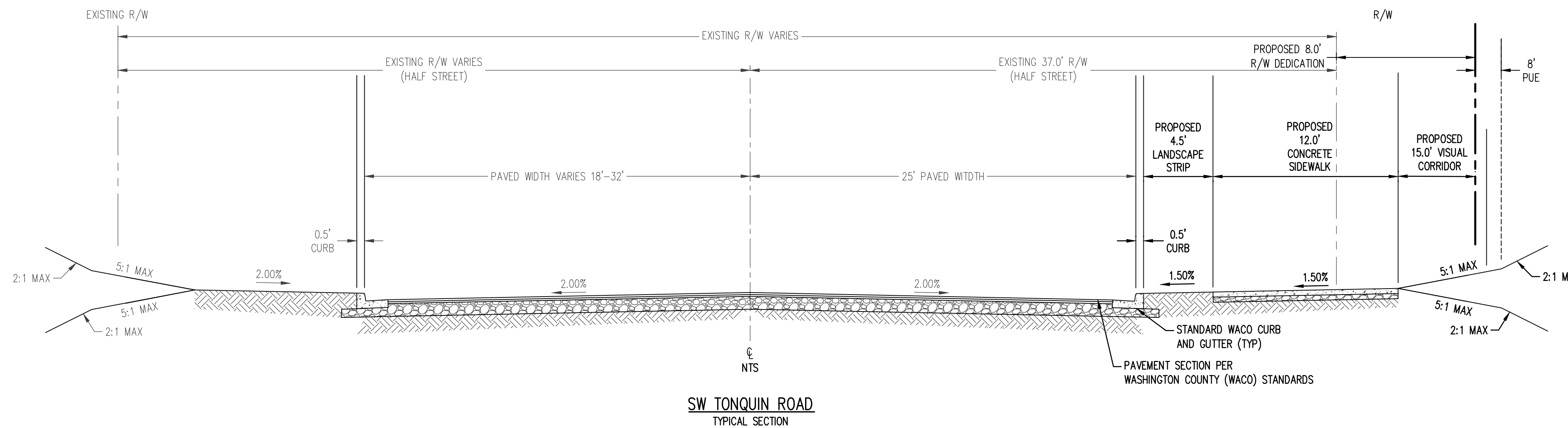
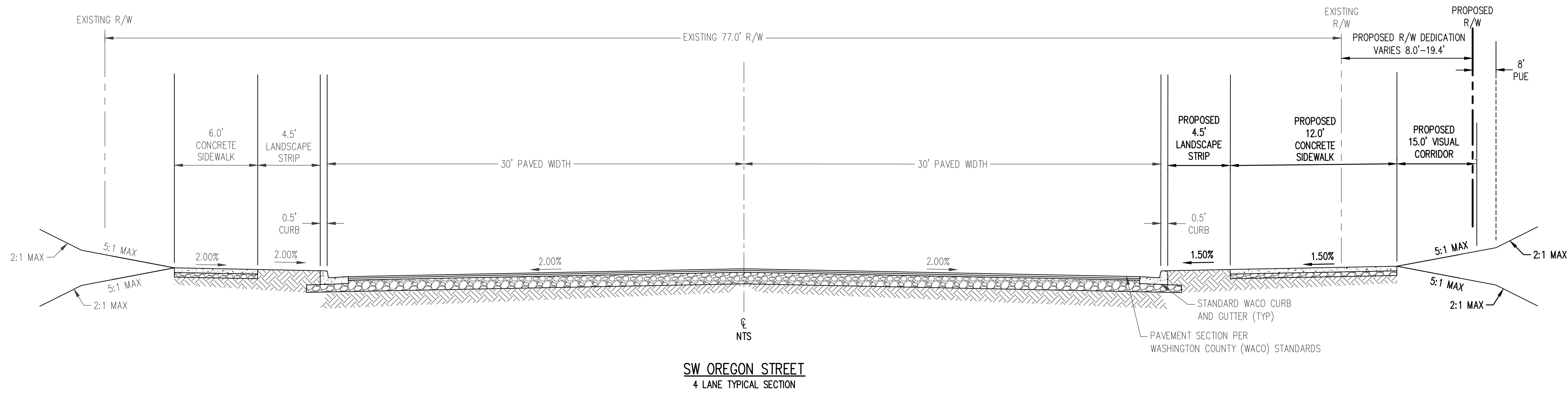
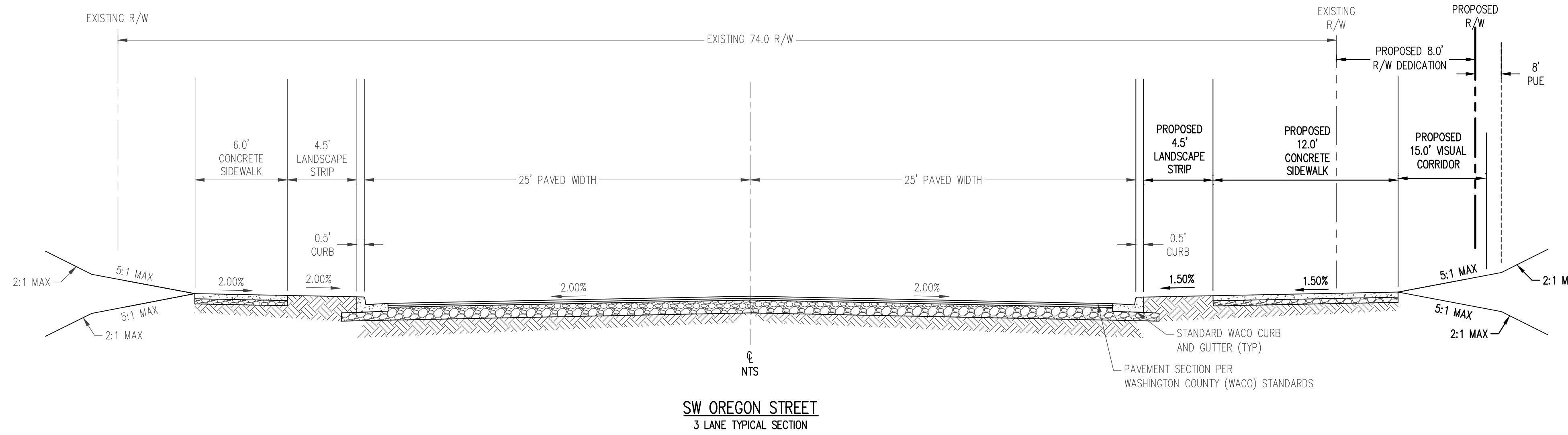


PRELIMINARY FRONTAGE IMPROVEMENTS

**OREGON STREET BUSINESS PARK
 SHERWOOD, OR**

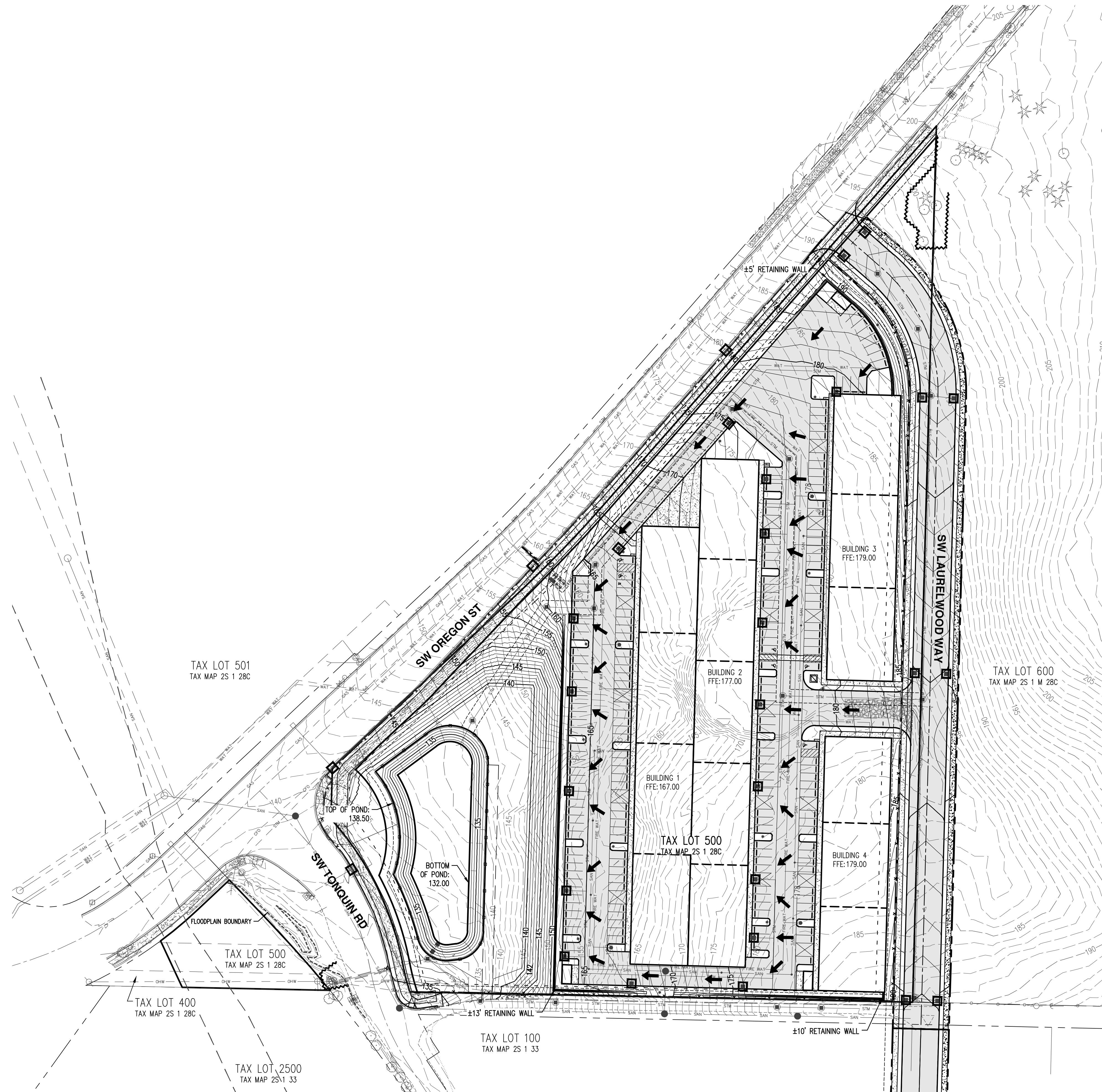


RENEWAL DATE: 12/31/23
 JOB NUMBER: 7971
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PRELIMINARY GRADING AND EROSION CONTROL PLAN

OREGON STREET BUSINESS PARK
 SHERWOOD, OR

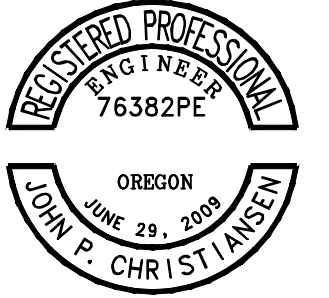


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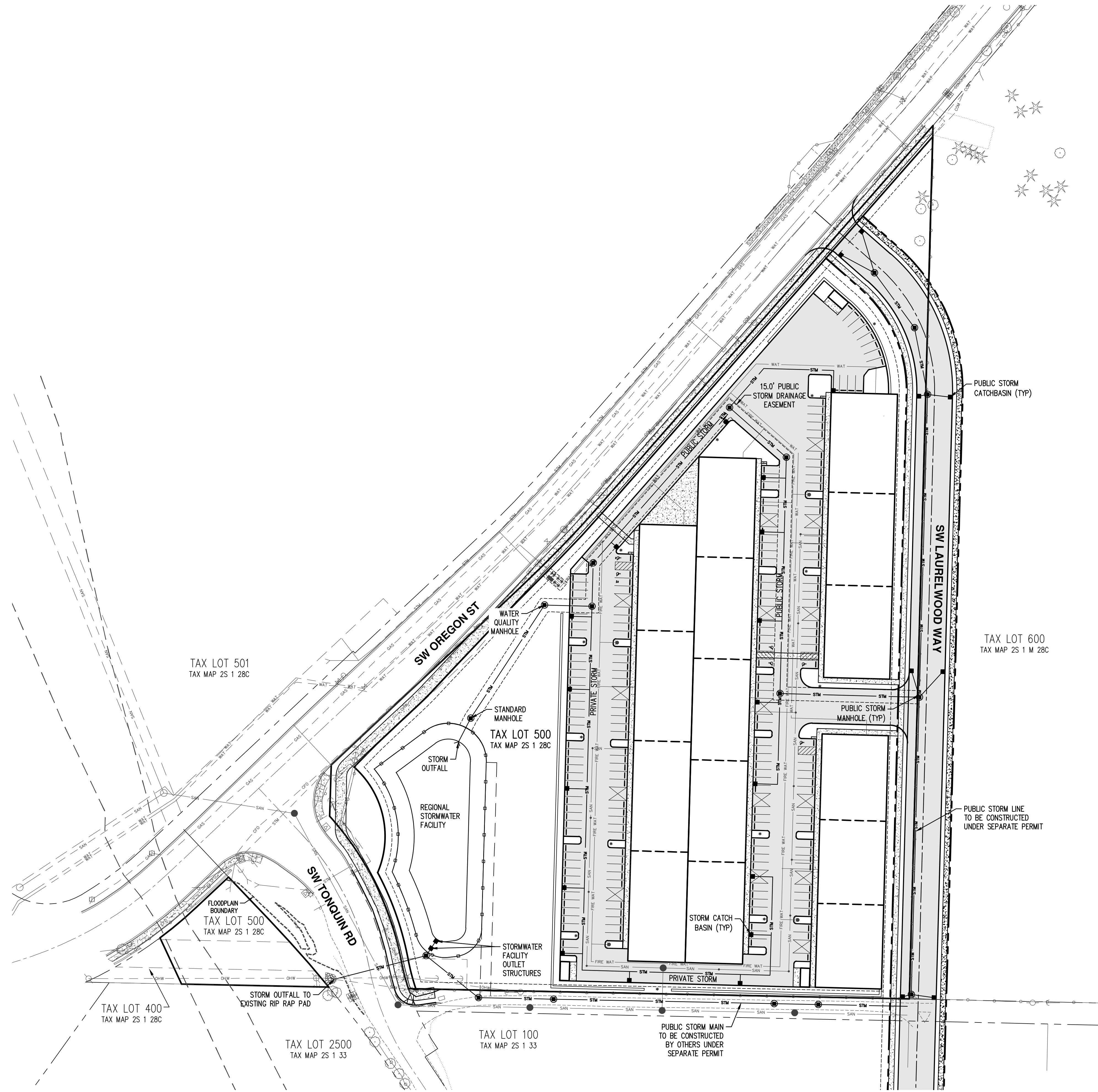
EXISTING GROUND CONTOUR (1 FT)	---
EXISTING GROUND CONTOUR (5 FT)	---
FINISHED GRADE CONTOUR (1 FT)	---
FINISHED GRADE CONTOUR (5 FT)	---
SEDIMENT FENCE (TO BE INSTALLED PRIOR TO GRADING)	-x-x-
GRADING LIMITS	- - - -
INLET PROTECTION (TYP)	□
CONCRETE WASHOUT AREA	▣
DRAINAGE FLOW DIRECTION	↓
GRAVEL CONSTRUCTION ENTRANCE	▣

SCALE: 1" = 60 FEET

0 12 30 60
 ORIGINAL PAGE SIZE: 22" x 34"

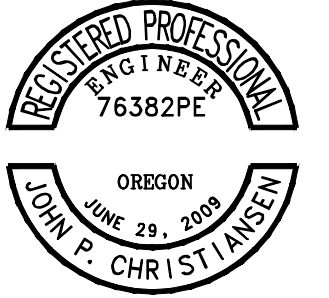


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 JOB NUMBER: 7971
 DATE: 05/31/2022
 DESIGNED BY: BDL
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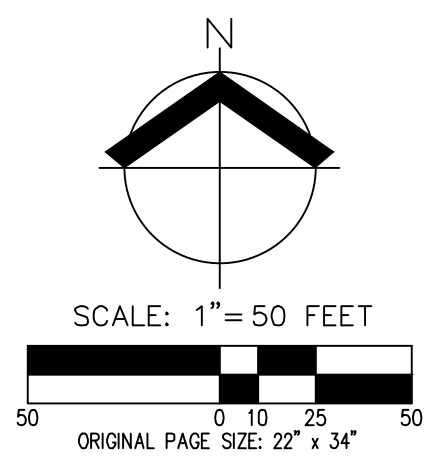


PRELIMINARY STORM DRAINAGE PLAN

**OREGON STREET BUSINESS PARK
 SHERWOOD, OR**



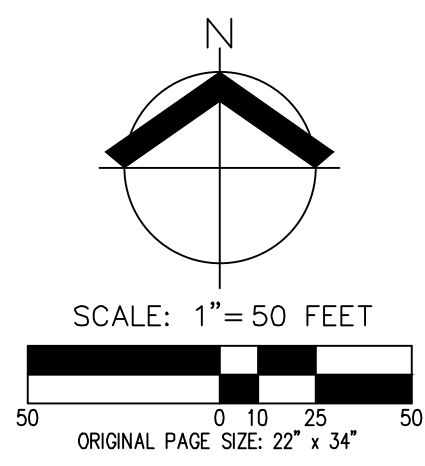
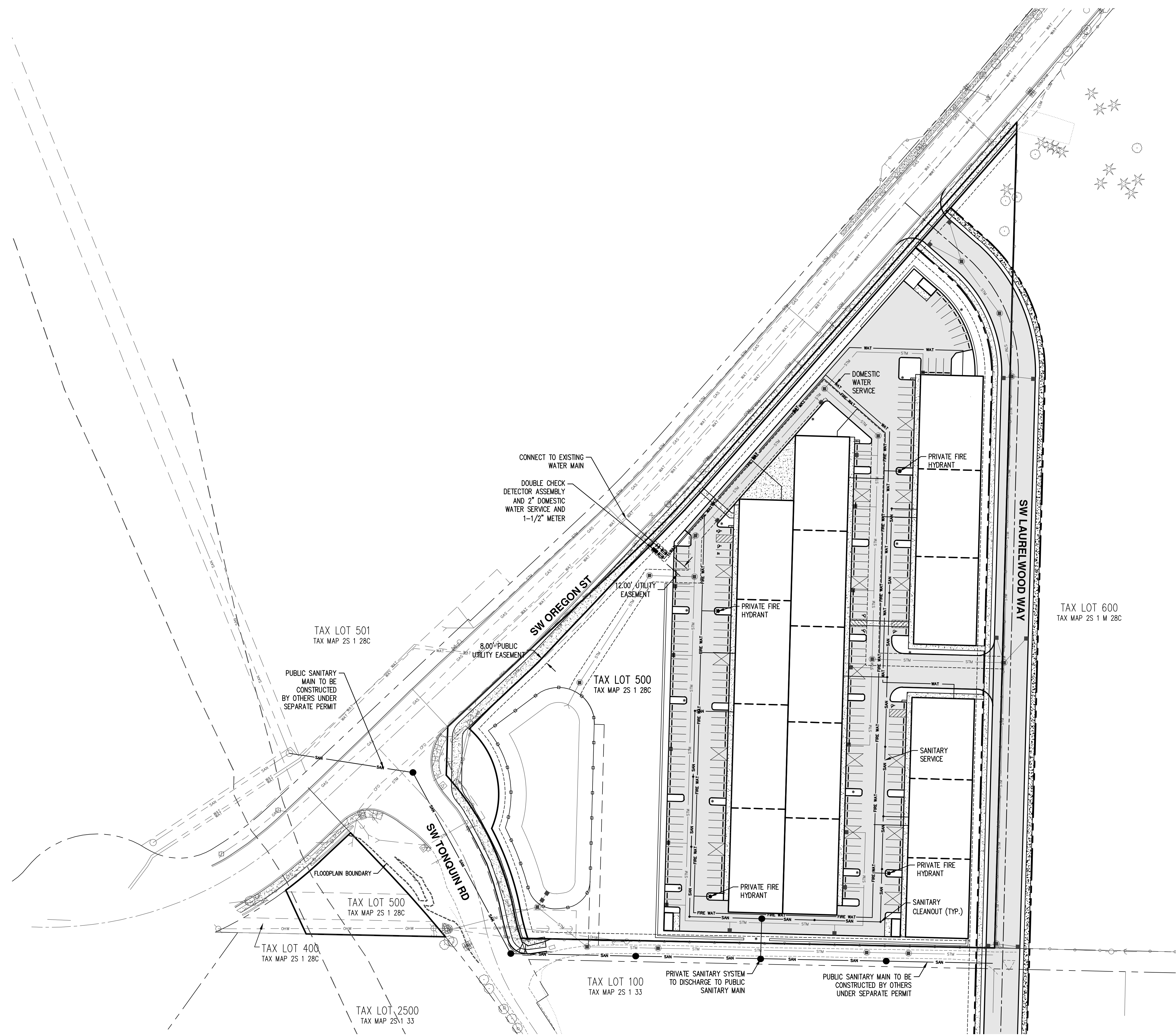
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 JOB NUMBER: 7971
 DATE: 05/31/2022
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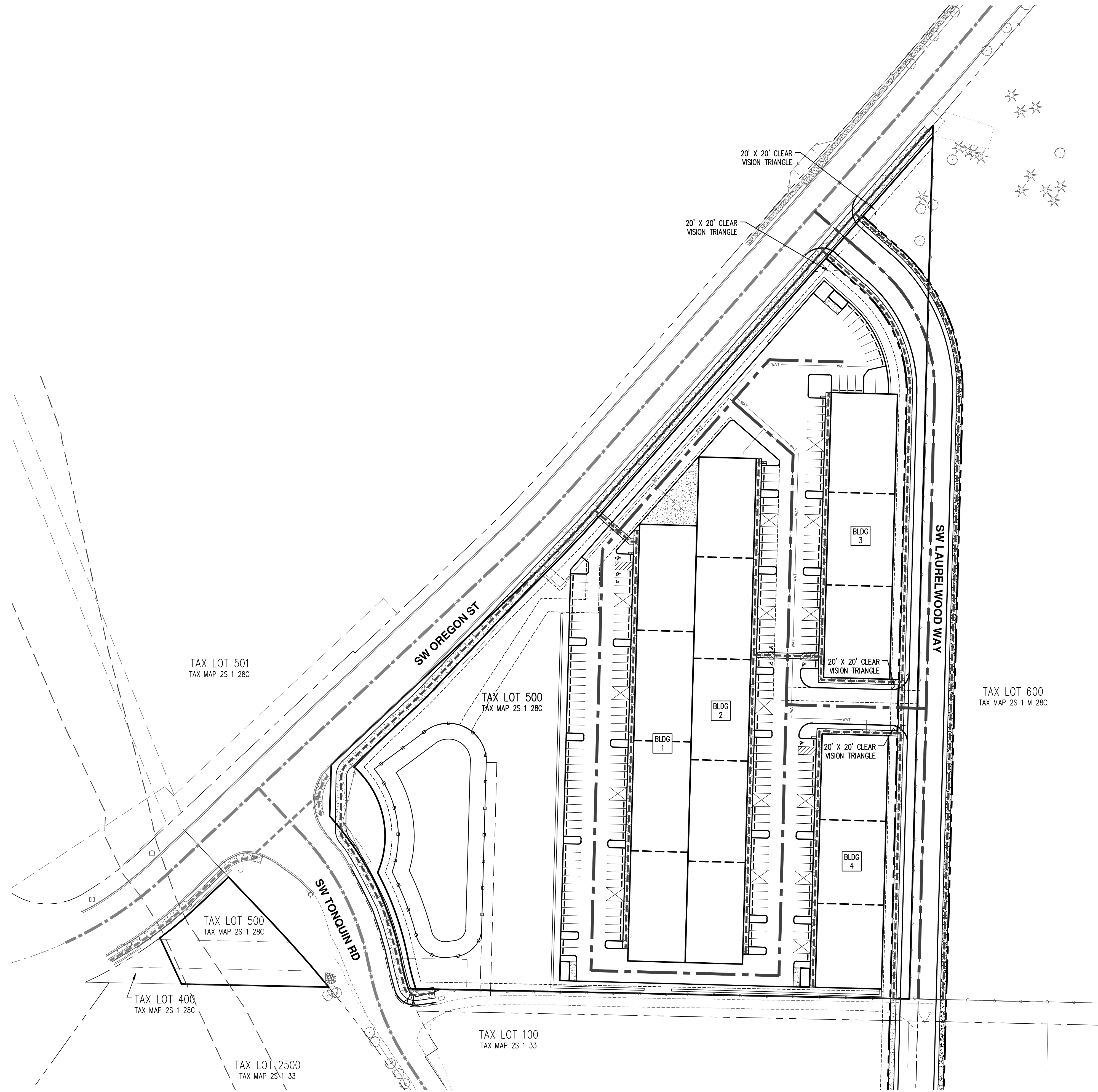
PRELIMINARY SANITARY AND WATER PLAN
OREGON STREET BUSINESS PARK
SHERWOOD, OR



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 DATE: 05/31/2022
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AKS DRAWING FILE: 7971_P10_SAN_WATER.DWG | LAYOUT: P10



LEGEND

- NEW PEDESTRIAN CIRCULATION
- EXISTING PEDESTRIAN CIRCULATION
- NEW VEHICLE CIRCULATION
- EXISTING VEHICLE CIRCULATION

N

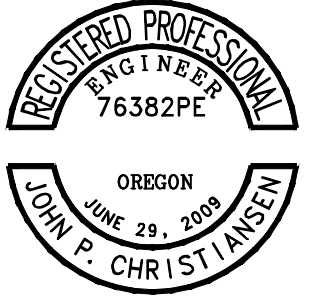
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ORIGINAL PAGE SIZE: 22" x 34"

PRELIMINARY CIRCULATION PLAN

OREGON STREET BUSINESS PARK

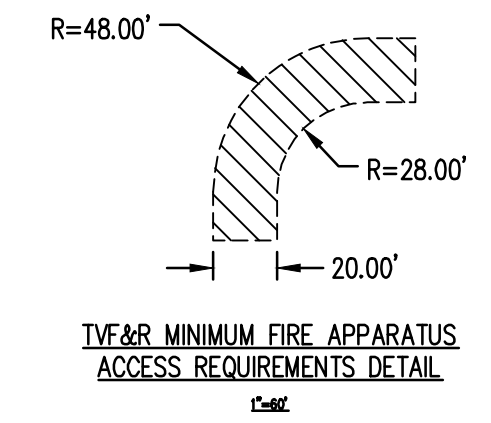
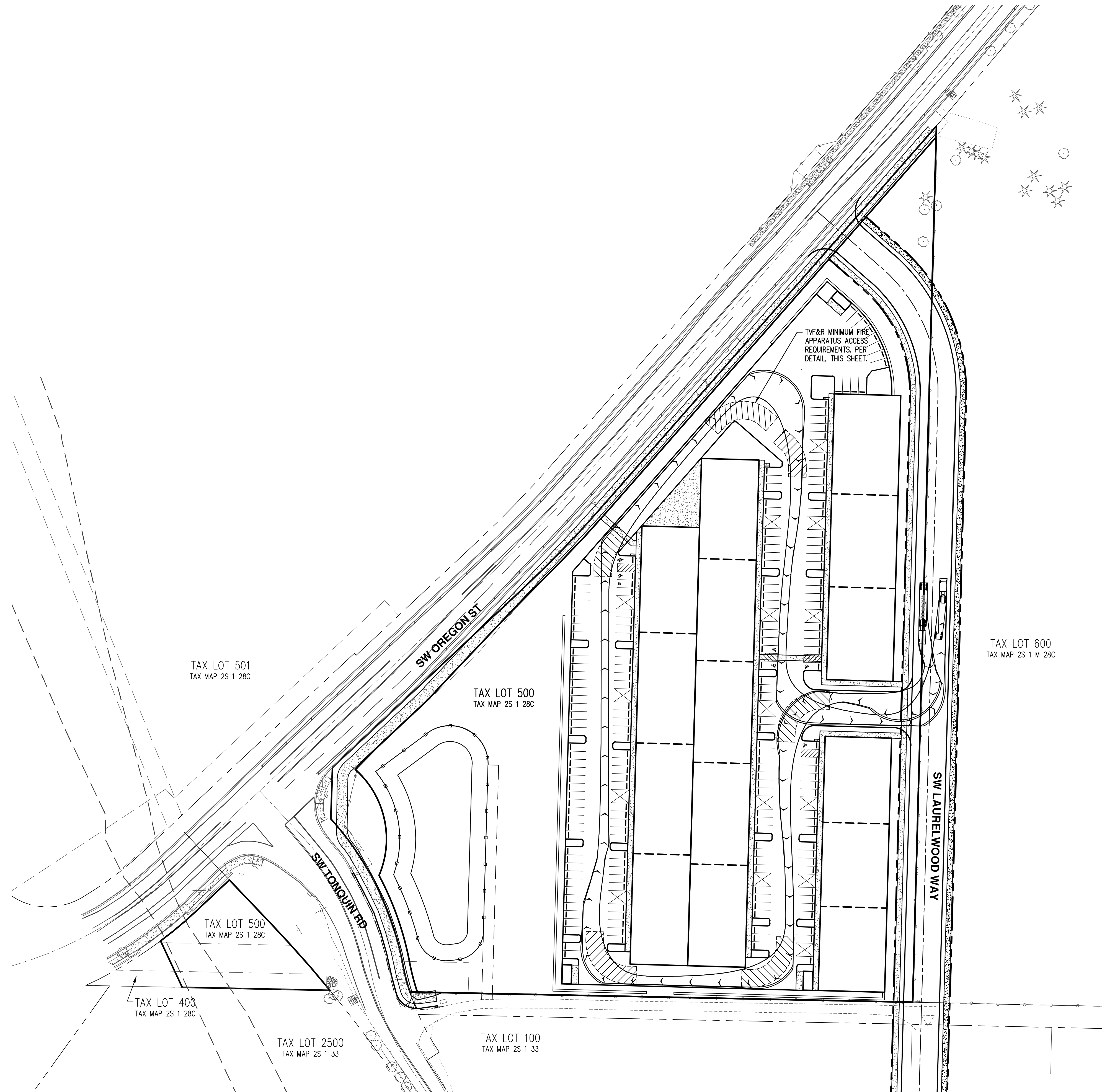
SHERWOOD, OR



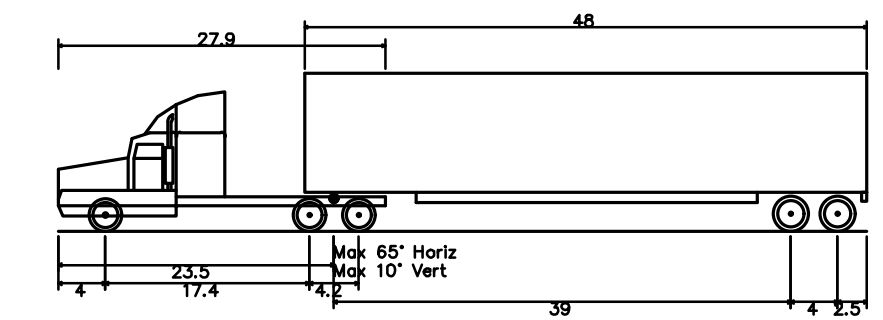
RENEWAL DATE: 12/31/23
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PRELIMINARY TRUCK TURNING MOVEMENTS PLAN

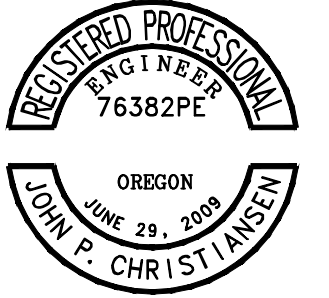
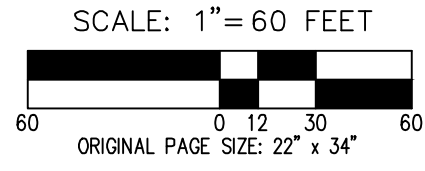
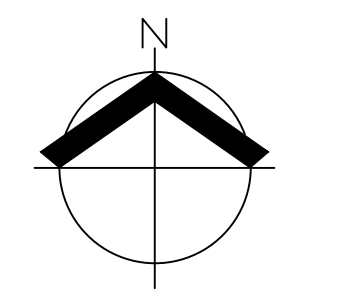
**OREGON STREET BUSINESS PARK
 SHERWOOD, OR**



TV&R MINIMUM FIRE APPARATUS ACCESS REQUIREMENTS DETAIL



WB-62 - Interstate Semi-Trailer	69,000lb
Overall Length	8,500ft
Overall Width	13,500ft
Overall Body Height	1,334ft
Min Body Ground Clearance	6,500ft
Max Track Width	6,00s
Lock-to-lock time	28.40°
Max Steering Angle (Virtual)	



RENEWAL DATE:	12/31/23
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PARKING LANDSCAPE DATA:

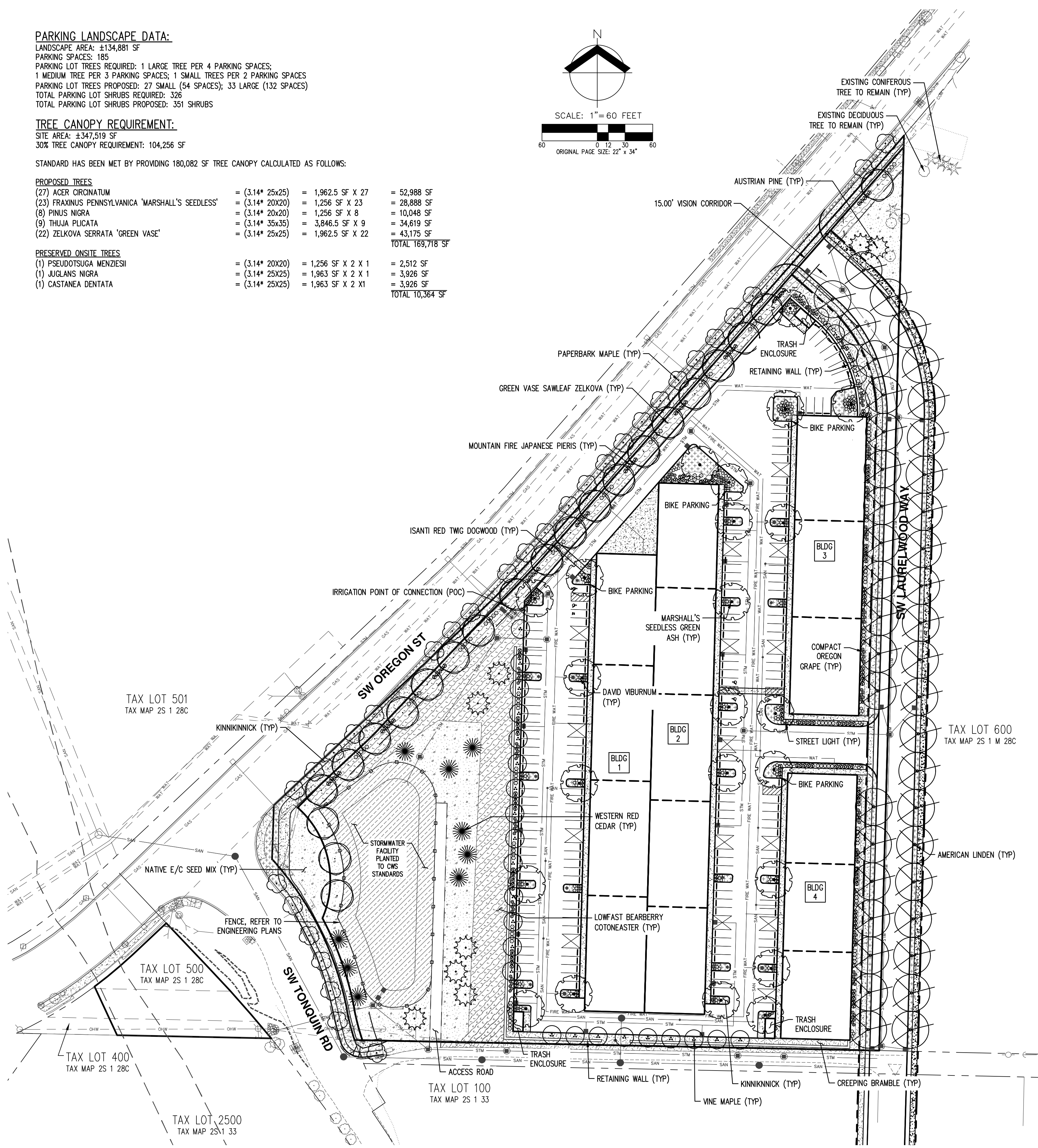
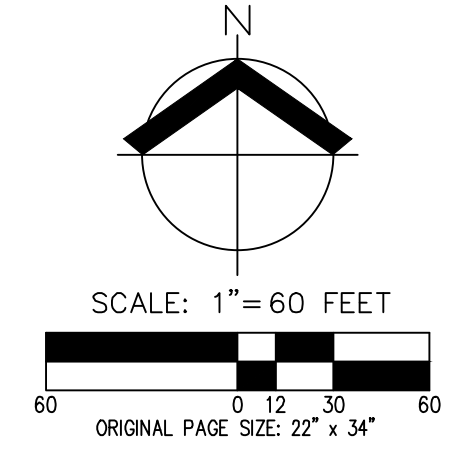
LANDSCAPE AREA: ±134,881 SF
 PARKING SPACES: 185
 PARKING LOT TREES REQUIRED: 1 LARGE TREE PER 4 PARKING SPACES;
 1 MEDIUM TREE PER 3 PARKING SPACES; 1 SMALL TREES PER 2 PARKING SPACES
 PARKING LOT TREES PROPOSED: 27 SMALL (54 SPACES); 33 LARGE (132 SPACES)
 TOTAL PARKING LOT SHRUBS REQUIRED: 326
 TOTAL PARKING LOT SHRUBS PROPOSED: 351 SHRUBS

TREE CANOPY REQUIREMENT:

SITE AREA: ±347,519 SF
 30% TREE CANOPY REQUIREMENT: 104,256 SF

STANDARD HAS BEEN MET BY PROVIDING 180,082 SF TREE CANOPY CALCULATED AS FOLLOWS:

PROPOSED TREES				
(27) ACER CIRCINATUM	= (3.14* 25x25)	= 1,962.5 SF X 27	= 52,988 SF	
(23) FRAXINUS PENNSYLVANICA 'MARSHALL'S SEEDLESS'	= (3.14* 20x20)	= 1,256 SF X 23	= 28,888 SF	
(8) PINUS NIGRA	= (3.14* 20x20)	= 1,256 SF X 8	= 10,048 SF	
(9) THUJA PLICATA	= (3.14* 35x35)	= 3,846.5 SF X 9	= 34,619 SF	
(22) ZELKOVA SERRATA 'GREEN VASE'	= (3.14* 25x25)	= 1,962.5 SF X 22	= 43,175 SF	
			TOTAL 169,718 SF	
PRESERVED ONSITE TREES				
(1) PSEUDOTSUGA MENZIESII	= (3.14* 20x20)	= 1,256 SF X 2 X 1	= 2,512 SF	
(1) JUGLANS NIGRA	= (3.14* 25x25)	= 1,963 SF X 2 X 1	= 3,926 SF	
(1) CASTANEA DENTATA	= (3.14* 25x25)	= 1,963 SF X 2 X 1	= 3,926 SF	
			TOTAL 10,364 SF	



PRELIMINARY PLANT SCHEDULE

TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE/CONTAINER	SPACING
	27	ACER CIRCINATUM SMALL TREE (CANOPY FACTOR 10)	VINE MAPLE	2" CAL B&B (MIN 6' HT)	AS SHOWN
	23	FRAXINUS PENNSYLVANICA 'MARSHALL'S SEEDLESS' LARGE TREE (CANOPY FACTOR 200)	MARSHALL'S SEEDLESS GREEN ASH	2" CAL B&B (MIN 6' HT)	AS SHOWN
	8	PINUS NIGRA LARGE TREE (CANOPY FACTOR 100)	AUSTRIAN PINE	6' HT. B&B	AS SHOWN
	9	THUJA PLICATA LARGE TREE (CANOPY FACTOR 105)	WESTERN RED CEDAR	6' HT. B&B	AS SHOWN
	22	ZELKOVA SERRATA 'GREEN VASE' LARGE TREE (CANOPY FACTOR 192)	GREEN VASE SAWLEAF ZELKOVA	2" CAL B&B (MIN 6' HT)	AS SHOWN
STREET TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE/CONTAINER	SPACING
	31	ACER GRISEUM SMALL TREE (CANOPY FACTOR 10)	PAPERBARK MAPLE	2" CAL B&B (MIN 6' HT)	AS SHOWN
	41	TILIA AMERICANA LARGE TREE (CANOPY FACTOR 150)	AMERICAN LINDEN	2" CAL B&B (MIN 6' HT)	AS SHOWN
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE/CONTAINER	SPACING
	140	CORNUS SERICEA 'ISANTI'	ISANTI RED TWIG DOGWOOD	3 GAL CONT.	48" o.c.
	173	MAHONIA AQUIFOLIUM 'COMPACTA'	COMPACT OREGON GRAPE	2 GAL CONT.	36" o.c.
	208	PIERIS JAPONICA 'MOUNTAIN FIRE'	MOUNTAIN FIRE JAPANESE PIERIS	3 GAL CONT.	48" o.c.
	162	VIBURNUM DAVIDII	DAVID VIBURNUM	2 GAL CONT.	36" o.c.
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	SIZE/CONTAINER	SPACING
	2,174	ARCTOSTAPHYLOS UVA-URSIS	KINNIKINICK	1 GAL CONT.	36" o.c.
	4,297	COTONEASTER DAMMERI 'LOWFAST'	LOWFAST BEARBERRY COTONEASTER	1 GAL CONT.	42" o.c.
	± 30,358 SF	NATIVE E/C SEED MIX - SUNMARK SEEDS (OR APPROVED EQUAL): MEADOW BARLEY 40% CALIFORNIA BROME 35% NATIVE RED FESCUE 20% TUFTED HAIRGRASS 3% SPIKE BENTGRASS 2% APPLY AT A RATE OF 1 LB. PER 1,000 SF OR AS RECOMMENDED BY SUPPLIER.			
	1,254	RUBUS CALYCIINOIDES	CREeping BRAMBLE	1 GAL CONT.	36" o.c.
	± 24,142 SF	STORMWATER FACILITY PLANTED TO CWS STANDARDS			

GENERAL LANDSCAPE NOTES

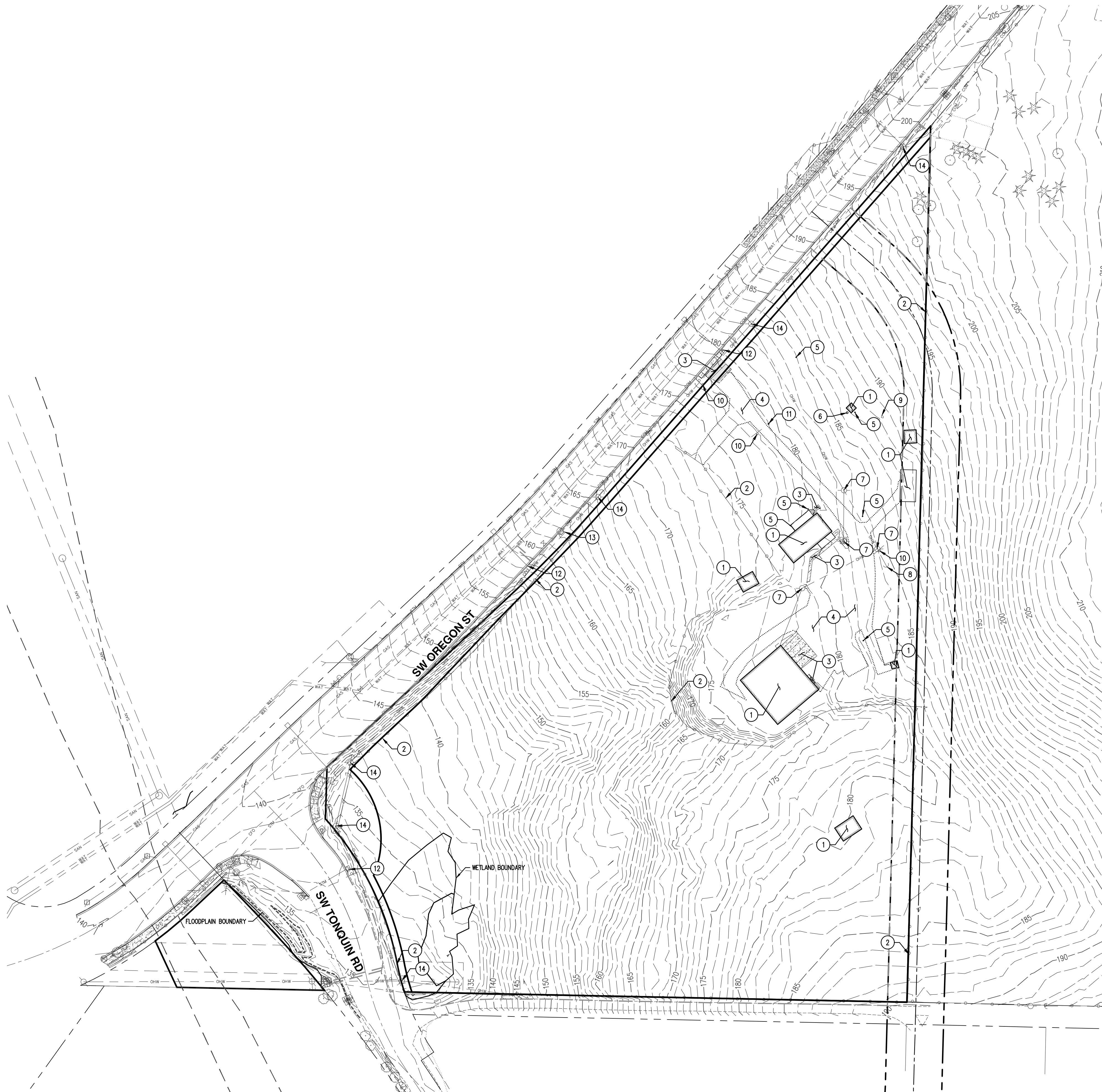
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING PLANT QUANTITIES. IF DISCREPANCIES OCCUR, DESIGN INTENT PREVAILS OVER QUANTITIES LISTED.
- PLANTING PLAN IS INTENDED TO SHOW DESIGN INTENT ONLY AND IS PRELIMINARY. PLANT SPECIES, SIZES, LOCATIONS, QUANTITIES, AND OTHER PLAN CHANGES MAY BE SUBSTITUTED OR REVISED PRIOR TO FINAL SUBMITTAL DUE TO SITE CONDITIONS AND PLANT AVAILABILITY WHERE ALLOWED BY SHERWOOD DESIGN STANDARDS.
- ALL TREES SHALL CONFORM TO APPLICABLE CITY OF SHERWOOD DESIGN STANDARDS AND MEET THE REQUIREMENTS OF THE AMERICAN ASSOCIATION OF NURSERYMEN (AAN) STANDARDS FOR NURSERY STOCK (ANSI Z60.2) FOR GRADE NO. 1 OR BETTER. PLANT IN ACCORDANCE WITH 'BEST-PRACTICE' INDUSTRY STANDARDS ADOPTED BY THE OREGON LANDSCAPE CONTRACTORS BOARD (OLCB).
- CONTRACTOR SHALL INSTALL ROOT BARRIER ADJACENT TO HARD SURFACE FOR TREES WITHIN 4' OF PAVING. ROOT BARRIER SHALL BE A MINIMUM OF 18" DEEP X 10' LONG AND CENTERED ON THE TREE TRUNK ADJACENT TO PAVING.
- DOUBLE STAKE ALL TREES. REFER TO CITY OF SHERWOOD STANDARD TREE PLANTING DETAIL.
- ALL TREES SHALL BE PLANTED A MINIMUM OF 3" O.C. FROM BACK OF PAVING. CONTRACTOR SHALL FIELD ADJUST IF NECESSARY TO AVOID CONFLICTS WITH UTILITIES, LIGHTS, VAULTS, BUILDING AND ROOF OVERHANGS, EXISTING VEGETATION AND TREE CANOPIES, ETC.
- SOIL PREPARATION: ALL TREE, SHRUB, AND GROUND COVER AREAS SHALL HAVE A MINIMUM OF 12" OF CLEAN TOPSOIL, PLUS AN ADDITIONAL 24" OF NON-COMPACTED SUBSOIL AVAILABLE. EXISTING NATIVE SOIL OR STOCKPILED TOPSOIL STRIPPING MAY BE USED. TOPSOIL SHALL BE RICH DARK BROWN IN COLOR AND VOID OF ROOTS, PLANTS, WEED SEEDS, SOD, STONES, CLAY LUMPS, ALKALI SALTS, DEBRIS, AND OTHER EXTRANEIOUS MATERIALS HARMFUL TO PLANT GROWTH. FINISH GRADE OF NEW PLANTING AREAS SHALL SEAMLESSLY MEET FINISH GRADE OF EXISTING LANDSCAPE AREAS TO REMAIN AND AS SHOWN ON GRADING PLANS. TOPSOIL SHALL BE PLACED AND WORKED IN FRIABLE (WORKABLE) CONDITION. BACKFILL ALL PLANTING HOLES WITH 1/3 ORGANIC MATERIALS, 1/3 TOPSOIL, AND 1/3 SANDY LOAM.
- MULCH: APPLY 3" DEEP MEDIUM GRIND OR SHREDDED DARK HEMLOCK OR FIR MULCH AROUND ALL PLANTINGS. DO NOT COVER FOLIAGE OR ROOT CROWNS OF PLANTS WITH BARK MULCH. TREES AND OTHER PLANTS SHALL BE SET TO ACCOMMODATE MULCH APPLICATION WITHOUT BURYING ROOT CROWNS.
- IRRIGATION: LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING A PERMANENT, UNDERGROUND 'DESIGN-BUILD' IRRIGATION SYSTEM TO WATER ALL NEW PLANTING BED AREAS. COORDINATE POINT-OF-CONNECTION (POC), CITY APPROVED DOUBLE-CHECK VALVE ASSEMBLY, AND SLEEVING LOCATIONS WITH GENERAL CONTRACTOR PRIOR TO INSTALLATION OF HARD SURFACING (SIDEWALKS, ROADWAYS, ETC.).



PRELIMINARY LANDSCAPE PLAN
OREGON STREET BUSINESS PARK
SHERWOOD, OR



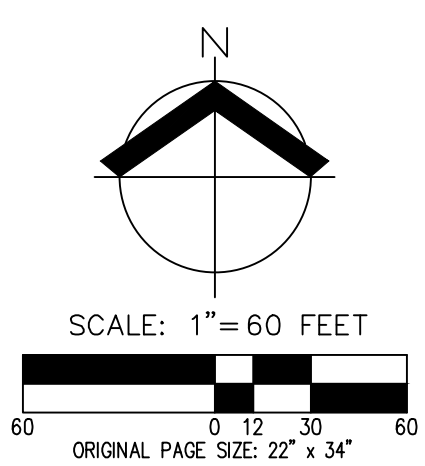
JOB NUMBER:	7971
DATE:	05/31/2022
DESIGNED BY:	NKP
DRAWN BY:	NKP
CHECKED BY:	TEB



- NOTES**
- CONTRACTOR TO COORDINATE THE REMOVAL OF ALL NECESSARY PRIVATE UTILITIES WITH THE APPROPRIATE UTILITY PROVIDERS.
 - CONTRACTOR TO ABANDON EXISTING WELLS, SEPTIC TANKS, AND DRAIN FIELDS FOUND DURING CONSTRUCTION PER APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS.
 - SEE TREE PRESERVATION AND REMOVAL PLAN FOR COMPLETE LIST OF TREES TO BE REMOVED.

- KEYED NOTES**
- REMOVE EXISTING BUILDING.
 - REMOVE EXISTING FENCE.
 - REMOVE EXISTING CONCRETE/ASPHALT.
 - REMOVE EXISTING GRAVEL.
 - REMOVE EXISTING HOSE BIB.
 - REMOVE EXISTING WELL.
 - REMOVE EXISTING POWER POLE AND CONNECTED OVERHEAD WIRES.
 - REMOVE EXISTING GUY WIRE.
 - REMOVE EXISTING SATELLITE DISH.
 - REMOVE EXISTING SIGN.
 - REMOVE EXISTING GATE.
 - PRESERVE EXISTING STORM CURB INLET.
 - PRESERVE EXISTING COMM VAULT.
 - PRESERVE EXISTING POWER POLE. RELOCATE EXISTING GUY WIRES AS NECESSARY TO AVOID RIGHT OF WAY IMPROVEMENTS.

DEMOLITION LEGEND	
EXISTING GRADE CONTOUR (1 FT)	----- 170 -----
EXISTING GRADE CONTOUR (5 FT)	----- 170 -----
SAWCUT LINE	----- 170 -----
LIMITS OF DISTURBANCE	----- 170 -----
ASPHALT TO BE REMOVED	
CONCRETE TO BE REMOVED	



PRELIMINARY DEMOLITION PLAN
OREGON STREET BUSINESS PARK
SHERWOOD, OR



RENEWAL DATE: 12/31/23
 JOB NUMBER: 7971
 DATE: 05/31/2022
 DESIGNED BY: BDL
 DRAWN BY: BDL
 CHECKED BY: JPC

PRELIMINARY TREE PRESERVATION AND REMOVAL PLAN

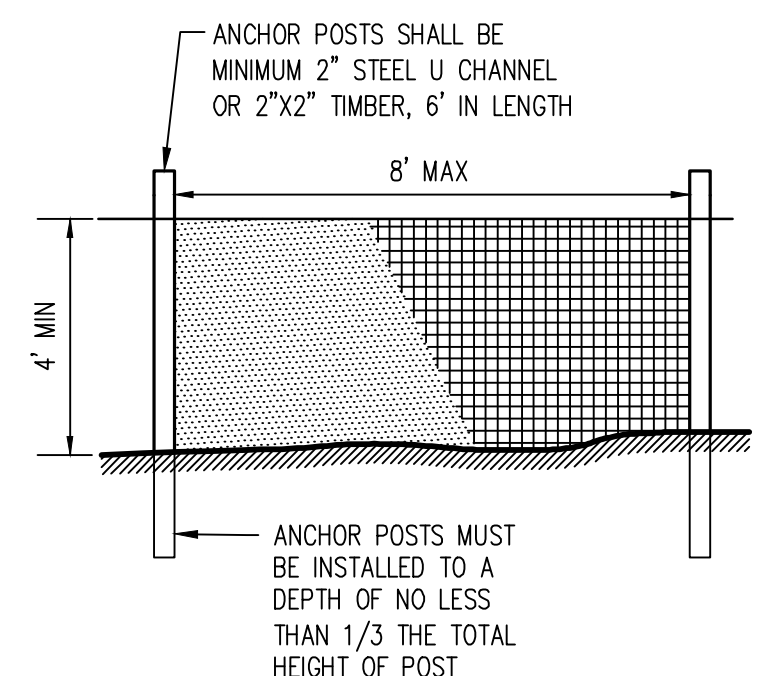
**OREGON STREET BUSINESS PARK
 SHERWOOD, OR**

JOB NUMBER:	7971
DATE:	05/31/2022
DESIGNED BY:	BDL
DRAWN BY:	BDL
CHECKED BY:	JPC

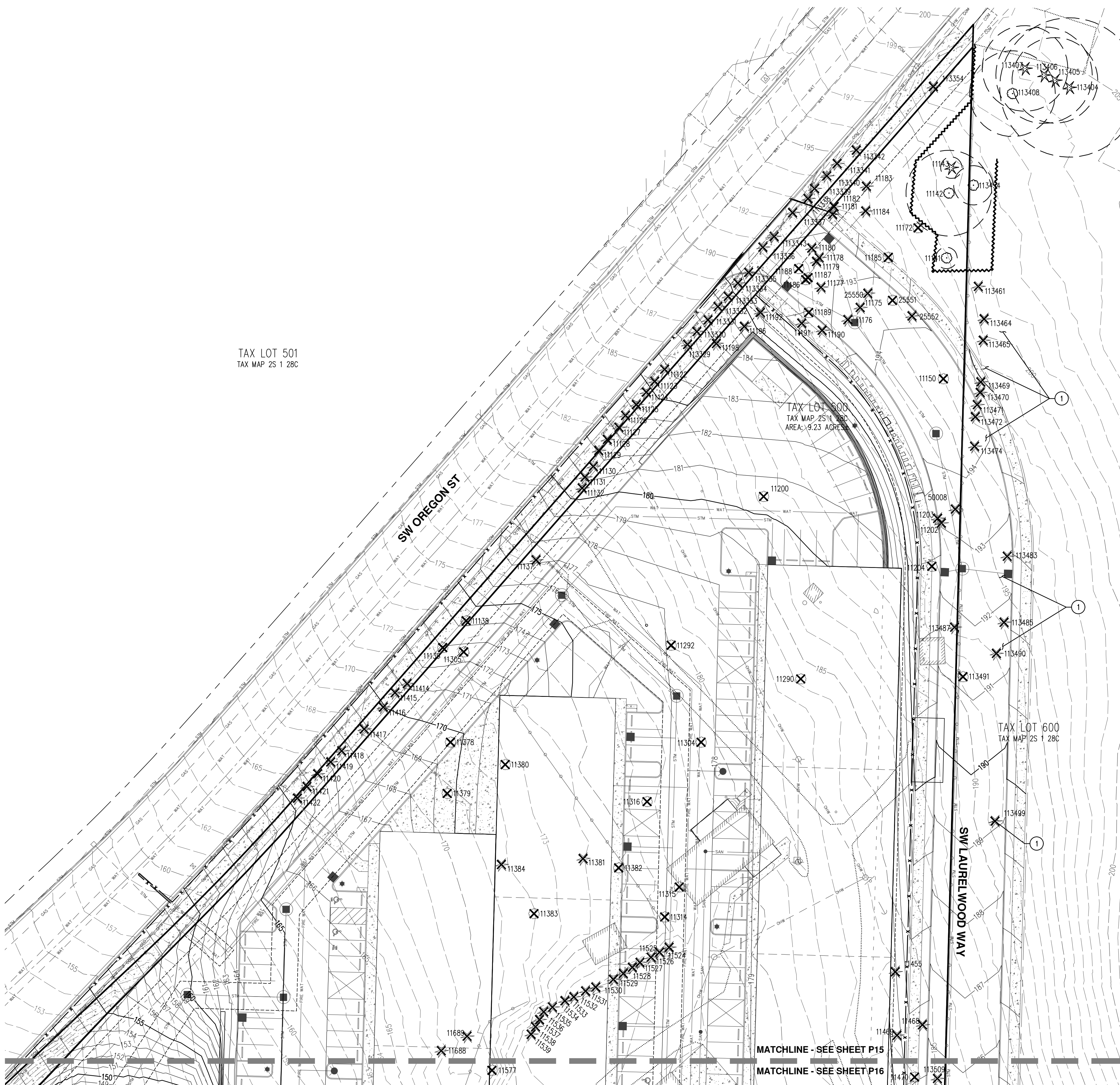
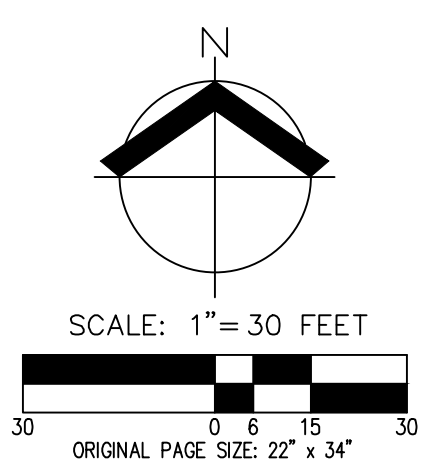
LEGEND

EXISTING GROUND CONTOUR (1 FT)	---	149
EXISTING GROUND CONTOUR (5 FT)	- - -	150
FINISHED GRADE CONTOUR (1 FT)	---	149
FINISHED GRADE CONTOUR (5 FT)	- - -	150
EXISTING CONIFEROUS TREE	⊗	
EXISTING DECIDUOUS TREE	⊙	
TREE REMOVAL	⊗ ⊗	
TREE PROTECTION/CONSTRUCTION FENCE (TREE PROTECTION AREA)	⌞	
SEDIMENT FENCE	⌞	
ASSUMED TREE ROOT ZONE (1-FT RADIUS PER 1-IN OF DBH)	⊙	

- TREE REMOVAL KEYED NOTE:**
- OFFSITE TREES TO BE REMOVED FOR THE CONSTRUCTION OF SW LAURELWOOD WAY WITH SHERWOOD COMMERCE CENTER (LU #2021-012).
 - OFFSITE UTILITIES TO BE INSTALLED UNDER A SEPARATE PERMIT WITH SHERWOOD COMMERCE CENTER (LU #2021-012).



- NOTES:
- BLAZE ORANGE PLASTIC MESH FENCE FOR TREE PROTECTION DEVICE OR APPROVED EQUAL.
 - AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
 - DEVICE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
- TREE PROTECTION / CONSTRUCTION FENCE**



LEGEND

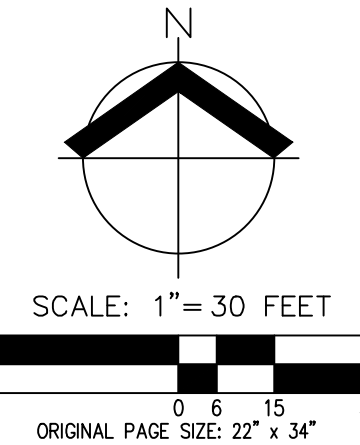
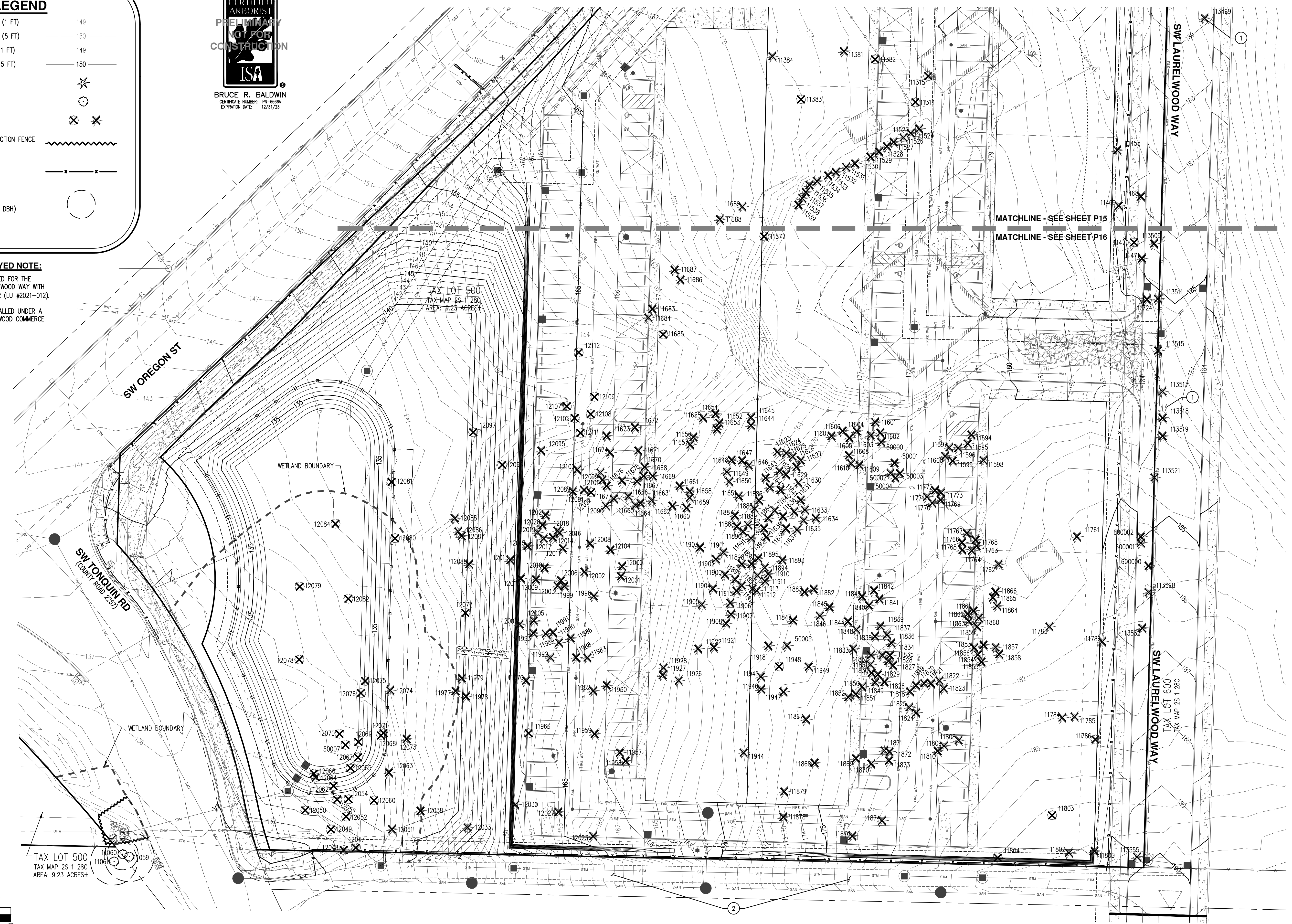
EXISTING GROUND CONTOUR (1 FT)	---
EXISTING GROUND CONTOUR (5 FT)	---
FINISHED GRADE CONTOUR (1 FT)	---
FINISHED GRADE CONTOUR (5 FT)	---
EXISTING CONIFEROUS TREE	✕
EXISTING DECIDUOUS TREE	○
TREE REMOVAL	✕ ✕
TREE PROTECTION/CONSTRUCTION FENCE (TREE PROTECTION AREA)	~~~~~
SEDIMENT FENCE	— x — x —
ASSUMED TREE ROOT ZONE (1-FT RADIUS PER 1-IN OF DBH)	○

- TREE REMOVAL KEYED NOTE:**
- OFFSITE TREES TO BE REMOVED FOR THE CONSTRUCTION OF SW LAURELWOOD WAY WITH SHERWOOD COMMERCE CENTER (LU #2021-012).
 - OFFSITE UTILITIES TO BE INSTALLED UNDER A SEPERATE PERMIT WITH SHERWOOD COMMERCE CENTER (LU #2021-012).

CERTIFIED ARBORIST
PRELIMINARY NOT FOR CONSTRUCTION

ISA

BRUCE R. BALDWIN
 CERTIFICATE NUMBER: PN-6662A
 EXPIRATION DATE: 12/31/23



TAX LOT 500
 TAX MAP 2S 1 28C
 AREA: 9.23 ACRES±

AKS

AKS ENGINEERING & FORESTRY, LLC
 12985 SW HERMAN RD, STE 100
 TUALATIN, OR 97062
 503.563.6151
 WWW.AKS-ENG.COM

ENGINEERING · SURVEYING · NATURAL RESOURCES
 FORESTRY · PLANNING · LANDSCAPE ARCHITECTURE

PRELIMINARY TREE PRESERVATION AND REMOVAL PLAN

OREGON STREET BUSINESS PARK

SHERWOOD, OR

JOB NUMBER:	7971
DATE:	05/31/2022
DESIGNED BY:	BOL
DRAWN BY:	BOL
CHECKED BY:	JPC

AKS DRAWING FILE: 7971_P16_TREE.DWG | LAYOUT: P16

Detailed Tree Inventory for Oregon Street Business Park

Table with columns: Tree #, DBH (in.), Avg. Crown Radius (ft), Tree Species (Scientific name), Comments, Health Rating*, Structure Rating**, and Remove/Preserve. It lists 160 trees with their respective details and status.

Detailed Tree Inventory for Oregon Street Business Park

Table with columns: Tree #, DBH (in.), Avg. Crown Radius (ft), Tree Species (Scientific name), Comments, Health Rating*, Structure Rating**, and Remove/Preserve. It lists 160 trees with their respective details and status.

Detailed Tree Inventory for Oregon Street Business Park

Table with columns: Tree #, DBH (in.), Avg. Crown Radius (ft), Tree Species (Scientific name), Comments, Health Rating*, Structure Rating**, and Remove/Preserve. It lists 160 trees with their respective details and status.



BRUCE R. BALDWIN
CERTIFICATE NUMBER: 18-6986
EXPIRATION DATE: 12/31/23

JOB NUMBER: 7971
DATE: 05/31/2022
DESIGNED BY: BDL
DRAWN BY: BDL
CHECKED BY: JPC

AKS DRAWING FILE: 7971_P17_TREE.DWG | LAYOUT: P17

Detailed Tree Inventory for Oregon Street Business Park

AKS Job No. 7971 - Evaluation Date: 5/5/2021 - Evaluated by: BRK

Tree #	DBH (in.)	Avg. Crown Radius (ft)	Tree Species Common Name (Scientific name)	Comments	Health Rating*	Structure Rating**	Remove/ Preserve
11977	43	15	Douglas-fir (Pseudotsuga menziesii)	Codominant with included bark; One stem dead with decay; Other sparse canopy	3	2	Remove
11978	47	16	Douglas-fir (Pseudotsuga menziesii)	1-sided canopy (S)	1	2	Remove
11979	27	11	Douglas-fir (Pseudotsuga menziesii)	1-sided canopy (N); Broken branches	1	2	Remove
11983	6	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
11986	9	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
11988	8	5	Douglas-fir (Pseudotsuga menziesii)	Broken top	2	3	Remove
11989	7	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
11990	9	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
11991	8	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
11992	8	5	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
11993	9	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
11996	12	8	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
11999	10	7	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12000	11	9	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12001	10	9	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12002	11	9	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12003	9	7	Douglas-fir (Pseudotsuga menziesii)	1-sided canopy (S)	1	2	Remove
12005	10	8	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12006	6	5	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12007	7	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12008	13	12	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12009	9	8	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12010	9	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12011	8	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12012	8	5	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12013	6	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12014	10	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12015	9	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12016	6	3	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12017	8	5	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12018	10	11	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12019	7	4	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12020	6	4	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12021	6	4	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12023	46	15	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12027	26	14	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12030	32	17	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12033	47	15	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12038	33	17	Douglas-fir (Pseudotsuga menziesii)	Broken top; Significant decay	3	3	Remove
12047	33	17	Black Cottonwood (Populus trichocarpa)		1	1	Remove
12048	38	19	Black Cottonwood (Populus trichocarpa)	LINE TREE; 1-sided canopy (S)	2	2	Remove
12049	9	15	Oregon Ash (Fraxinus latifolia)	Broken codominant stem	2	2	Remove
12050	9	14	Black Cottonwood (Populus trichocarpa)		1	1	Remove
12051	36	0	Black Cottonwood (Populus trichocarpa)	Dead	3	3	Remove
12052	28,31	17	Black Cottonwood (Populus trichocarpa)	Codominant base	1	1	Remove
12054	19	13	Black Cottonwood (Populus trichocarpa)	Crooked bole	1	2	Remove
12055	30,29,16,15,13	35	Black Cottonwood (Populus trichocarpa)	Clustered base; 1-sided canopy (W)	1	2	Remove
12060	11,7	15	Oregon Ash (Fraxinus latifolia)	Small cavities with decay; 1-sided canopy (E)	2	2	Remove
12062	26	22	Black Cottonwood (Populus trichocarpa)	1-sided canopy (W)	1	2	Remove
12063	71	0	Black Cottonwood (Populus trichocarpa)	Dead	3	3	Remove
12064	10	12	Oregon Ash (Fraxinus latifolia)	1-sided canopy (W)	1	2	Remove
12065	9	10	Oregon Ash (Fraxinus latifolia)		1	1	Remove
12066	8	12	Oregon Ash (Fraxinus latifolia)	1-sided canopy (W)	1	2	Remove
12067	28	17	Black Cottonwood (Populus trichocarpa)	Crooked bole; Lean (W)	1	2	Remove
12068	12	17	Oregon Ash (Fraxinus latifolia)		1	1	Remove
12069	32	35	Black Cottonwood (Populus trichocarpa)	Lean (W); 1-sided canopy (W); Crooked bole	1	2	Remove
12070	8	14	Black Cottonwood (Populus trichocarpa)	Lean (W); 1-sided canopy (W)	1	2	Remove
12071	21	17	Black Cottonwood (Populus trichocarpa)	Lean (W)	1	2	Remove
12073	32	0	Douglas-fir (Pseudotsuga menziesii)	Dead	3	3	Remove
12074	32	20	Douglas-fir (Pseudotsuga menziesii)	Dead branches	2	1	Remove
12075	7	14	Black Cottonwood (Populus trichocarpa)	Lean (N); 1-sided canopy (N)	1	2	Remove
12076	8	9	Black Cottonwood (Populus trichocarpa)		1	1	Remove
12077	8	16	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12078	18	20	Oregon Ash (Fraxinus latifolia)		1	1	Remove
12079	21	20	Oregon Ash (Fraxinus latifolia)	1-sided canopy (W)	1	2	Remove
12080	41	22	Oregon Ash (Fraxinus latifolia)		1	1	Remove
12081	36	32	Black Cottonwood (Populus trichocarpa)	1-sided canopy (W)	1	2	Remove
12082	56	30	Oregon Ash (Fraxinus latifolia)	Cavities with decay; Sparse canopy	2	2	Remove
12084	25	18	Bigleaf Maple (Acer macrophyllum)	1-sided canopy (W)	1	2	Remove
12085	53	17	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12086	20	0	Douglas-fir (Pseudotsuga menziesii)	Dead	3	3	Remove
12087	42	13	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12088	42	14	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12089	7	9	Douglas-fir (Pseudotsuga menziesii)	1-sided canopy (W)	1	2	Remove
12090	11	9	Douglas-fir (Pseudotsuga menziesii)	1-sided canopy (S)	1	2	Remove
12091	7	16	Bigleaf Maple (Acer macrophyllum)	1-sided canopy (S)	1	2	Remove
12092	6	10	Bigleaf Maple (Acer macrophyllum)		1	1	Remove
12095	36	18	Douglas-fir (Pseudotsuga menziesii)	Codominant base with included bark; Codominant tops	1	2	Remove
12096	13	11	Willow (salix sp.)	Large cavity with significant decay	2	3	Remove
12097	64	30	Bigleaf Maple (Acer macrophyllum)	Bulges at base; 1-sided canopy (W)	2	2	Remove
12099	6	4	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12100	6	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12101	6	4	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12104	7	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
12105	6	15	Cherry (Prunus avium)	1-sided canopy (W)	1	2	Remove
12107	7	16	Bigleaf Maple (Acer macrophyllum)	Dead top; 1-sided canopy (W)	3	2	Remove
12108	21	19	Douglas-fir (Pseudotsuga menziesii)	Broken top; Large cavity with decay; Weak leaders	2	3	Remove
12109	9	17	Bigleaf Maple (Acer macrophyllum)		1	1	Remove
12111	6	11	Bigleaf Maple (Acer macrophyllum)		1	1	Remove
12112	9	7	Bigleaf Maple (Acer macrophyllum)		1	1	Remove
25550	9	6	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
25551	15	0	Black Walnut (Juglans nigra)	Dead	3	3	Remove
25552	8	7	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
50000	12	14	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
50001	12	15	Douglas-fir (Pseudotsuga menziesii)	1-sided canopy (N)	1	2	Remove
50002	12	14	Douglas-fir (Pseudotsuga menziesii)	1-sided canopy (E)	1	2	Remove
50003	12	10	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
50004	12	15	Douglas-fir (Pseudotsuga menziesii)	1-sided canopy (S)	1	2	Remove
50005	9	8	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
50006	9	4	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
50007	7	15	Oregon Ash (Fraxinus latifolia)	1-sided canopy (W)	1	2	Remove
50008	8	9	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
113329	17	9	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Topped for overhead wires	2	3	Remove
113330	12	12	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Topped for overhead wires	2	3	Remove
113331	14	14	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Topped for overhead wires	2	3	Remove
113332	14	17	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Topped for overhead wires	2	3	Remove
113333	16	17	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Topped for overhead wires	2	3	Remove
113334	17	17	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Topped for overhead wires	2	3	Remove
113335	15	18	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Topped for overhead wires	2	3	Remove

Detailed Tree Inventory for Oregon Street Business Park

AKS Job No. 7971 - Evaluation Date: 5/5/2021 - Evaluated by: BRK

Tree #	DBH (in.)	Avg. Crown Radius (ft)	Tree Species Common Name (Scientific name)	Comments	Health Rating*	Structure Rating**	Remove/ Preserve
113336	16	15	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Topped for overhead wires	2	3	Remove
113337	20	13	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Topped for overhead wires	2	3	Remove
113338	10	0	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Dead	3	3	Remove
113339	18	15	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Topped for overhead wires	2	3	Remove
113340	15	15	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Topped for overhead wires	2	3	Remove
113341	18	15	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Topped for overhead wires	2	3	Remove
113342	8	15	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Topped for overhead wires	2	3	Remove
113343	15	15	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Topped for overhead wires	2	3	Remove
113354	70	20	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
113404	39	20	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Preserve
113405	24	13	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Preserve
113406	27	16	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence; Mechanical damage with seepage	2	1	Preserve
113407	24	13	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence; 1-sided canopy (E)	1	2	Preserve
113408	24	16	Norway Maple (Acer platanoides)	OFFSITE; Evaluated behind fence; Codominant	1	1	Preserve
113454	11	17	American Chestnut (Castanea dentata)	OFFSITE; Evaluated behind fence; 1-sided canopy (E)	1	2	Preserve
113461	23	19	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Remove
113464	20	19	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Remove
113465	27	19	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Remove
113469	21	17	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Remove
113470	16	17	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Remove
113471	22	17	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Remove
113472	20	19	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Remove
113474	19	17	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Remove
113483	28	18	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Remove
113485	25	17	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Remove
113487	53	25	Douglas-fir (Pseudotsuga menziesii)	LINE TREE	1	1	Remove
113490	25	18	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Remove
113491	7,4	14	Apple (Malus domestica)	OFFSITE; Evaluated behind fence	1	1	Remove
113499	35	21	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence; Codominant base with included bark	1	2	Remove
113509	59	16	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
113511	30	16	Douglas-fir (Pseudotsuga menziesii)	LINE TREE	1	1	Remove
113515	34	15	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
113517	53	19	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Remove
113518	37	17	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence	1	1	Remove
113519	34	18	Douglas-fir (Pseudotsuga menziesii)	OFFSITE; Evaluated behind fence; 1-sided canopy (S)	1	2	Remove
113521	37	18	Douglas-fir (Pseudotsuga menziesii)	LINE TREE; Butt sweep	1	2	Remove
113528	45	16	Douglas-fir (Pseudotsuga menziesii)	LINE TREE; Sparse canopy; Dead branches	2	2	Remove
113532	51	19	Douglas-fir (Pseudotsuga menziesii)	Sparse canopy; Dead branches	2	2	Remove
113555	13	13	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove
600000	43	12	Douglas-fir (Pseudotsuga menziesii)	LINE TREE; Sparse canopy; Dead branches	2	2	Remove
600001	15	16	Douglas-fir (Pseudotsuga menziesii)	Large cavity with decay up bole; Suppressed	2	3	Remove
600002	37	25	Douglas-fir (Pseudotsuga menziesii)		1	1	Remove

Total # of Existing Trees Inventoried = 458

Total # of Existing Onsite Trees = 404
 Total # of Existing Onsite Trees to be Preserved = 3
 Total # of Existing Onsite Trees to be Removed = 401

Total # of Existing Offsite Trees = 47
 Total # of Existing Offsite Trees to be Preserved = 9
 Total # of Existing Offsite Trees to be Removed = 38

Total # of Existing Line Trees = 7
 Total # of Existing Line Trees to be Preserved = 0
 Total # of Existing Line Trees to be Removed = 7

***Health Rating:**
 1 = Good Health - A tree that exhibits typical foliage, bark, and root characteristics, for its respective species, shows no signs of infection or infestation, and has a high
 2 = Fair Health - A tree that exhibits some abnormal health characteristics and/or shows some signs of infection or infestation, but may be reversed or abated with
 3 = Poor Health - A tree that is in significant decline, to the extent that supplemental treatment would not likely result in reversing or abating its decline.

****Structure Rating:**
 1 = Good Structure - A tree that exhibits typical physical form characteristics, for its respective species, shows no signs of structural defects of the canopy, trunk,
 2 = Fair Structure - A tree that exhibits some abnormal physical form characteristics and/or some signs of structural defects, which reduce the structural integrity of the tree, but are not indicative of imminent physical failure, and may be corrected using arboricultural abatement methods.
 3 = Poor Structure - A tree that exhibits extensively abnormal physical form characteristics and/or significant structural defects that substantially reduces the structural viability of the tree, cannot feasibly be abated, and are indicative of imminent physical failure.

Arborist Disclosure Statement:
 Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the health of trees, and attempt to reduce the risk of living near trees. The Client and Jurisdiction may choose to accept or disregard the recommendations of the arborist, or seek additional advice. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like medicine, cannot be guaranteed. Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees. Neither this author nor AKS Engineering & Forestry, LLC have assumed any responsibility for liability associated with the trees on or adjacent to this site.

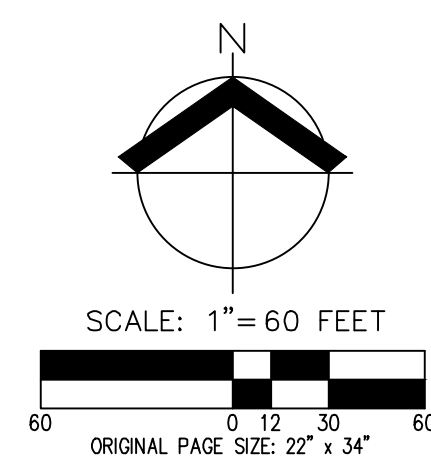
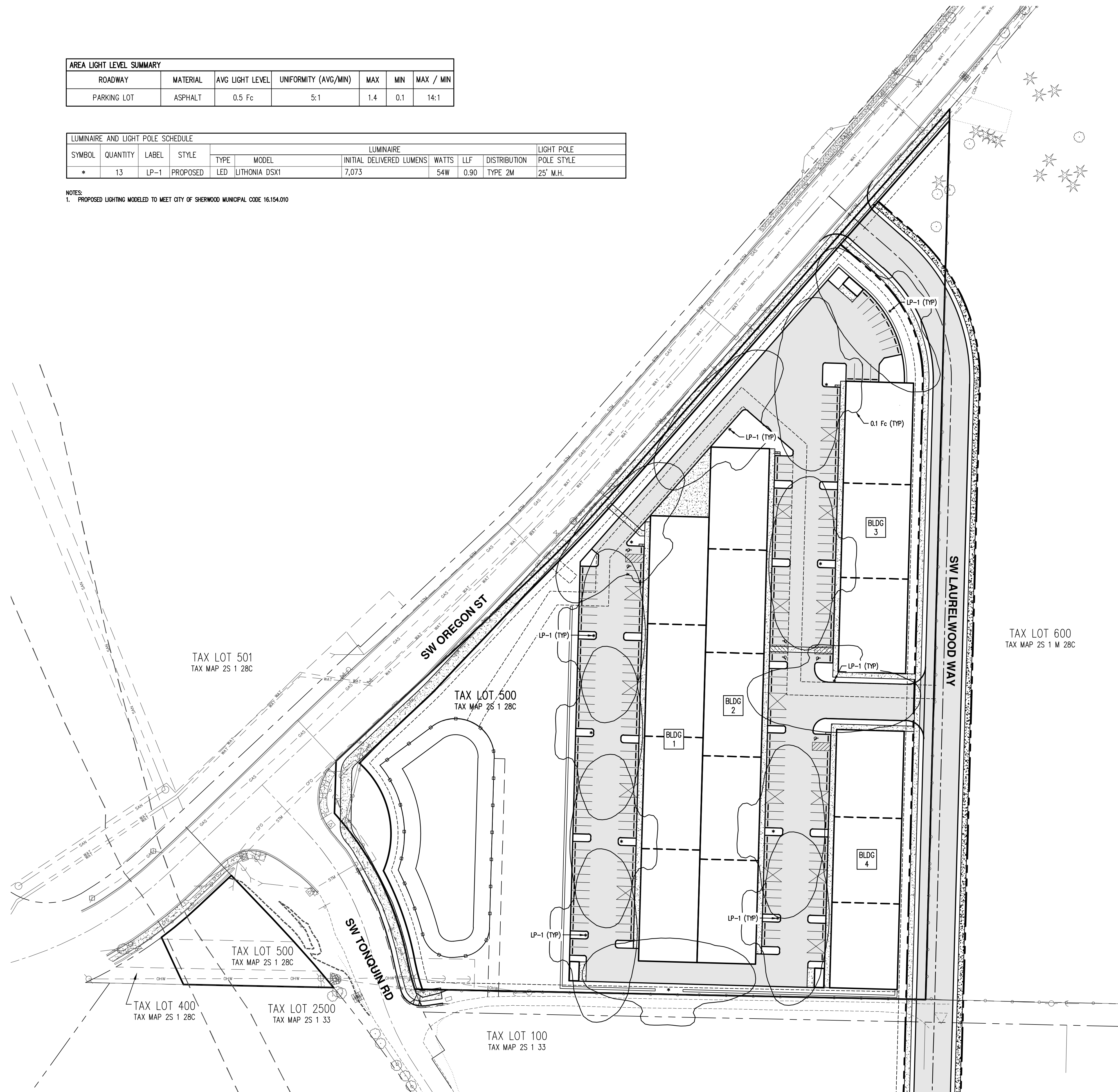
At the completion of construction, all trees should once again be reviewed. Land clearing and removal of adjacent trees can expose previously unseen defects and otherwise healthy trees can be damaged during construction.



AREA LIGHT LEVEL SUMMARY						
ROADWAY	MATERIAL	AVG LIGHT LEVEL	UNIFORMITY (AVG/MIN)	MAX	MIN	MAX / MIN
PARKING LOT	ASPHALT	0.5 Fc	5:1	1.4	0.1	14:1

LUMINAIRE AND LIGHT POLE SCHEDULE										
SYMBOL	QUANTITY	LABEL	STYLE	LUMINAIRE						LIGHT POLE POLE STYLE
				TYPE	MODEL	INITIAL DELIVERED LUMENS	WATTS	LLF	DISTRIBUTION	
*	13	LP-1	PROPOSED	LED	LITHONIA DSX1	7,073	54W	0.90	TYPE 2M	25' M.H.

NOTES:
1. PROPOSED LIGHTING MODELED TO MEET CITY OF SHERWOOD MUNICIPAL CODE 16.154.010



PRELIMINARY SITE LIGHTING PLAN

**OREGON STREET BUSINESS PARK
SHERWOOD, OR**



RENEWAL DATE: 12/31/23
 JOB NUMBER: 7971
 DATE: 05/31/2022
 DESIGNED BY: BDL
 DRAWN BY: BDL
 CHECKED BY: JPC



WEST ELEVATION DETAIL
1" = 5'0"

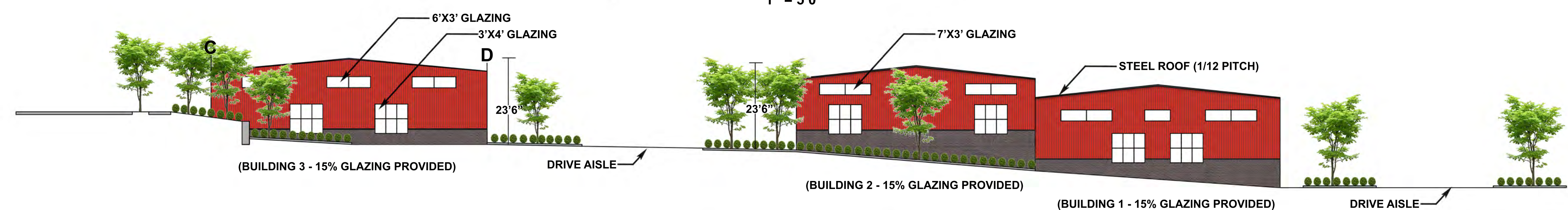


(BUILDING 1 - 15.7% GLAZING PROVIDED)

WEST ELEVATION
1" = 20'0"



BUILDING 3 NORTH ELEVATION DETAIL
1" = 5'0"



NORTH ELEVATION
1" = 20'0"

JOB NUMBER:	7971
DATE:	05/12/2022
DESIGNED BY:	NKP
DRAWN BY:	NKP
CHECKED BY:	KAH

AKS DRAWING FILE: 7971_POLLEY_ELEV_BASE.DWG | LAYOUT: CIB

Exhibit B: City of Sherwood Land Use Application Forms & Checklists



Home of the Tualatin River National Wildlife Refuge

Case No. _____
Fee _____
Receipt # _____
Date _____
TYPE _____

City of Sherwood Application for Land Use Action

Type of Land Use Action Requested: (check all that apply)

- Annexation
- Plan Amendment (Proposed Zone _____)
- Planned Unit Development
- Site Plan (square footage of building and parking area)
- Variance (list standards to be varied in description)
- Conditional Use
- Partition (# of lots _____)
- Subdivision (# of lots _____)
- Other: _____

By submitting this form the Owner, or Owner's authorized agent/ representative, acknowledges and agrees that City of Sherwood employees, and appointed or elected City Officials, have authority to enter the project site at all reasonable times for the purpose of inspecting project site conditions and gathering information related specifically to the project site.

Note: See City of Sherwood current Fee Schedule, which includes the "Publication/Distribution of Notice" fee, at www.sherwoodoregon.gov. Click on Government/Finance/Fee Schedule.

Owner/Applicant Information:

Applicant: Bruce Polley - Oregon Street Business Park, LLC

Phone: Please contact Applicant's Consultant

Applicant Address: PO Box 1489, Sherwood, OR 97140

Email: Please contact Applicant's Consultant

Owner: Bruce and Karen Polley

Phone: Please contact Applicant's Consultant

Owner Address: PO Box 1489, Sherwood, OR 97140

Email: Please contact Applicant's Consultant

Contact for Additional Information: Applicant's Consultant: AKS Engineering & Forestry, LLC
Mimi Doukas, AICP, RLA - Principal
12965 SW Herman Road, Suite 100
Tualatin, OR 97062

Property Information:

Street Location: 21720 SW Oregon Street, Sherwood, OR 97140

Tax Lot and Map No: 2S 1W 28C Tax Lot 500

Existing Structures/Use: Industrial buildings, fields

Existing Plan/Zone Designation: Employment Industrial zoning district

Size of Property(ies) ±9.51 acres

Proposed Action:

Purpose and Description of Proposed Action:

Site Plan Review and variance application for new industrial buildings (±115,170 square feet total), parking lot, landscaping, regional stormwater facility, etc.

Proposed Use: Industrial

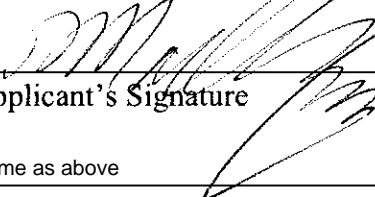
Proposed No. of Phases (one year each): One

LAND USE APPLICATION FORM

Authorizing Signatures:

I am the owner/authorized agent of the owner empowered to submit this application and affirm that the information submitted with this application is correct to the best of my knowledge.

I further acknowledge that I have read the applicable standards for review of the land use action I am requesting and understand that I must demonstrate to the City review authorities compliance with these standards prior to approval of my request.


Applicant's Signature

5-31-22
Date

Same as above
Owner's Signature

Date

The following materials must be submitted with your application or it will not be accepted at the counter. Once taken at the counter, the City has up to 30 days to review the materials submitted to determine if we have everything we need to complete the review. Applicant can verify submittal includes specific materials necessary for the application per checklist.

- 3 Copies of Application Form*** completely filled out and signed by the property owner (or person with authority to make decisions on the property).
- Copy of Deed** to verify ownership, easements, etc.
- At least 3 folded** sets of plans*
- At least 3 copies** of narrative addressing application criteria*
- Fee** (along with calculations utilized to determine fee if applicable)
- Neighborhood Meeting Verification** including affidavit, sign-in sheet and meeting summary (required for Type III, IV and V projects)

* **Note** that the required numbers of copies identified on the checklist are required for completeness; however, upon initial submittal applicants are encouraged to submit only 3 copies for completeness review. Prior to completeness, the required number of copies identified on the checklist and one full electronic copy will be required to be submitted.

www.ci.milpitas.ca.gov



Home of the Tualatin River National Wildlife Refuge

Case No. _____
Fee _____
Receipt # _____
Date _____
TYPE _____

City of Sherwood Application for Land Use Action

Type of Land Use Action Requested: (check all that apply)

- Annexation
- Plan Amendment (Proposed Zone _____)
- Planned Unit Development
- Site Plan (square footage of building and parking area)
- Variance (list standards to be varied in description)
- Conditional Use
- Partition (# of lots _____)
- Subdivision (# of lots _____)
- Other: _____

By submitting this form the Owner, or Owner's authorized agent/ representative, acknowledges and agrees that City of Sherwood employees, and appointed or elected City Officials, have authority to enter the project site at all reasonable times for the purpose of inspecting project site conditions and gathering information related specifically to the project site.

Note: See City of Sherwood current Fee Schedule, which includes the "Publication/Distribution of Notice" fee, at www.sherwoodoregon.gov. Click on Government/Finance/Fee Schedule.

Owner/Applicant Information:

Applicant: Bruce and Karen Polley
Applicant Address: PO Box 1489, Sherwood, OR 97140
Owner: Bruce and Karen Polley
Owner Address: PO Box 1489, Sherwood, OR 97140

Phone: Please contact Applicant's Consultant
Email: Please contact Applicant's Consultant
Phone: Please contact Applicant's Consultant
Email: Please contact Applicant's Consultant

Contact for Additional Information: Applicant's Consultant: AKS Engineering & Forestry, LLC
Mimi Doukas, AICP, RLA
12965 SW Herman Road, Suite 100
Tualatin, OR 97062

Property Information:

Street Location: 21720 SW Oregon Street
Tax Lot and Map No: 2S 1W 28C Tax Lot 500
Existing Structures/Use: Industrial buildings, fields
Existing Plan/Zone Designation: Employment Industrial zoning district
Size of Property(ies) ±9.51 acres

Proposed Action:

Purpose and Description of Proposed Action:

Site Plan Review application for new industrial buildings (±120,815 square feet total), parking lot, landscaping, stormwater facility, etc.

Proposed Use: Industrial


Proposed No. of Phases (one year each): One

LAND USE APPLICATION FORM

Authorizing Signatures:

I am the owner/authorized agent of the owner empowered to submit this application and affirm that the information submitted with this application is correct to the best of my knowledge.

I further acknowledge that I have read the applicable standards for review of the land use action I am requesting and understand that I must demonstrate to the City review authorities compliance with these standards prior to approval of my request.


Applicant's Signature

6-23-21
Date


Owner's Signature

6-23-21
Date

The following materials must be submitted with your application or it will not be accepted at the counter. Once taken at the counter, the City has up to 30 days to review the materials submitted to determine if we have everything we need to complete the review. Applicant can verify submittal includes specific materials necessary for the application per checklist.

- 3 Copies of Application Form*** completely filled out and signed by the property owner (or person with authority to make decisions on the property).
- Copy of Deed** to verify ownership, easements, etc.
- At least 3 folded** sets of plans*
- At least 3 copies** of narrative addressing application criteria*
- Fee** (along with calculations utilized to determine fee if applicable)
- Neighborhood Meeting Verification** including affidavit, sign-in sheet and meeting summary (required for Type III, IV and V projects)

* **Note** that the required numbers of copies identified on the checklist are required for completeness; however, upon initial submittal applicants are encouraged to submit only 3 copies for completeness review. Prior to completeness, the required number of copies identified on the checklist and one full electronic copy will be required to be submitted.



APPLICATION MATERIALS REQUIRED FOR SITE PLAN REVIEW

Submit the following to the City of Sherwood Planning Department, 22560 SW Pine St., Sherwood, OR 97140: (503) 925-2308.

It is strongly suggested that you have a pre-application meeting with the City prior to submitting for Site Plan Review. (See *Pre-application Process* form for information.)

Note: Clean Water Services (CWS) requires a pre-screening to determine if water quality sensitive areas exist on the property. If these sensitive areas exist, a Site Assessment and Service Provider Letter are required prior to submitting for Site Plan Review or undertaking any development. **This application will not be accepted without a completed Pre-Screening Form and if required a Service Provider Letter.** Please contact CWS at (503) 681-3600.

If the proposal is next to a Washington County roadway, the applicant must submit an Access Report (Traffic Study) to Washington County Department of Land Use and Transportation (503) 846-8761. **This application will not be accepted until an Access Report (Traffic Study) is submitted to Washington County and the Access Report is deemed complete by the County; or written verification from Washington County that an Access Report is not required is provided.**

-
- ✓ I. **FEES** - See City of Sherwood current Fee Schedule, which includes the “Publication/ Distribution of Notice” fee, at <http://www.sherwoodoregon.gov> Click on Government/Planning/Planning Fees.

Note: The above fees are required at the time you submit for site plan review. Additional fees will be charged for building permit, system development charges, impact fees and other fees applicable to the development. These fees will be charged when you make application for building permit. Building permit application will not be accepted until site plan approval is issued.

- ✓ II. **BACKGROUND INFORMATION** (All materials to be collated & folded (not rolled) to create *fifteen (15) sets).

*Note that the *final* application must contain fifteen (15) folded sets of the above, however, upon initial submittal of the application and prior to completeness review, the applicant may submit three (3) complete folded sets with the application in lieu of fifteen (15), with the understanding that fifteen (15) complete sets of the application materials will be required before the application is deemed complete and scheduled for review.

✓ **Application Form** – One original and fourteen (14) copies of a completed **City of Sherwood Application for Land Use Action** form. Original signatures from all owners must be on the application form.

✓ **Documentation of Neighborhood Meeting** (Type III- Type V) - Affidavits of mailing, sign-in sheets and a summary of the meeting notes shall be included with the application.

✓ **Tax Map** - Fifteen (15) copies of the latest Tax Map available from the Washington County Assessor's Office showing property within at least 300 feet with scale (1"=100' or 1"= 200') north point, date and legend.

✓ **Mailing Labels** – Two (2) sets of mailing labels for property owners within 1,000 feet of the subject site, including a map of the area showing the properties to receive notice. Mailing labels can be obtained from a private title insurance company. Ownership records shall be based on the most current available information from the Tax Assessor's office. *It is the applicant's responsibility to provide mailing labels that accurately reflect all property owners that reside within 1,000 feet of the subject site.*

✓ **Vicinity Map** – Fifteen (15) copies of a vicinity map showing the City limits and the Urban Growth Boundary.

✓ **Narrative** – Fifteen (15) copies and **an electronic copy** of a narrative explaining the proposal in detail and a response to the Required Findings for Site Plan Review, located in Chapter 16 of the Municipal Code/Zoning & Development, Section 16.90.010. The Municipal Code/Zoning & Development is available online at www.sherwoodoregon.gov, Click on Government/Municipal Code.

✓ **Electronic Copy** – An electronic copy of the **entire** application packet. This should include all submittal materials (narrative, vicinity map, mailing labels, site plan, preliminary plat, etc.).

✓ **III. REQUIRED PLANS**

Submit fifteen (15) sets of the following folded full-size plans and **an electronic copy in .PDF format.** Plans must have:

- 1) The proposed name of the development. If a proposed project name is the same as or similar to other existing projects in the City of Sherwood, the applicant may be required to modify the project name.
- 2) The name, address and phone of the owner, developer, applicant and plan producer.
- 3) North arrow,
- 4) Legend,
- 5) Date plans were prepared and date of any revisions
- 6) Scale clearly shown. Other than architectural elevations, all plans must be drawn to an engineer scale.
- 7) All dimensions clearly shown.

✓ **Existing Conditions Plan** - Existing conditions plan drawn to scale showing: property lines and dimensions, existing structures and other improvements such as streets and utilities, existing vegetation including trees, any floodplains or wetlands and any easements on the property. The existing conditions plan shall also include the slope of the site at 5-foot contour intervals

✓ **Preliminary Development Plans-** Plans must be sufficient for the Hearing Authority to determine compliance with applicable standards. The following information is typically needed for adequate review:

- ✓ 1. The subject parcel (s), its dimensions and area.
- ✓ 2. The location and dimensions of proposed development, including the following:

✓ Transportation

- a. Public and private streets with proposed frontage improvements including curb, gutters, sidewalks, planter strip, street lighting, distances to street centerline, pavement width, right-of-way width, bike lanes and driveway drops.
- b. Public and private access easements, width and location.
- c. General circulation plan showing location, widths and direction of existing and proposed streets, bicycle and pedestrian ways, and transit routes and facilities within ½ mile of the subject property.
- d. Show the location and distance to neighboring driveways and the width and locations of driveways located across the street.
- e. The location and size of accesses, sight distance and any fixed objects on collectors or arterial streets.
- f. Emergency accesses.
- g. Indicate the location and size of off-street parking spaces including curbing and wheel stop locations.
- h. Proposed transit facilities.
- i. Indicate loading and maneuvering areas.
- j. Delivery truck and bus circulation patterns.

✓ Grading and Erosion Control

- k. Indicate the proposed grade at two (2)-foot contour intervals.
- l. Indicate the proposed erosion control measures to CWS standards (refer to CWS R&O 07-20).
- m. Show areas of cut and fill with areas of structural fill.
- n. Show the location of all retaining walls, the type of material to be used, the height of the retaining wall from the bottom of the footing to the top of the wall and the exposed height of the wall.


✓ Utilities

- o. Utilities must be shown after proposed grade with 2-foot contour intervals.
- p. Map location, purpose, dimensions and ownership of easements.
- q. Fire hydrant locations and fire flows.
- r. Water, sewer and stormwater line locations, types and sizes.
- s. Clearly indicate the private and public portions of the system.
- t. Above-ground utilities and manhole locations.


✓ Preliminary Stormwater Plan

- u. Show location, size and slope of water quality facility.
- v. Preliminary calculations justifying size of facility.

- w. The total square footage of the new and existing impervious area.
- x. The stormwater facility to CWS standards. (R&O 07-20).

 Sensitive Areas

- y. Show any and all streams, ponds, wetlands and drainage ways.
- z. Indicate the vegetative corridor for sensitive areas to CWS standards. (R&O 07-20).
- aa. Indicate measures to avoid environmental degradation that meet CWS, DSL and Army Corp requirements.
- bb. Flood elevation.
- cc. Wetland delineation and buffering proposed.
- dd. Location and size of all trees greater than 5 inches DBH (indicate if trees are proposed for removal).

 Land Use

- ee. The square footage of each building and a breakdown of square footage by use. (i.e. retail, office, industrial, residential, etc.).
- ff. Net buildable acres. (The land remaining after unbuildable areas are taken out, such as the floodplain and wetland areas).
- gg. Net density calculation for residential use.
- hh. Landscaping areas including the square footage of the site covered by landscaping and planting types. (refer to Ch. 5 of the Community Development Code).
- ii. Existing trees proposed to remain and trees to be removed and the drip-lines of trees proposed to remain.
- jj. Street tree location, size and type. (refer to Ch. 8, Section 8.304.06 of the Community Development Code).
- kk. Bicycle parking areas. (Refer to Ch 5 of the Community Development Code).
- ll. On-site pathways and sidewalk locations.
- mm. Structures proposed to be built and structures proposed to remain with their dimensions and the distances to property lines.
- nn. Outdoor storage areas and proposed screening.
- oo. Outdoor sales and merchandise display areas and proposed screening.
- pp. Truck loading and maneuvering areas.
- qq. Number of parking spaces and required parking calculations based on Section 5.302 of the Community Development Code.
- rr. The size and location of solid waste and recycle storage areas and screening.
- ss. Location, size and height of proposed free-standing signs.
- tt. Location, height and type of fencing and walls.
- uu. For each lot indicated the building envelope.



Reduced - Proposed Development Plans – One (1) reduced copies of the Proposed Development Plan on 8 1/2” by 11” sheets and fifteen (15) reduced copies on 11” by 17” sheets.



Lighting Plan – Photometric lighting plan indicating foot candle power on and along the perimeter of the site. Proposed locations, height and size of lights. (If outdoor lighting is proposed).



Surrounding Land Uses – Existing land use including nature, size and location of existing structures within 300 feet.



Architectural Exterior – Scaled architectural sketches and elevations of all proposed structures. Include a description of materials, textures and colors. Show the size, placement and dimensions of proposed wall signs on the elevation drawings. These drawings can be done at an architectural or engineering scale. If color is used, two color copies and eight black and white copies are acceptable.

IV. DOCUMENTS REQUIRED



Title Report – Two (2) copies of a current preliminary title report available from a private title insurance company.



CWS Service Provider Letter – Four (4) copies of the CWS service provider letter

V. ADDITIONAL DOCUMENTS THAT MAY BE REQUIRED



Army Corps and DSL wetland applications and/or permits – Four (4) copies of required Divisions of State Lands and/or Army Corp of Engineers permits and/or permit applications if applicable.



Traffic Study – Four (4) copies of a traffic study. (If required by the City Engineer).



Soils Analysis and/or Geotechnical Report – Four (4) copies completed by a registered Soils Engineer or Geologist including measures to protect natural hazards. (If required by the City Engineer).



Tree Report – Two (2) copies of a tree report prepared by an arborist, forester, landscape architect, botanist or other qualified professional. (If required trees are on-site).



Natural Resource Assessment – If required by Clean Water Services (CWS). The CWS Pre-Screening indicates as to whether this report is required or not.



Wetland Delineation Study – if required by Oregon Division of State Lands (DSL) or the Army Corps of Engineers.

N/A

Other Special Studies and/or Reports – if required by the Planning Director or the City Engineer to address issues identified in the pre-application meeting or during project review.

N/A

Verification of compliance with other agency standards such as CWS, DSL, Army Corps of Engineers, ODOT, PGE, BPA, Washington County.

Exhibit C: Washington County Assessor's Map

SW 1/4 SECTION 28 T2S R1W W.M.

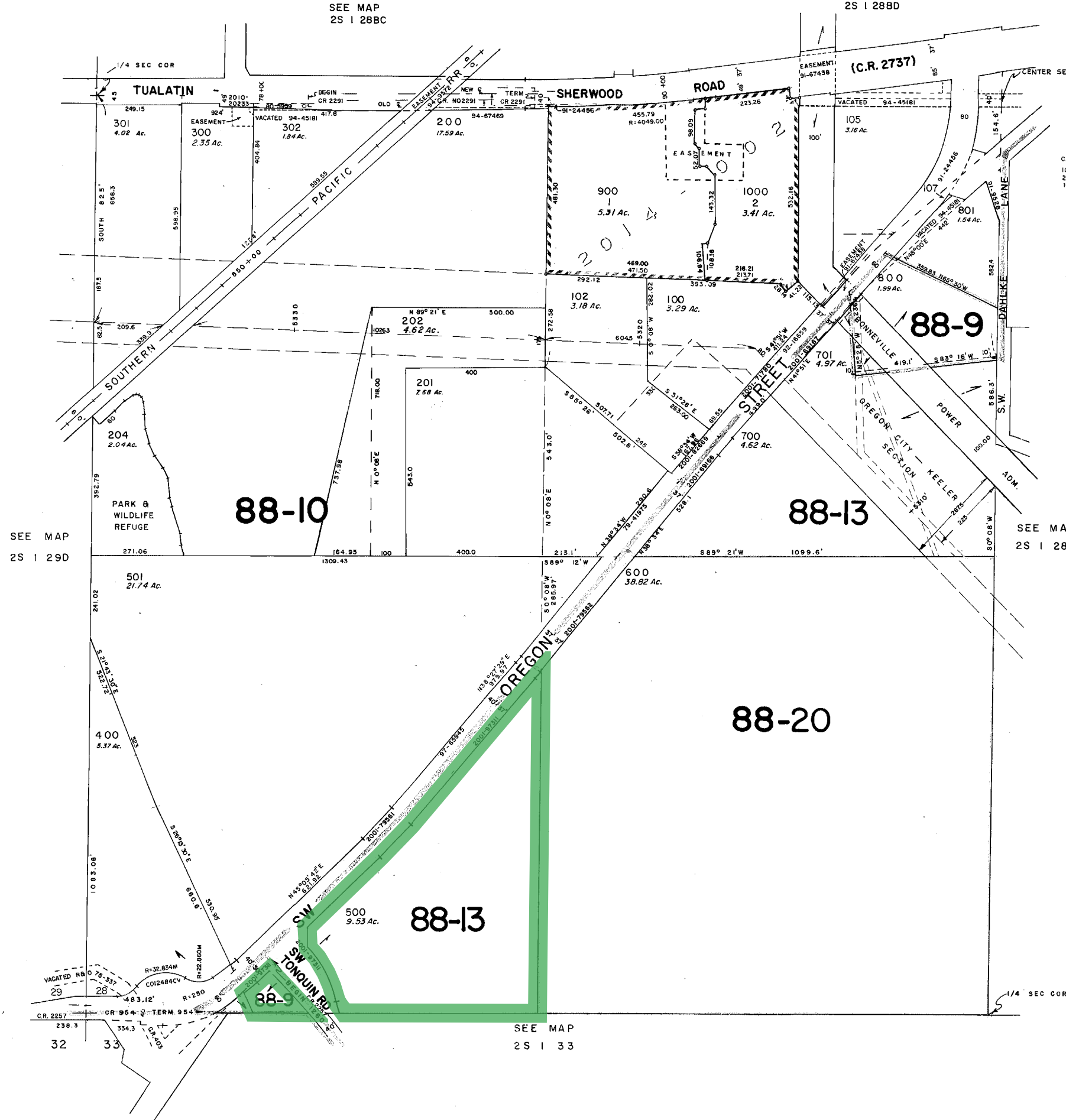
2S 1 28C

WASHINGTON COUNTY OREGON

SCALE 1"=200'

SEE MAP
2S 1 28BC

SEE MAP
2S 1 28BD



CANCELLED TAX LOTS
104, 203, 103, 106, 401, 201-42,
201-43, 300-A1, 200-A1, 201-A1,
101,

SEE MAP
2S 1 29D

SEE MAP
2S 1 28D

FOR ASSESSMENT
PURPOSES ONLY
DO NOT RELY ON
FOR ANY OTHER USE

SEE MAP
2S 1 33

SHERWOOD
2S 1 28C

Exhibit D: Preliminary Stormwater Report

Oregon Street Business Park Sherwood, Oregon

Stormwater Report

Date: May 12, 2022

Client: Oregon Street Business Park, LLC
PO Box 1489
Sherwood, Oregon 97140

Engineering Contact: John Christiansen, PE
503-563-6151 | johnc@aks-eng.com

Prepared By: Braden Lambert

Engineering Firm: AKS Engineering & Forestry, LLC
12965 SW Herman Road
Suite 100
Tualatin, OR 97062

AKS Job Number: 7971



RENEWAL DATE: 12/31/21



www.aks-eng.com

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Exhibit B: Pre-Developed Stormwater Catchment Map

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Appendices

Appendix A: Peak Flow Calculations – HydroCAD Analysis

Appendix B: USDA – NRCS Soil Resource Report

Appendix C: TR 55 Runoff Curve Numbers

Appendix D: Stormwater Quality Calculations

Appendix E: Geotechnical Report

Appendix F: References and Code

Appendix G: Operations and Maintenance Plan

Appendix H: SLOPES V Information Form

Stormwater Report

OREGON STREET BUSINESS PARK

SHERWOOD, OREGON

1.0 Purpose of Report

The purpose of this report is to analyze the effects the proposed development will have on the existing stormwater conveyance system; document the criteria, methodology, and informational sources used to design the proposed stormwater system; and present the results of the preliminary hydraulic analysis.

2.0 Project Location/Description

The proposed industrial development will be located at the intersection of SW Oregon St and SW Tonquin Rd, encompassing approximately 9.53 acres (Tax Lot 500, Washington County Assessor's Map 2S 1W 28C). Improvements include the construction of industrial buildings, paved site access, public and private underground utilities and a stormwater facility. The development will result in the addition and/or modification of approximately 7.64 acres of impervious area to the existing site.

3.0 Regulatory Design Criteria

3.1. Stormwater Quantity

3.1.1. Clean Water Services Standards

Per Clean Water Services' (CWS) *Design and Construction Standards* (R&O 19-22), *Section 4.02: Water Quantity Control Requirements*, on-site detention is required when any of the following conditions exist:

- a. *There is an identified downstream deficiency and the District or City determines that detention rather than conveyance system enlargement is the more effective solution.*
- b. *There is an identified regional detention site within the boundary of the development.*
- c. *Water quantity facilities are required by District-adopted watershed management plans or adopted subbasin master plans.*

Stormwater quantity will be met by creating a stormwater facility in the southwest corner of the site.

Further description of stormwater quantity management for the project is provided in Section 6.4 of this report.

3.1.2. NMFS SLOPES V Standards

Because the project requires a Clean Water Act (CWA) Section 404 permit from the US Army Corps of Engineers (USACE), the stormwater quantity management system was designed to meet the National Marine Fisheries Service (NMFS) requirements of the revised Standard Local Operating Procedures for Endangered Species (SLOPES V, NMFS No: NWR-2013-10411). SLOPES V criteria require the implementation of a Stormwater Management Plan that includes water quantity retention or detention facilities for all stormwater systems that do not discharge directly into a major body of water (e.g. lakes, rivers, etc.). SLOPES V criteria require retention or detention facilities that limit discharge to match pre-developed discharge rates using a continuous simulation for flows between 50 percent of the 2-year design storm and the 10-year design storm.

3.2. Hydromodification

Per CWS R&O 19-22, *Section 4.03: Hydromodification Approach Requirements*, the implementation or funding of techniques to reduce impacts to the downstream receiving water body is required when a new development, or other activities, creates or modifies 1,000 square feet or more of impervious surfaces or increases the amount or rate of surface water leaving the site. The following techniques may be used to mitigate impacts to the downstream receiving water body:

- a. *Construction of permanent LIDA designed in accordance with this Chapter; or*
- b. *Construction of a permanent stormwater detention facility designed in accordance with this Chapter; or*
- c. *Construction or funding of a hydromodification approach that is consistent with a District-approved sub-basin strategy; or*
- d. *Payment of a Hydromodification Fee-In-Lieu.*

Per Section 4.03.2, unless specifically waived in writing by the District, a Hydromodification Assessment is required of all activities described in Section 4.03.1, unless the activity meets any of the following criteria:

- a. *The project results in the addition and/or modification of less than 12,000 square feet of impervious surface.*
- b. *The project is located within a District-approved sub-basin strategy with an identified regional stormwater management approach for hydromodification.*

The project will result in the addition and/or modification of approximately 7.64 acres of impervious surface. Therefore, hydromodification will be addressed by the implementation of a stormwater facility in the southwest corner of the site. The proposed stormwater facility is designed to provide peak-flow matching detention, using the criteria established within CWS Section 4.08.6. A Hydromodification Assessment and further description of the hydromodification management approach is provided in Section 6.3 of this report.

3.3. Stormwater Quality

3.3.1. Clean Water Services Standards

Per CWS R&O 19-22, *Section 4.04: Water Quality Treatment Requirements*, the implementation or funding of permanent water quality approaches are required when new development or other activities create or modify 1,000 square feet or greater of impervious surfaces, or increase the amount of stormwater runoff or pollution leaving the site.

This project will result in the addition and/or of modification of approximately 7.64 acres of impervious area; thus, increasing the amount of stormwater runoff leaving the site. Stormwater quality management for this project will be met by creating a stormwater facility in the southwest corner of the site. The proposed stormwater facility has been designed per CWS Standards. Further description of stormwater quality management for the project is provided in Section 6.2 of this report.

3.3.2. NMFS SLOPES V and DEQ Section 401 Water Quality Certification Program Standards

Per SLOPES V and Oregon Department of Environmental Quality (DEQ) CWA Section 401 Water Quality Certification Program standards, water quality treatment for post-construction stormwater runoff from all contributing impervious area is required. The stormwater quality treatment facilities will be designed to accept and fully treat the volume of stormwater equal to either 50 percent of the cumulative rainfall

from the 2-year, 24-hour storm event or at least 80 percent of the average annual rainfall, as modeled with a continuous rainfall/runoff model.

3.3.3. Post-Construction Stormwater Management Plan for Section 401 Water Quality Certification

To address post construction stormwater pollution, the DEQ CWA Section 401 Water Quality Certification Program requires a post-construction Stormwater Management Plan to meet the most current standards and regulations. This report has been prepared to supplement the DEQ's 401 Post-Construction Stormwater Management Plan Submission Form.

4.0 Design Methodology

The Santa Barbara Urban Hydrograph (SBUH) Method was used to analyze stormwater runoff from the site. This method utilizes the Natural Resource Conservation Service (NRCS) Type 1A 24-hour design storm. HydroCAD 10.00 computer software aided in the analysis. Representative runoff Curve Numbers (CN) were obtained from the NRCS *Urban Hydrology for Small Watersheds* (Technical Release 55), and are included in Appendix C.

5.0 Design Parameters

5.1. Design Storms

Per CWS requirements, the stormwater analysis used the 24-hour storm for the evaluation and design of the existing and proposed stormwater facilities. The following 24-hour rainfall intensity was used as the design storm for the recurrence interval:

Table 5-1: Rainfall Intensities

Recurrence Interval (Years)	Total Precipitation Depth (Inches)
2	2.50
5	3.10
10	3.45
25	3.90

5.2. Pre-Developed Site Conditions

5.2.1. Site Topography

Existing on-site grades generally vary from $\pm 1\%$ to $\pm 45\%$, with the site draining towards the southwest (existing SW Tonquin Rd). The site has a high point of ± 203 feet in the northeast property corner and a low point of ± 132 feet in the southwest property corner. There is an off-site contributing basin to the east of the site that also drains towards the southwest corner of the site. This contributing basin is 45.39 acres. The high point of this basin is ± 234 along its eastern edge.

5.2.2. Land Use

The existing zoning is Employment Industrial. The existing site consists of an industrial property with gravel driveway and parking lot, buildings, and field areas. The contributing basin to the east consists of field areas with scattered trees.

5.3. Soil Type

The soil beneath the project site and associated drainage basins is classified as Briedwell Stony Silt Loam, Cove Silty Clay Loam, Laurelwood Silt Loam and Xerochrept-Rock outcrop complex according to the USDA

Natural Resources Conservation Service (NRCS) Soil Survey for Washington County. The following table outlines the Hydrologic Soil Group rating for these soil type:

Table 5-2: Hydrologic Soil Groupings

NRCS Map Unit Identification	NRCS Soil Classification	Hydrologic Soil Group Rating
5B	Briedwell Stony Silt Loam	B
13	Cove Silty Clay Loam	D
28B	Laurelwood Silt Loam	B

Further information on this soil type is included in the NRCS Soil Resource Report located in Appendix B of this report.

5.4. Post-Developed Site Conditions

5.4.1. Site Topography

The on-site slopes will be modified with cuts and fills to accommodate the construction of building pads, pavement parking areas and drive aisles and a stormwater facility. Retaining walls will be created along the southern, western, and eastern edges of the paved section of the site. Overall site topography will continue to drain to the southwest with grades between 2% and 33%. A new public road will be constructed along the east edge of the site.

5.4.2. Land Use

The zoning will remain Employment Industrial. The post-developed site land use will consist of industrial buildings with associated underground utilities and paved site access.

5.4.3. Post-Developed Site Parameters

See HydroCAD Analysis in the attached appendices.

5.4.4. Description of Off-Site Contributing Basins

The contributing off-site basin to the east is approximately 45.39 acres. The site was recently logged, and redevelopment is anticipated in the near future. A public stormwater main will be extended to this property as part of this anticipated development.

6.0 Stormwater Analyses

6.1. Proposed Stormwater Conduit Sizing and Inlet Spacing

The proposed public stormwater main will be constructed to the south of the subject site and discharge to the Rock Creek stream corridor to the west of the subject site. It will be sized to provide adequate capacity to serve adjacent downstream and upstream development areas. The proposed stormwater conveyance system will connect to the proposed stormwater facility, and then connect to the proposed public stormwater main. The proposed onsite stormwater drainage conduits and inlets will be spaced in accordance with CWS requirements to properly convey stormwater runoff. Storm drainage piping will be designed using Manning's equation and sized to convey peak flows generated by the 25-year design storm event.

6.2. Proposed Stormwater Quality Control Facility

Stormwater quality treatment for newly created on-site impervious surfaces will be addressed by the construction of a stormwater quality facility designed to per Clean Water Services Design and Construction Standards for Sanitary Sewer and Surface Water Management (R&O 19-05). This facility will be sized to treat runoff from the impervious area created by the proposed project according to CWS and Slopes V water quality requirements. Detailed calculations are included in Appendix D.

A portion of the project site cannot be directed to the stormwater facility due to site grading and layout. Stormwater runoff from new sidewalks and adjacent landscape areas will be directed to the existing stormwater catch basins on SW Tonquin Road and SW Oregon Street, discharging into the Rock Creek stream corridor.

6.2.1. Hydromodification Assessment

- Risk Level (CWS R&O 4.03.3.a) – Low
- Development Class (CWS R&O 4.03.3.b) – Expansion Area
- Project Size Category (CWS R&O 4.03.3.c) – Large
- Project Category (R&O 4.03.5, Table 4-2) – Category 3

6.2.2. Hydromodification Approach

The proposed project will result in the addition and/or modification of approximately 7.64 acres of impervious area. Based on the parameters in Section 6.2.1 this project is classified as a Category 3 Hydromodification Approach. This will be addressed with the construction of a stormwater quality facility. It will be sized for detention per CWS Section 4.08.6 so site runoff does not exceed 50% of the pre-development 2, 5 and 10 year storm event flows. Detailed calculations are included in Appendix D.

6.3. Proposed Stormwater Quantity Control Facility

Stormwater quality treatment for newly created on-site impervious surfaces will be addressed by the construction of a stormwater quality facility in the southwest corner of the site. The following table summarizes the pre and post developed flows from the stormwater facility. Post developed flows are limited to less than the allowable pre-development park flows, as outlined within CWS stormwater quantity and hydromodification management requirements. The facility was sized and designed to provide water quality treatment according to CWS and Slopes V water quantity requirements. Detailed calculations are included in Appendix D.

Table 6-1: Pre and Post Developed On Site Flows

Recurrence Interval (Years)	Peak Pre-Development Flows (cfs)	Peak Post-Development Flows (cfs)*	Peak Flow Increase or (Decrease) – (cfs)
2	0.24 (50% of 2-yr=0.12)	0.10	(0.02)
5	0.57	0.11	(0.46)
10	0.92	0.31	(0.61)
25	1.43	0.46	(0.97)

*Peak post-developed flow for 2-year storm event is less than equal to 50% of 2-year peak pre-developed flow.

6.4. Downstream Analysis

A downstream analysis was not performed because the onsite stormwater facility will be designed to limit site post-developed discharge to the pre-developed flows by providing detention. The proposed project will provide stormwater detention via an extended dry basin designed per Clean Water Services'

standards. The outfall from the stormwater facility will discharge directly to the vegetated corridor adjacent to Rock Creek.

7.0 SLOPES V Stormwater Management Design

This stormwater summary report demonstrates that the planned stormwater conveyance and management system for this project meets SLOPES V. The following paragraphs are intended to address specific concerns for the NMFS review of the project.

7.1. Pollutants of Concern

The pollutants of concern for Rock Creek are arsenic, iron, lead year-round and dissolved oxygen from Jan 1 to May 15.

7.2. Low Impact Development

To provide water quality, the bottom of the stormwater facility will consist of 18 inches of growing medium and will be planted with grasses, shrubs and trees. Stormwater runoff from the impervious area will flow through the stormwater facility and allow pollutants to settle and filter out. Hydraulic, physical, biological, and chemical processes such as absorption, filtration, infiltration, nitrification, decomposition, sedimentation, and thermal control will take place when stormwater runoff flows through the facility. See Appendix F for Clean Water Services planting requirements and facility cross-section.

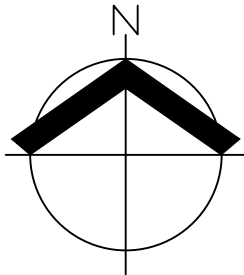
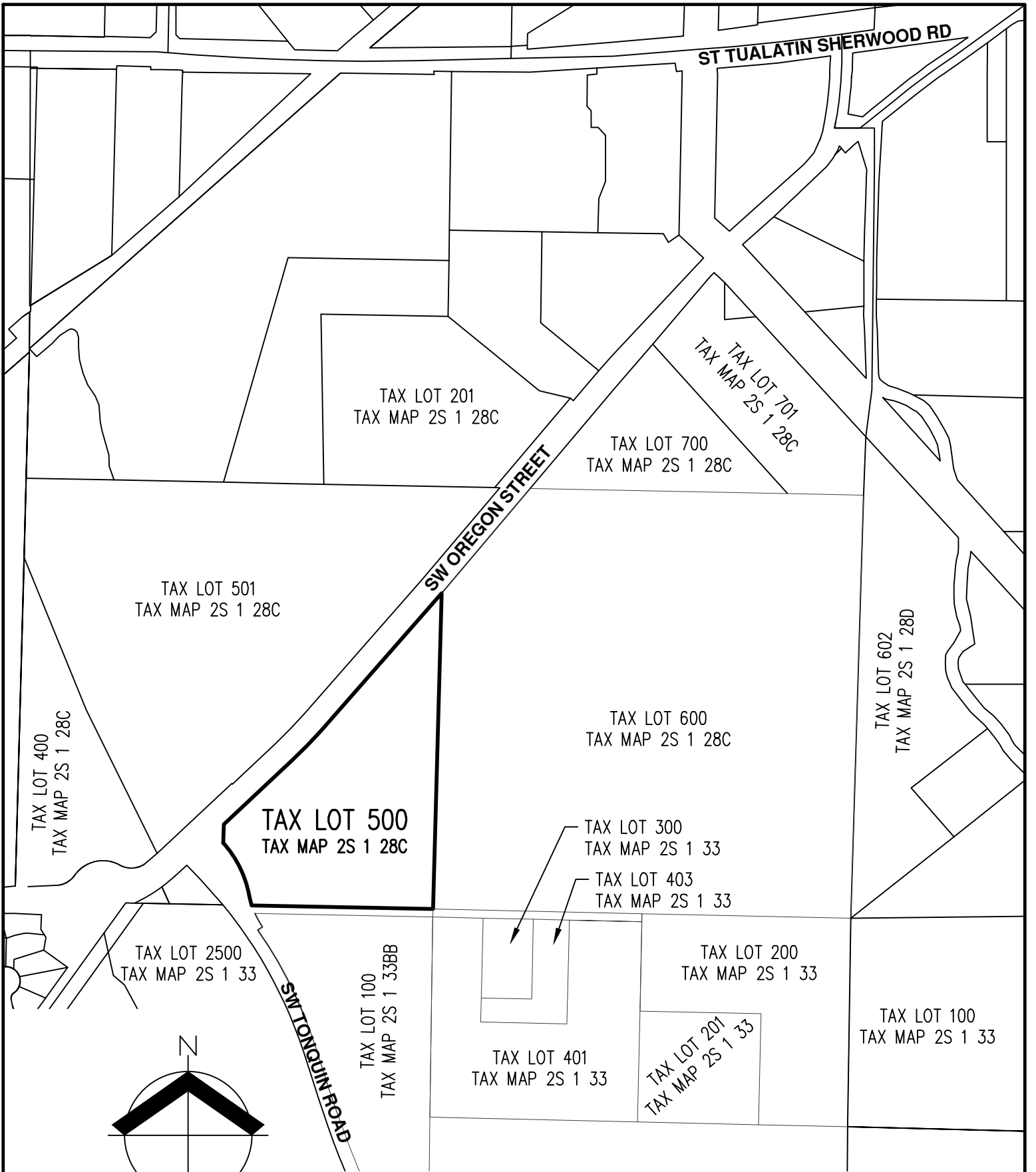
The stormwater facility is also designed to detain and reduce the flow rate and velocity of stormwater flows. This will reduce the quantity of stormwater runoff, and reduce the total sediment load before entering the downstream system.

7.3. Operations and Maintenance

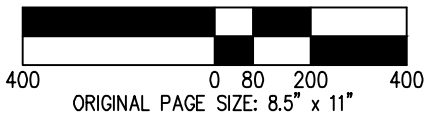
The owner is required to conduct annual inspections with recommended monthly inspections. Any discovered deficiencies must be corrected within 30 days of the inspection. The district maintains the right to conduct inspections with either 10 days written notice or as required by an emergency. Any deficiencies found during district inspections must be corrected within 30 days of the inspection. Any deficiencies not corrected within 30 days of inspection may be corrected by the district at the expense of the owner.

See Appendix G for a typical Clean Water Services Operations and Maintenance plan.

Exhibit A: Vicinity Map



SCALE: 1" = 400 FEET

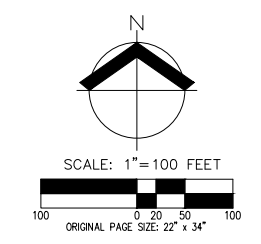
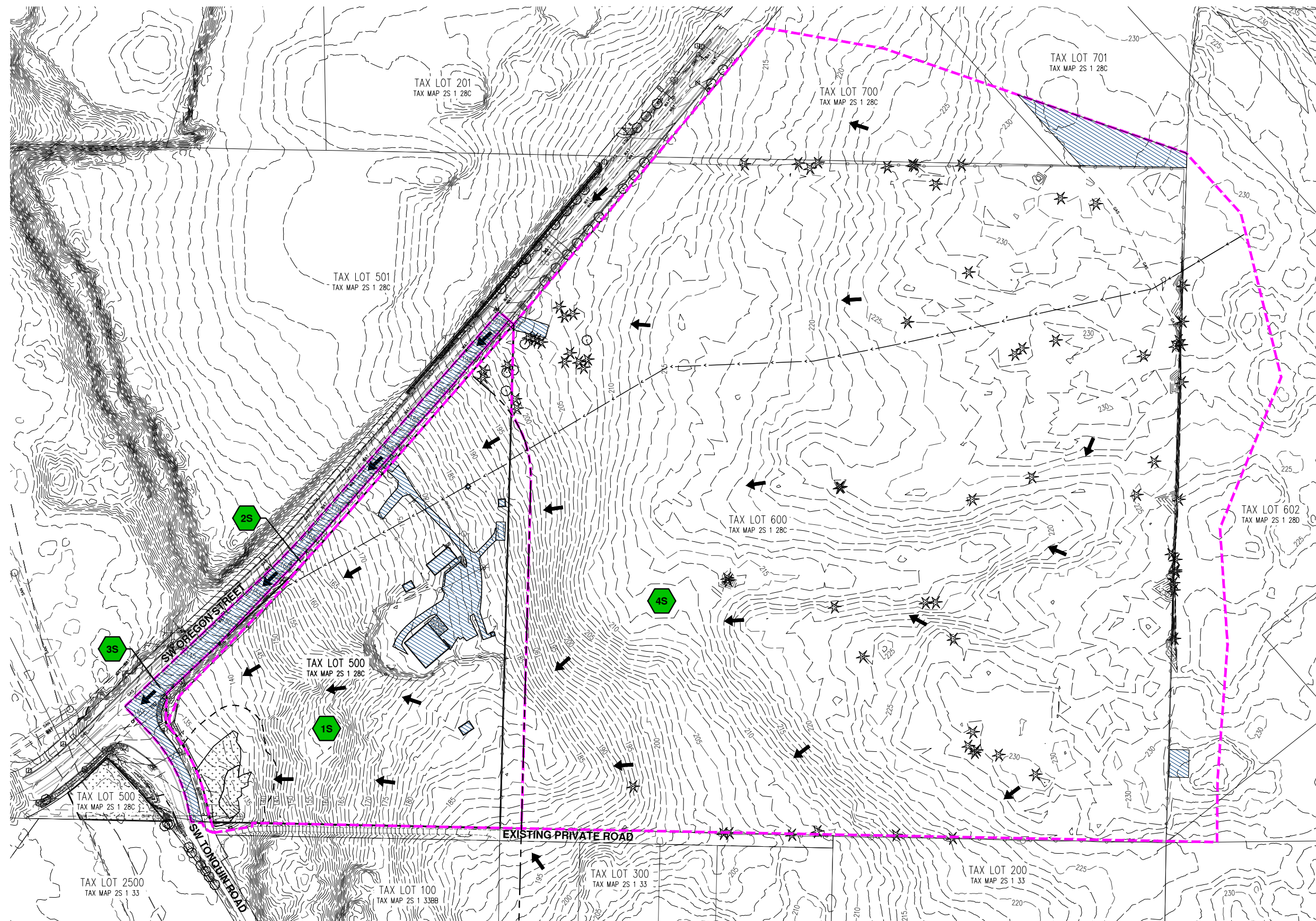


DATE: 05/12/2022

VICINITY MAP		EXHIBIT A
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM		DRWN: BDL CHKD: JDS AKS JOB: 7971



**Exhibit B:
Pre-Developed
Stormwater Catchment Map**



DATE: 05/12/2022

IMPERVIOUS SURFACE
 1S: ±9.57 AC
 2S: ±0.32 AC
 3S: ±0.94 AC
 4S: ±45.39 AC
 TOTAL AREA: ±56.22 AC
 TOTAL ON SITE PRE-DEVELOPMENT IMPERVIOUS = ±0.63 AC
 TOTAL OFF SITE PRE-DEVELOPMENT IMPERVIOUS = ±1.38 AC
 TOTAL PRE-DEVELOPMENT IMPERVIOUS = ±2.01 AC

OVERALL PRE-DEVELOPED STORMWATER CATCHMENT MAP

OREGON STREET BUSINESS PARK

AKS ENGINEERING & FORESTRY, LLC
 12965 SW HERMAN RD, STE 100
 TUALATIN, OR 97062
 503.563.6151 WWW.AKS-ENG.COM

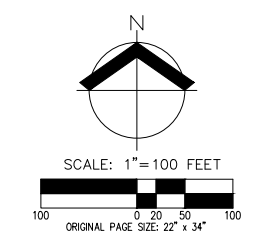
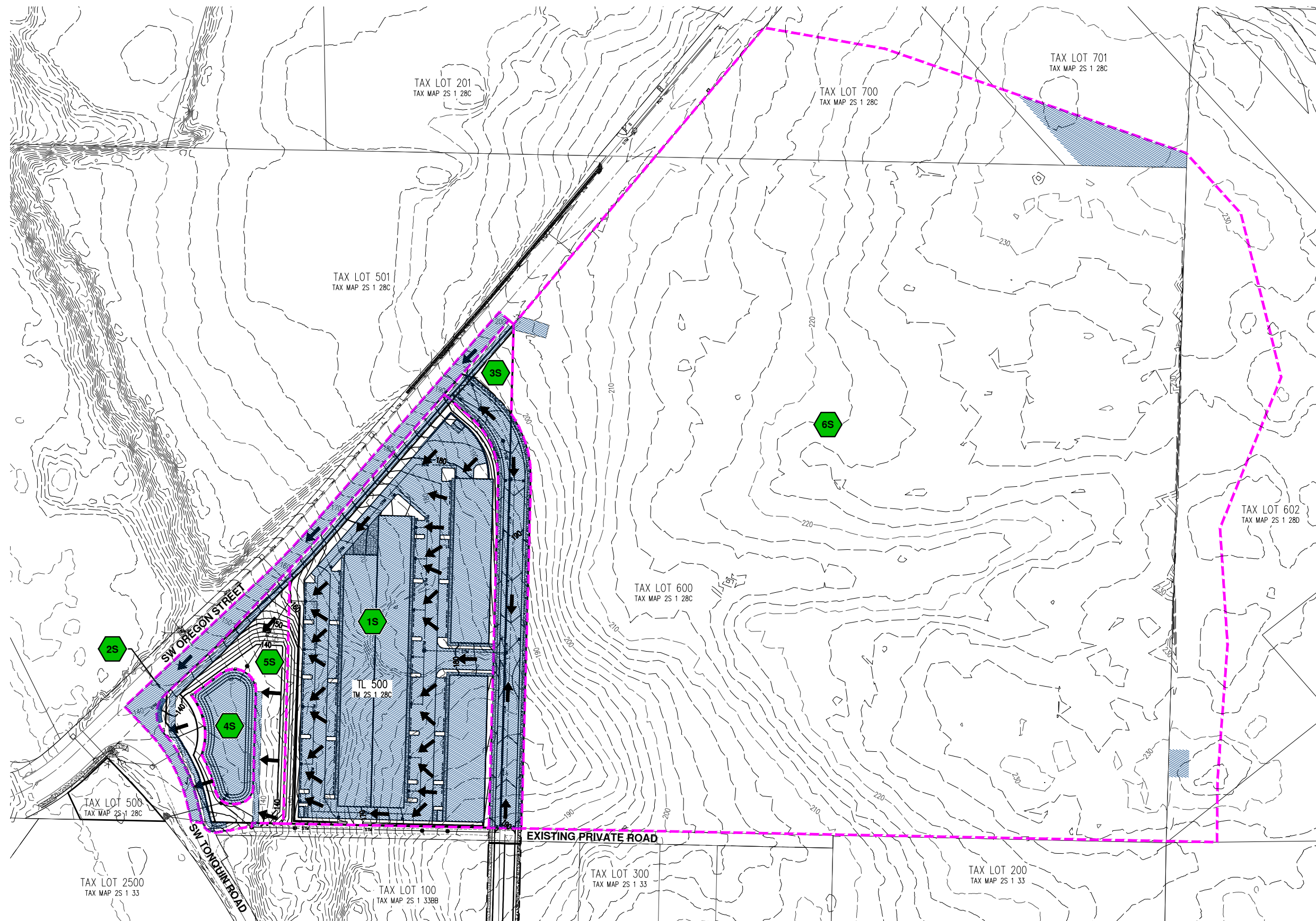


EXHIBIT

B

DRWN: BDL
 CHKD: JDS
 AKS JOB:
 7971

**Exhibit C:
Post-Developed
Stormwater Catchment Map**



DATE: 05/12/2022

IMPERVIOUS SURFACE
 1S: ±6.57 AC
 2S: ±0.83 AC
 3S: ±1.55 AC
 4S: ±0.55 AC
 5S: ±1.34 AC
 6S: 45.39 AC
 TOTAL AREA: ±56.22 AC
 TOTAL ON SITE POST-DEVELOPMENT IMPERVIOUS = ±7.64 AC
 TOTAL OFF SITE POST-DEVELOPMENT IMPERVIOUS = ±1.38 AC
 TOTAL POST-DEVELOPMENT IMPERVIOUS = ±9.02 AC

OVERALL POST-DEVELOPED STORMWATER CATCHMENT MAP

OREGON STREET BUSINESS PARK

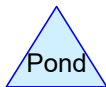
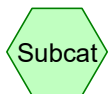
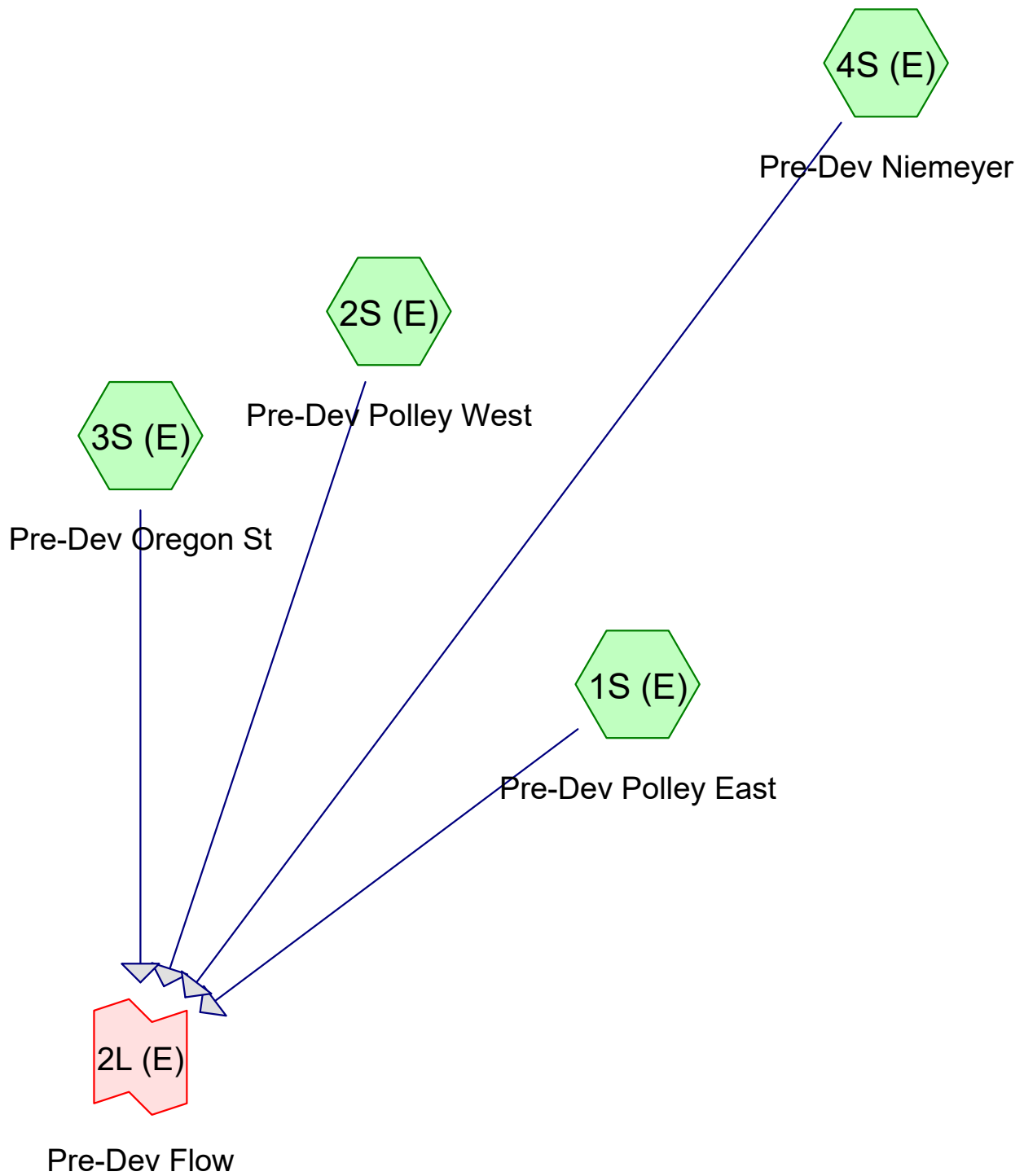
AKS ENGINEERING & FORESTRY, LLC
 12965 SW HERMAN RD, STE 100
 TUALATIN, OR 97062
 503.563.6151 WWW.AKS-ENG.COM



EXHIBIT
C
 DRWN: BDL
 CHKD: JDS
 AKS JOB:
 7971

Appendix A: Peak Flow Calculations – HydroCAD Analysis

Pre-Developed Node Diagram and Area Summary Table



Routing Diagram for 7971 PRE-DEV
 Prepared by AKS Engineering & Forestry, LLC, Printed 5/12/2022
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Pre-Developed 2-yr Storm Event Peak Flow Calculations

7971 PRE-DEV*Type IA 24-hr 2-YEAR Rainfall=2.50"*

Prepared by AKS Engineering & Forestry, LLC

Printed 5/12/2022

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Page 2

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S (E): Pre-Dev Polley East Runoff Area=9.540 ac 2.10% Impervious Runoff Depth>0.36"
Flow Length=1,075' Tc=15.2 min CN=66/98 Runoff=0.23 cfs 0.288 af

Subcatchment2S (E): Pre-Dev Polley West Runoff Area=0.320 ac 0.00% Impervious Runoff Depth>0.30"
Tc=5.0 min CN=65/0 Runoff=0.01 cfs 0.008 af

Subcatchment3S (E): Pre-Dev Oregon St Runoff Area=0.940 ac 90.43% Impervious Runoff Depth>2.13"
Tc=5.0 min CN=79/98 Runoff=0.50 cfs 0.167 af

Subcatchment4S (E): Pre-Dev Niemeyer Runoff Area=45.390 ac 1.06% Impervious Runoff Depth>0.99"
Flow Length=1,550' Tc=39.4 min CN=82/98 Runoff=5.73 cfs 3.736 af

Link 2L (E): Pre-Dev Flow

Inflow=6.17 cfs 4.198 af
Primary=6.17 cfs 4.198 af

Total Runoff Area = 56.190 ac Runoff Volume = 4.198 af Average Runoff Depth = 0.90"
97.28% Pervious = 54.660 ac 2.72% Impervious = 1.530 ac

Summary for Subcatchment 1S (E): Pre-Dev Polley East

Runoff = 0.23 cfs @ 17.07 hrs, Volume= 0.288 af, Depth> 0.36"

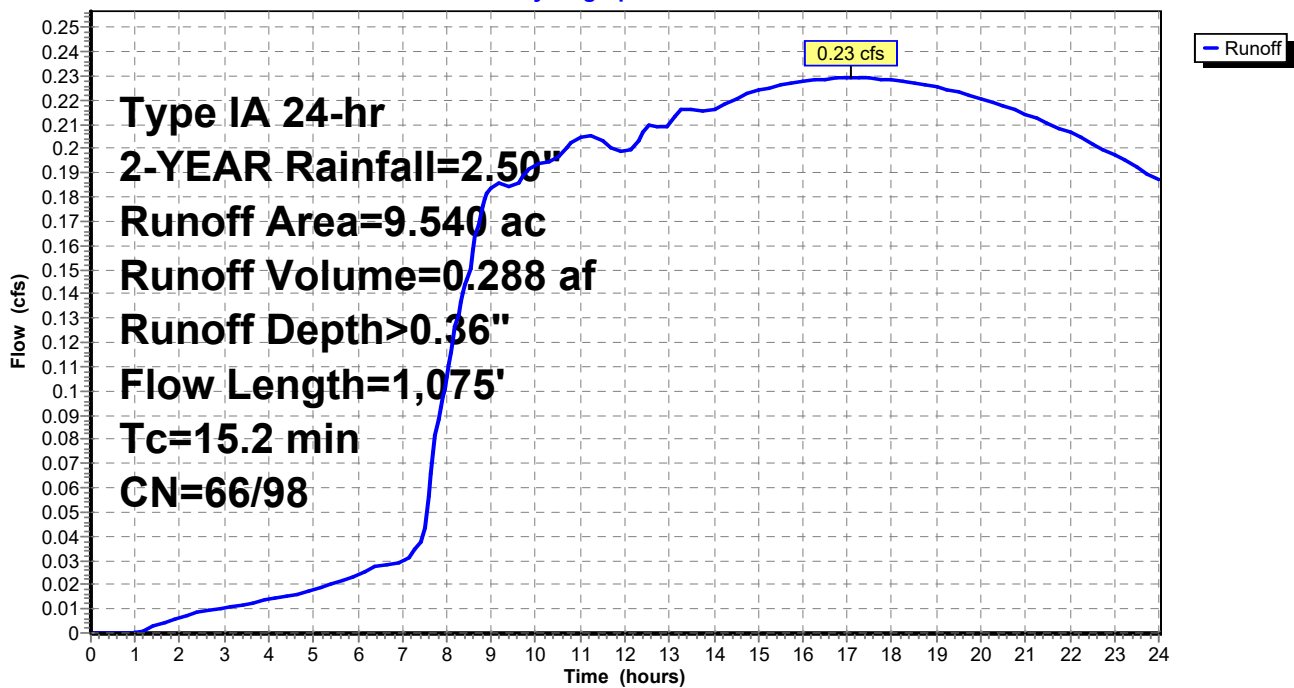
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-YEAR Rainfall=2.50"

Area (ac)	CN	Description
8.920	65	Woods/grass comb., Fair, HSG B
0.200	98	Paved parking, HSG B
0.420	96	Gravel surface, HSG B
9.540	67	Weighted Average
9.340	66	97.90% Pervious Area
0.200	98	2.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1000	0.29		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
5.6	750	0.1000	2.21		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
3.8	225	0.0200	0.99		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
15.2	1,075	Total			

Subcatchment 1S (E): Pre-Dev Polley East

Hydrograph



Summary for Subcatchment 2S (E): Pre-Dev Polley West

Runoff = 0.01 cfs @ 17.60 hrs, Volume= 0.008 af, Depth> 0.30"

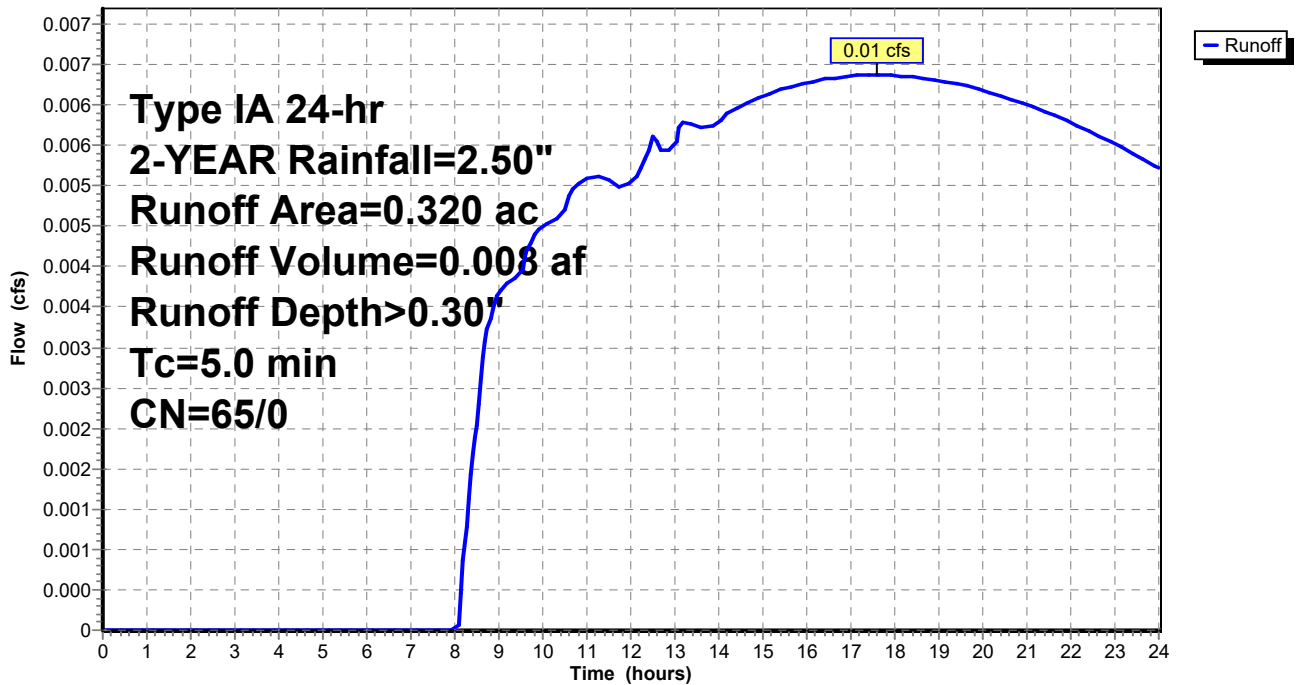
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 2-YEAR Rainfall=2.50"

Area (ac)	CN	Description
* 0.320	65	Woods/grass comb., Fair, HSG B
0.320	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S (E): Pre-Dev Polley West

Hydrograph



Summary for Subcatchment 3S (E): Pre-Dev Oregon St

Runoff = 0.50 cfs @ 7.91 hrs, Volume= 0.167 af, Depth> 2.13"

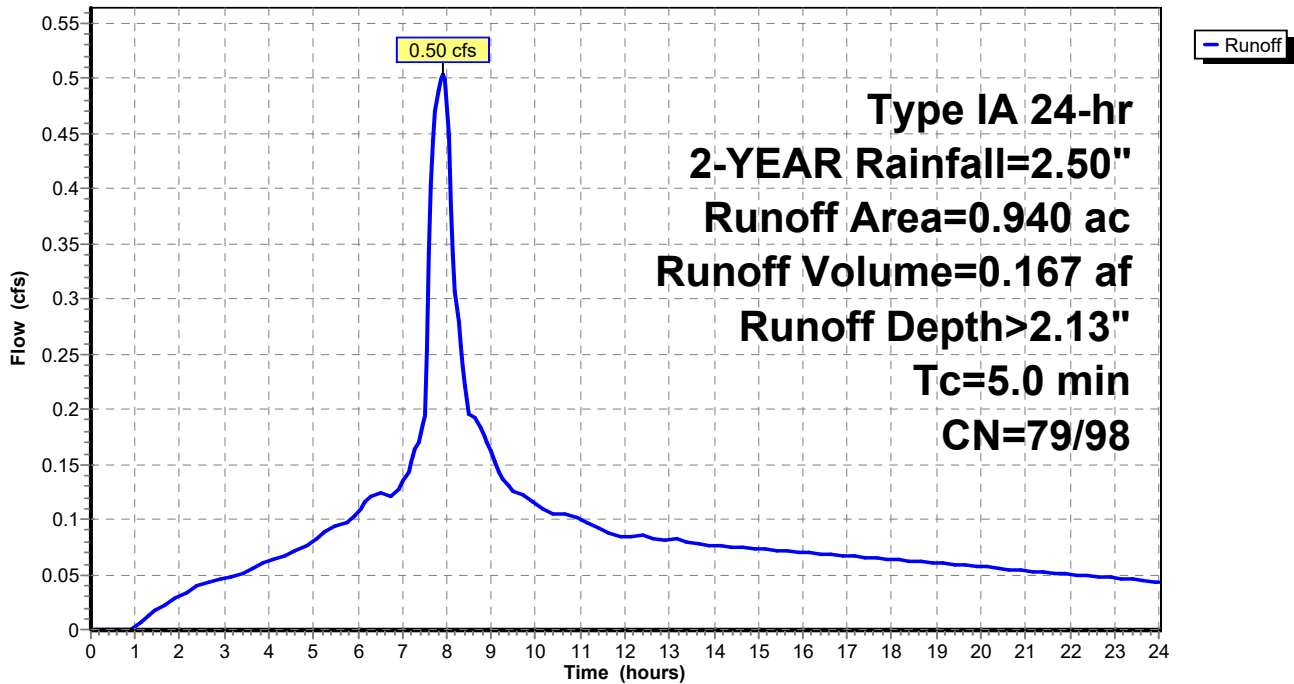
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 2-YEAR Rainfall=2.50"

Area (ac)	CN	Description
* 0.850	98	Paved Street, HSG B
0.090	79	<50% Grass cover, Poor, HSG B
0.940	96	Weighted Average
0.090	79	9.57% Pervious Area
0.850	98	90.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S (E): Pre-Dev Oregon St

Hydrograph



Summary for Subcatchment 4S (E): Pre-Dev Niemeyer

Runoff = 5.73 cfs @ 8.21 hrs, Volume= 3.736 af, Depth> 0.99"

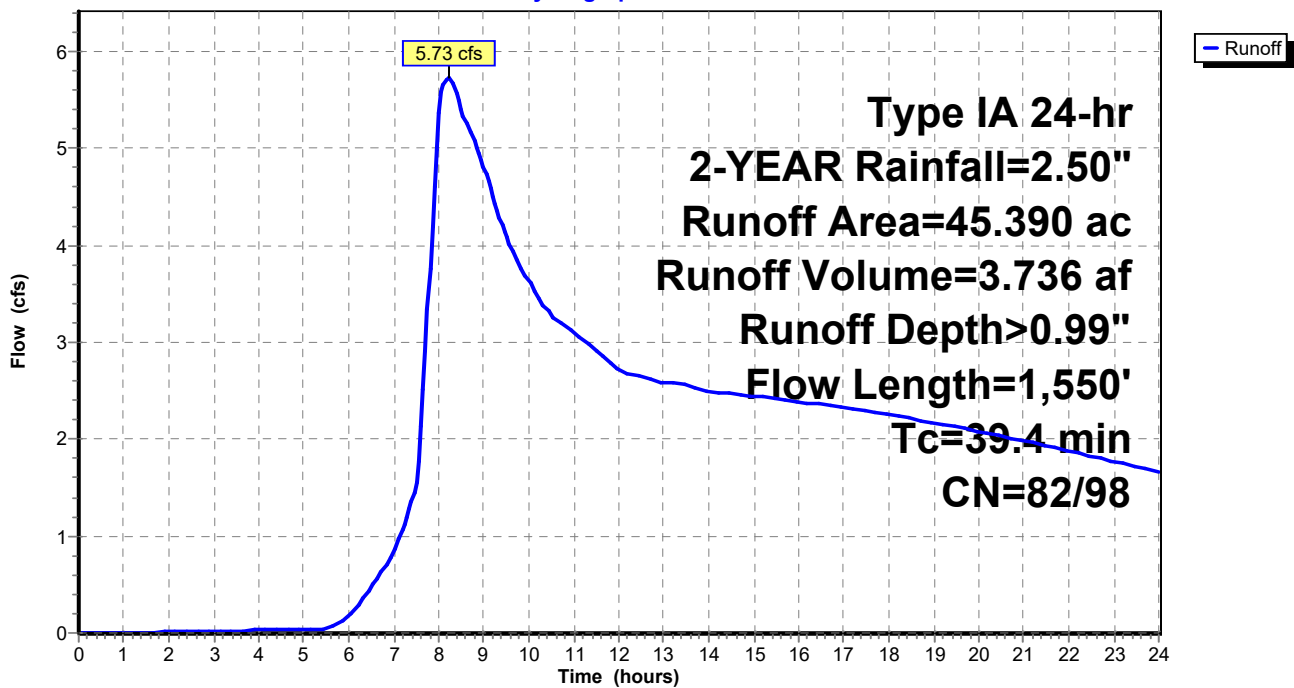
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-YEAR Rainfall=2.50"

Area (ac)	CN	Description
32.480	79	<50% Grass cover, Poor, HSG B
0.480	98	Paved parking, HSG D
12.430	89	<50% Grass cover, Poor, HSG D
45.390	82	Weighted Average
44.910	82	98.94% Pervious Area
0.480	98	1.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
21.4	1,100	0.0150	0.86		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
3.4	350	0.0600	1.71		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
39.4	1,550	Total			

Subcatchment 4S (E): Pre-Dev Niemeyer

Hydrograph



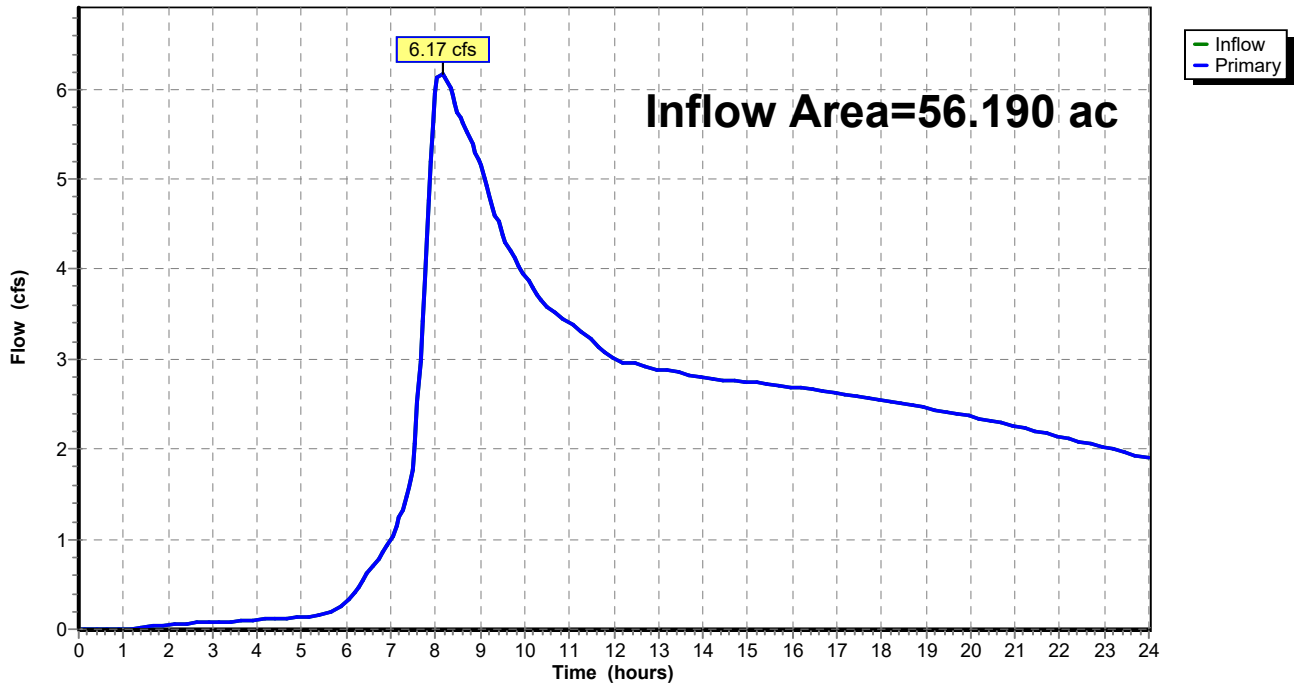
Summary for Link 2L (E): Pre-Dev Flow

Inflow Area = 56.190 ac, 2.72% Impervious, Inflow Depth > 0.90" for 2-YEAR event
Inflow = 6.17 cfs @ 8.15 hrs, Volume= 4.198 af
Primary = 6.17 cfs @ 8.15 hrs, Volume= 4.198 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L (E): Pre-Dev Flow

Hydrograph





Pre-Developed 5-yr Storm Event Peak Flow Calculations

7971 PRE-DEV*Type IA 24-hr 5-YEAR Rainfall=3.10"*

Prepared by AKS Engineering & Forestry, LLC

Printed 5/12/2022

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Page 8

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S (E): Pre-Dev Polley East Runoff Area=9.540 ac 2.10% Impervious Runoff Depth>0.63"
Flow Length=1,075' Tc=15.2 min CN=66/98 Runoff=0.51 cfs 0.504 af

Subcatchment2S (E): Pre-Dev Polley West Runoff Area=0.320 ac 0.00% Impervious Runoff Depth>0.55"
Tc=5.0 min CN=65/0 Runoff=0.01 cfs 0.015 af

Subcatchment3S (E): Pre-Dev Oregon St Runoff Area=0.940 ac 90.43% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=79/98 Runoff=0.64 cfs 0.212 af

Subcatchment4S (E): Pre-Dev Niemeyer Runoff Area=45.390 ac 1.06% Impervious Runoff Depth>1.44"
Flow Length=1,550' Tc=39.4 min CN=82/98 Runoff=9.20 cfs 5.451 af

Link 2L (E): Pre-Dev Flow

Inflow=10.16 cfs 6.181 af
Primary=10.16 cfs 6.181 af

Total Runoff Area = 56.190 ac Runoff Volume = 6.181 af Average Runoff Depth = 1.32"
97.28% Pervious = 54.660 ac 2.72% Impervious = 1.530 ac

Summary for Subcatchment 1S (E): Pre-Dev Polley East

Runoff = 0.51 cfs @ 8.21 hrs, Volume= 0.504 af, Depth> 0.63"

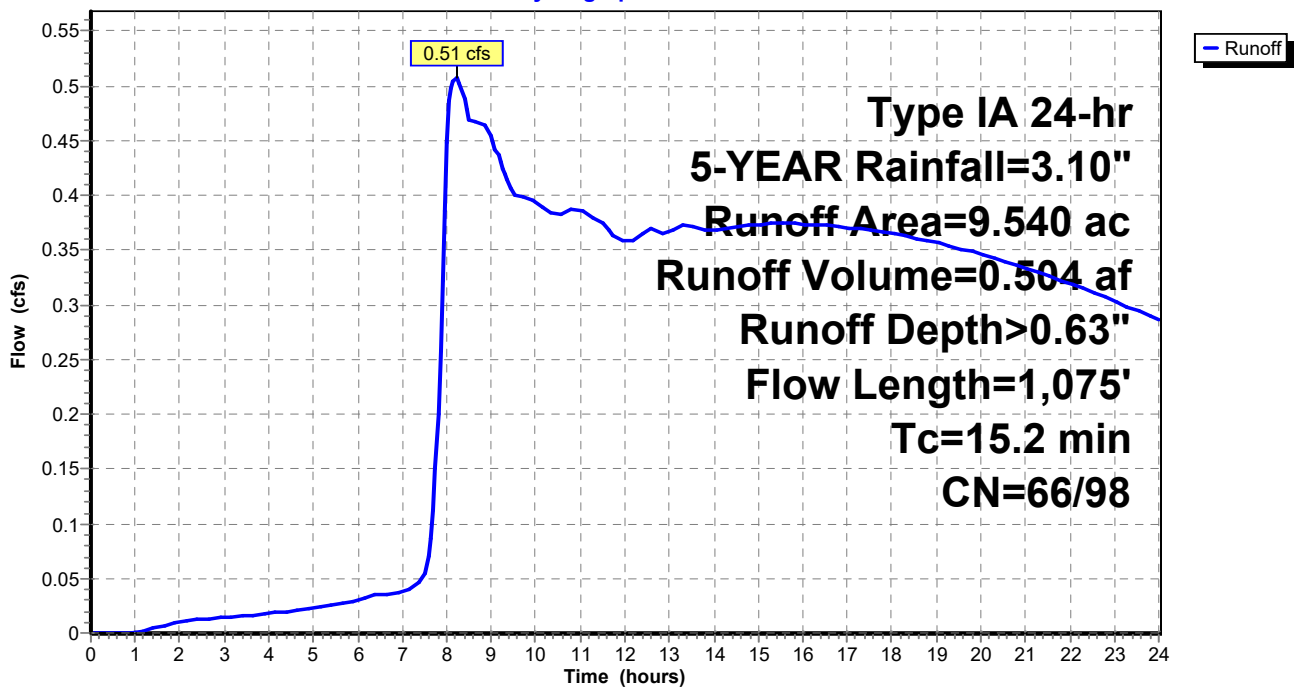
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5-YEAR Rainfall=3.10"

Area (ac)	CN	Description
8.920	65	Woods/grass comb., Fair, HSG B
0.200	98	Paved parking, HSG B
0.420	96	Gravel surface, HSG B
9.540	67	Weighted Average
9.340	66	97.90% Pervious Area
0.200	98	2.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1000	0.29		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
5.6	750	0.1000	2.21		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
3.8	225	0.0200	0.99		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
15.2	1,075	Total			

Subcatchment 1S (E): Pre-Dev Polley East

Hydrograph



Summary for Subcatchment 2S (E): Pre-Dev Polley West

Runoff = 0.01 cfs @ 8.06 hrs, Volume= 0.015 af, Depth> 0.55"

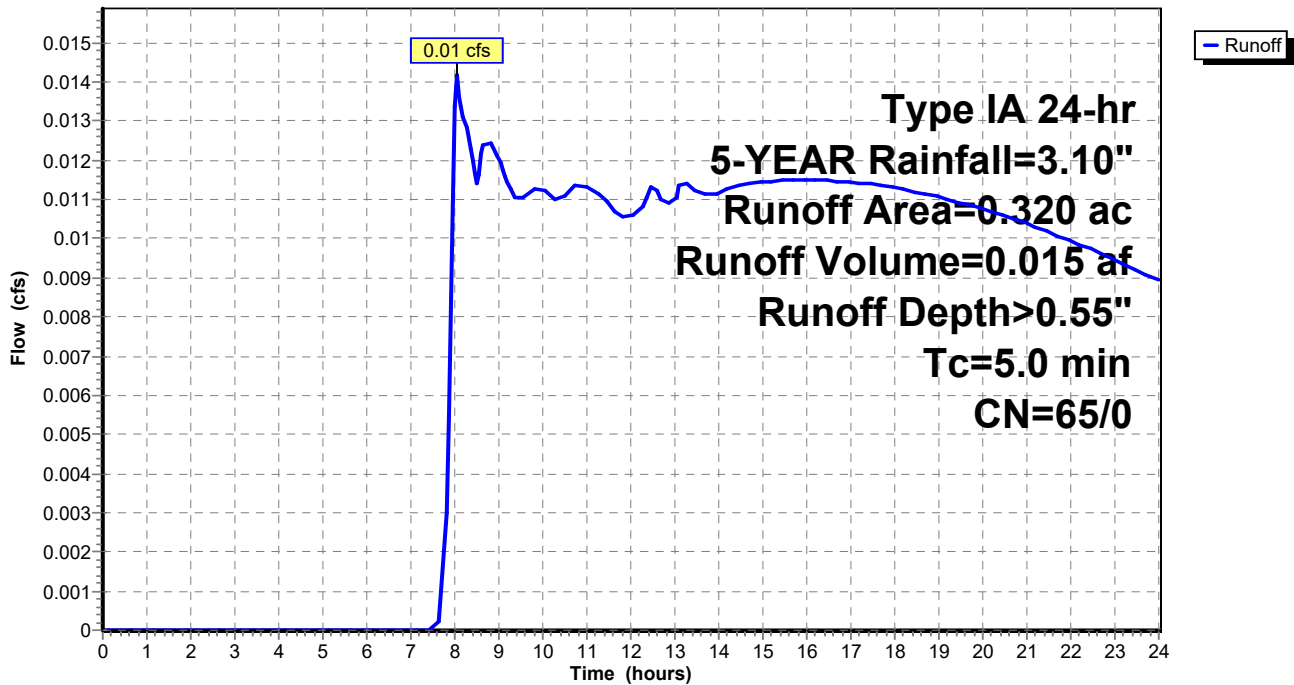
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 5-YEAR Rainfall=3.10"

Area (ac)	CN	Description
* 0.320	65	Woods/grass comb., Fair, HSG B
0.320	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S (E): Pre-Dev Polley West

Hydrograph



Summary for Subcatchment 3S (E): Pre-Dev Oregon St

Runoff = 0.64 cfs @ 7.90 hrs, Volume= 0.212 af, Depth> 2.71"

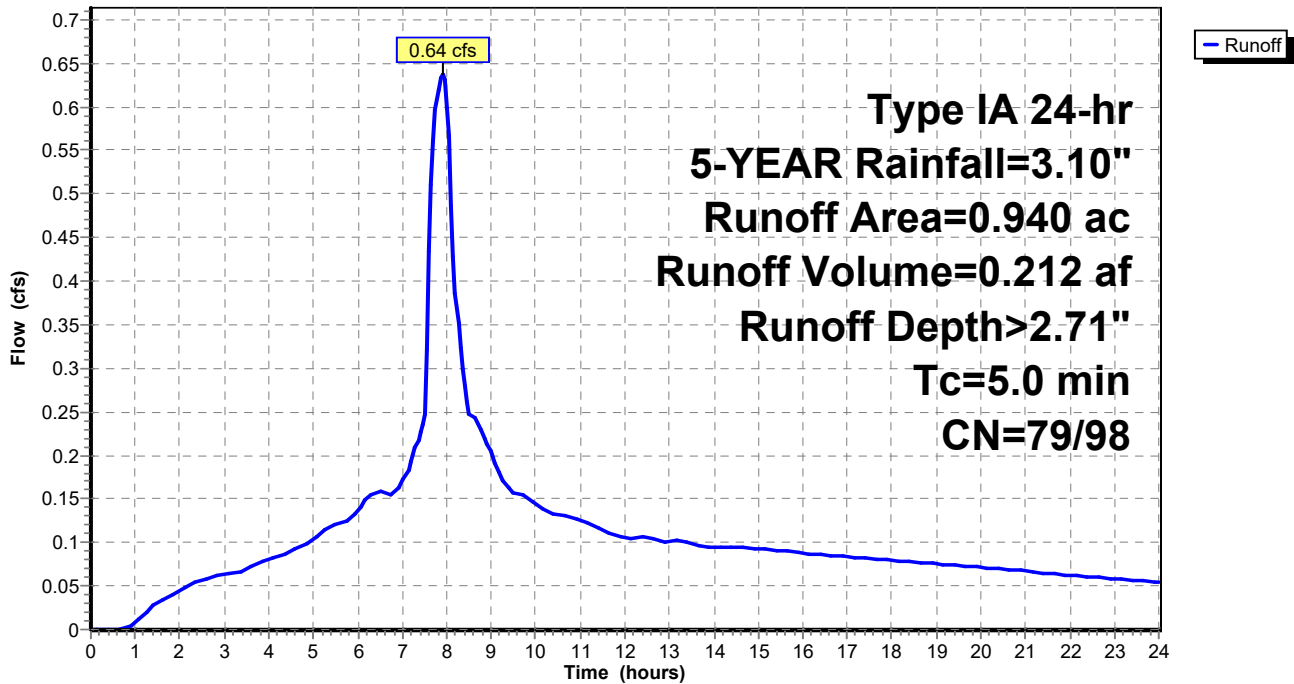
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 5-YEAR Rainfall=3.10"

Area (ac)	CN	Description
* 0.850	98	Paved Street, HSG B
0.090	79	<50% Grass cover, Poor, HSG B
0.940	96	Weighted Average
0.090	79	9.57% Pervious Area
0.850	98	90.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S (E): Pre-Dev Oregon St

Hydrograph



Summary for Subcatchment 4S (E): Pre-Dev Niemeyer

Runoff = 9.20 cfs @ 8.16 hrs, Volume= 5.451 af, Depth> 1.44"

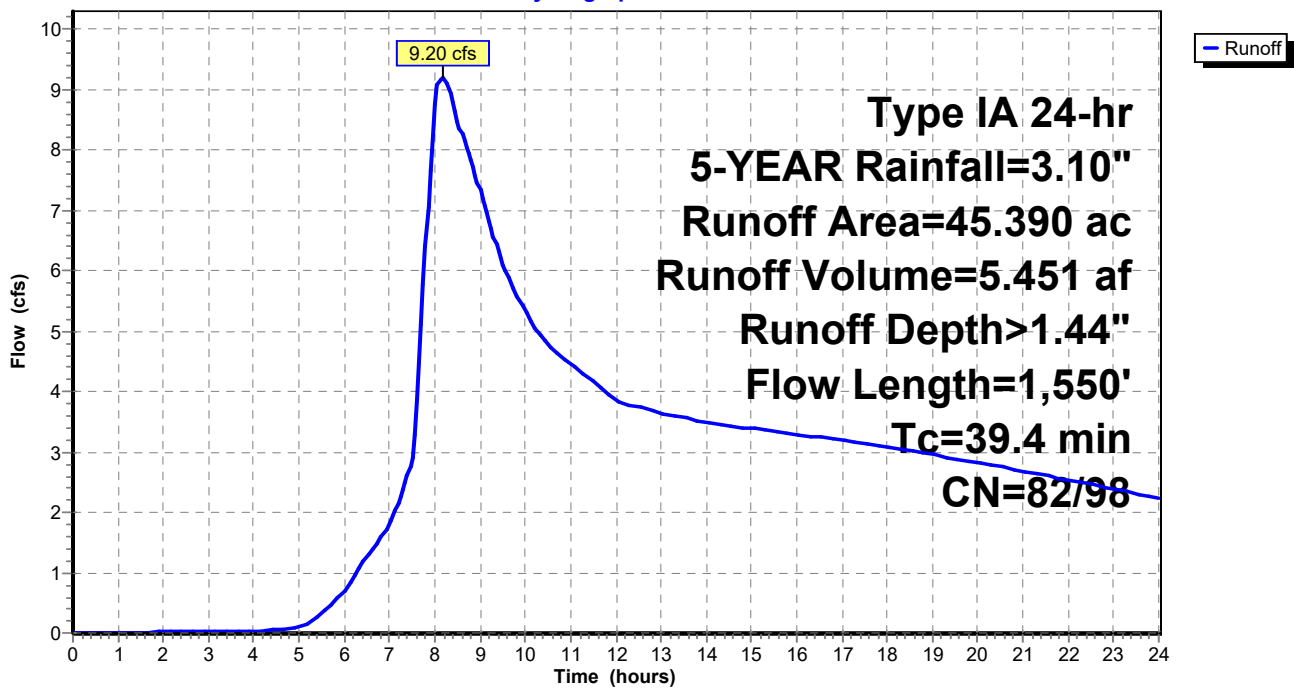
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5-YEAR Rainfall=3.10"

Area (ac)	CN	Description
32.480	79	<50% Grass cover, Poor, HSG B
0.480	98	Paved parking, HSG D
12.430	89	<50% Grass cover, Poor, HSG D
45.390	82	Weighted Average
44.910	82	98.94% Pervious Area
0.480	98	1.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
21.4	1,100	0.0150	0.86		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
3.4	350	0.0600	1.71		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
39.4	1,550	Total			

Subcatchment 4S (E): Pre-Dev Niemeyer

Hydrograph



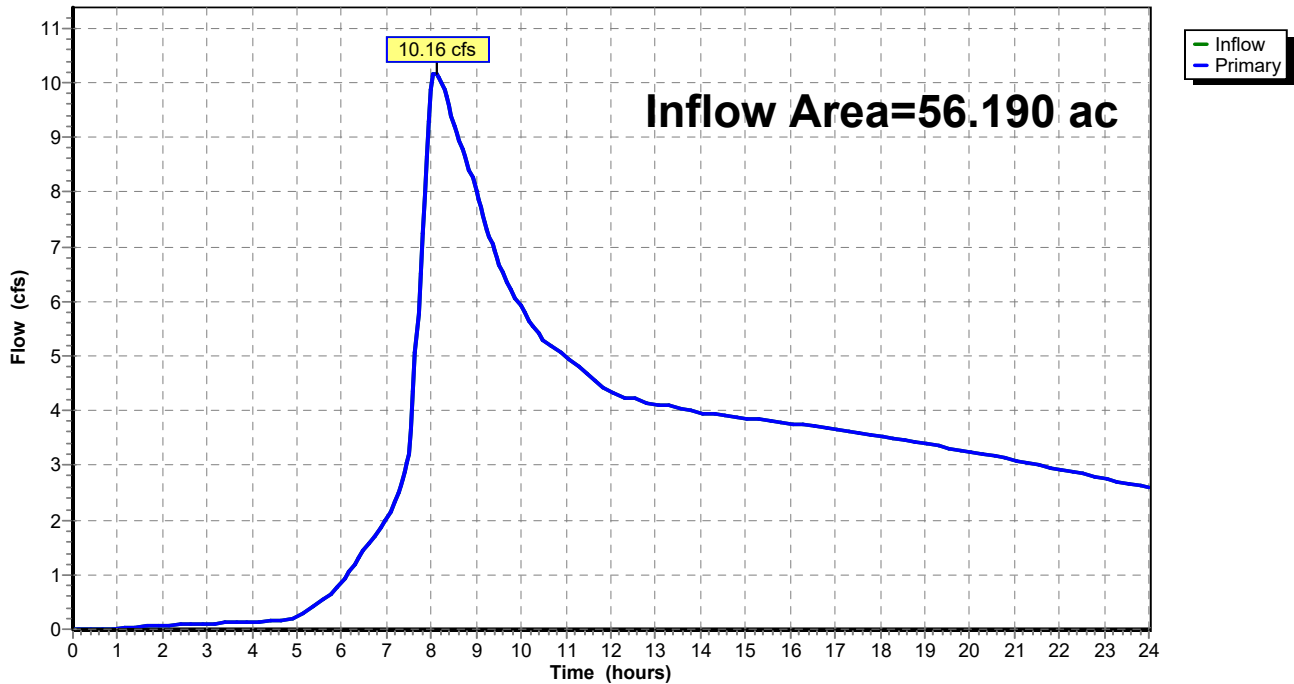
Summary for Link 2L (E): Pre-Dev Flow

Inflow Area = 56.190 ac, 2.72% Impervious, Inflow Depth > 1.32" for 5-YEAR event
Inflow = 10.16 cfs @ 8.10 hrs, Volume= 6.181 af
Primary = 10.16 cfs @ 8.10 hrs, Volume= 6.181 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L (E): Pre-Dev Flow

Hydrograph





Pre-Developed 10-yr Storm Event Peak Flow Calculations

7971 PRE-DEV*Type IA 24-hr 10-YEAR Rainfall=3.45"*

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S (E): Pre-Dev Polley East Runoff Area=9.540 ac 2.10% Impervious Runoff Depth>0.82"
Flow Length=1,075' Tc=15.2 min CN=66/98 Runoff=0.83 cfs 0.648 af

Subcatchment2S (E): Pre-Dev Polley West Runoff Area=0.320 ac 0.00% Impervious Runoff Depth>0.72"
Tc=5.0 min CN=65/0 Runoff=0.03 cfs 0.019 af

Subcatchment3S (E): Pre-Dev Oregon St Runoff Area=0.940 ac 90.43% Impervious Runoff Depth>3.05"
Tc=5.0 min CN=79/98 Runoff=0.72 cfs 0.239 af

Subcatchment4S (E): Pre-Dev Niemeyer Runoff Area=45.390 ac 1.06% Impervious Runoff Depth>1.72"
Flow Length=1,550' Tc=39.4 min CN=82/98 Runoff=11.38 cfs 6.507 af

Link 2L (E): Pre-Dev Flow

Inflow=12.81 cfs 7.413 af
Primary=12.81 cfs 7.413 af

Total Runoff Area = 56.190 ac Runoff Volume = 7.413 af Average Runoff Depth = 1.58"
97.28% Pervious = 54.660 ac 2.72% Impervious = 1.530 ac

Summary for Subcatchment 1S (E): Pre-Dev Polley East

Runoff = 0.83 cfs @ 8.08 hrs, Volume= 0.648 af, Depth> 0.82"

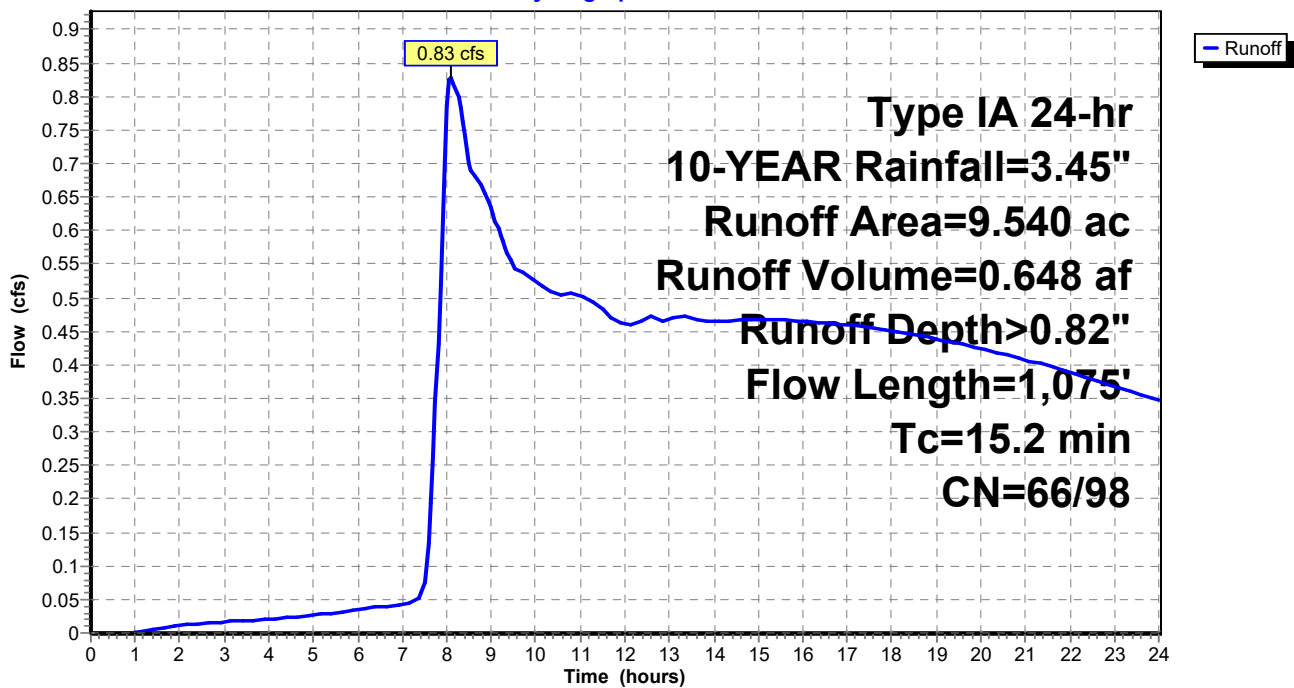
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-YEAR Rainfall=3.45"

Area (ac)	CN	Description
8.920	65	Woods/grass comb., Fair, HSG B
0.200	98	Paved parking, HSG B
0.420	96	Gravel surface, HSG B
9.540	67	Weighted Average
9.340	66	97.90% Pervious Area
0.200	98	2.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1000	0.29		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
5.6	750	0.1000	2.21		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
3.8	225	0.0200	0.99		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
15.2	1,075	Total			

Subcatchment 1S (E): Pre-Dev Polley East

Hydrograph



Summary for Subcatchment 2S (E): Pre-Dev Polley West

Runoff = 0.03 cfs @ 8.02 hrs, Volume= 0.019 af, Depth> 0.72"

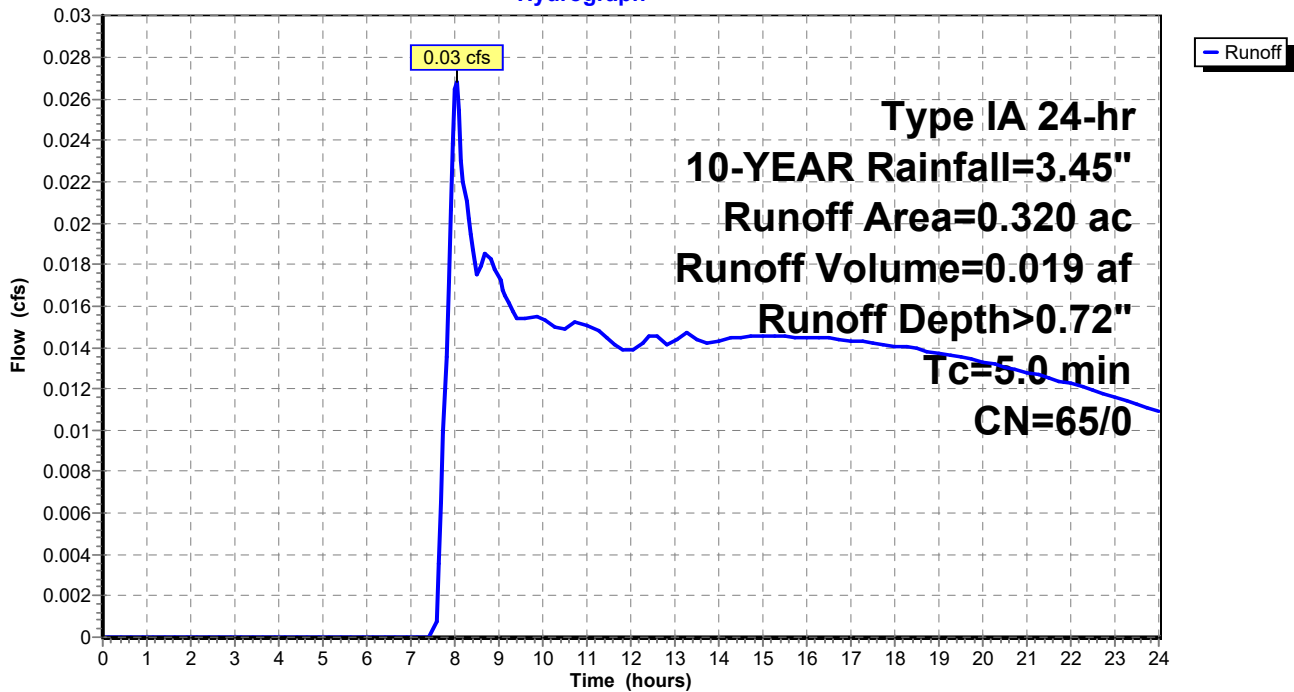
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 10-YEAR Rainfall=3.45"

Area (ac)	CN	Description
* 0.320	65	Woods/grass comb., Fair, HSG B
0.320	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S (E): Pre-Dev Polley West

Hydrograph



Summary for Subcatchment 3S (E): Pre-Dev Oregon St

Runoff = 0.72 cfs @ 7.90 hrs, Volume= 0.239 af, Depth> 3.05"

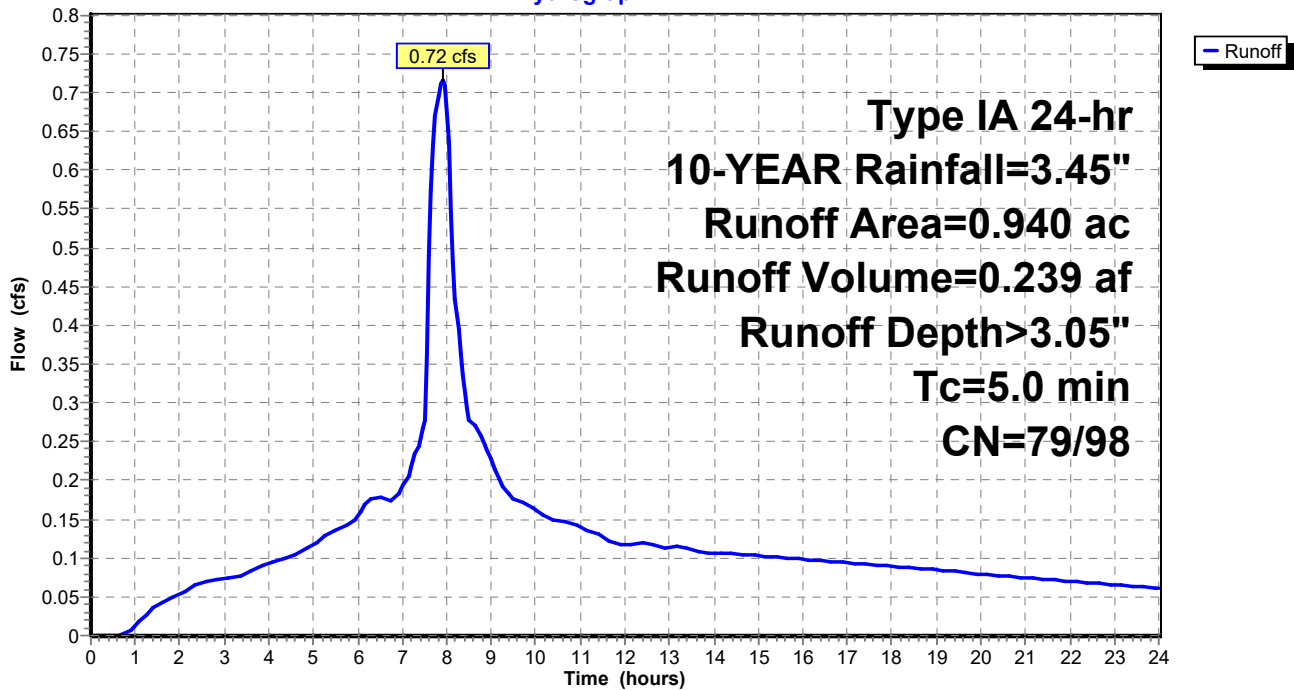
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 10-YEAR Rainfall=3.45"

Area (ac)	CN	Description
* 0.850	98	Paved Street, HSG B
0.090	79	<50% Grass cover, Poor, HSG B
0.940	96	Weighted Average
0.090	79	9.57% Pervious Area
0.850	98	90.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S (E): Pre-Dev Oregon St

Hydrograph



Summary for Subcatchment 4S (E): Pre-Dev Niemeyer

Runoff = 11.38 cfs @ 8.14 hrs, Volume= 6.507 af, Depth> 1.72"

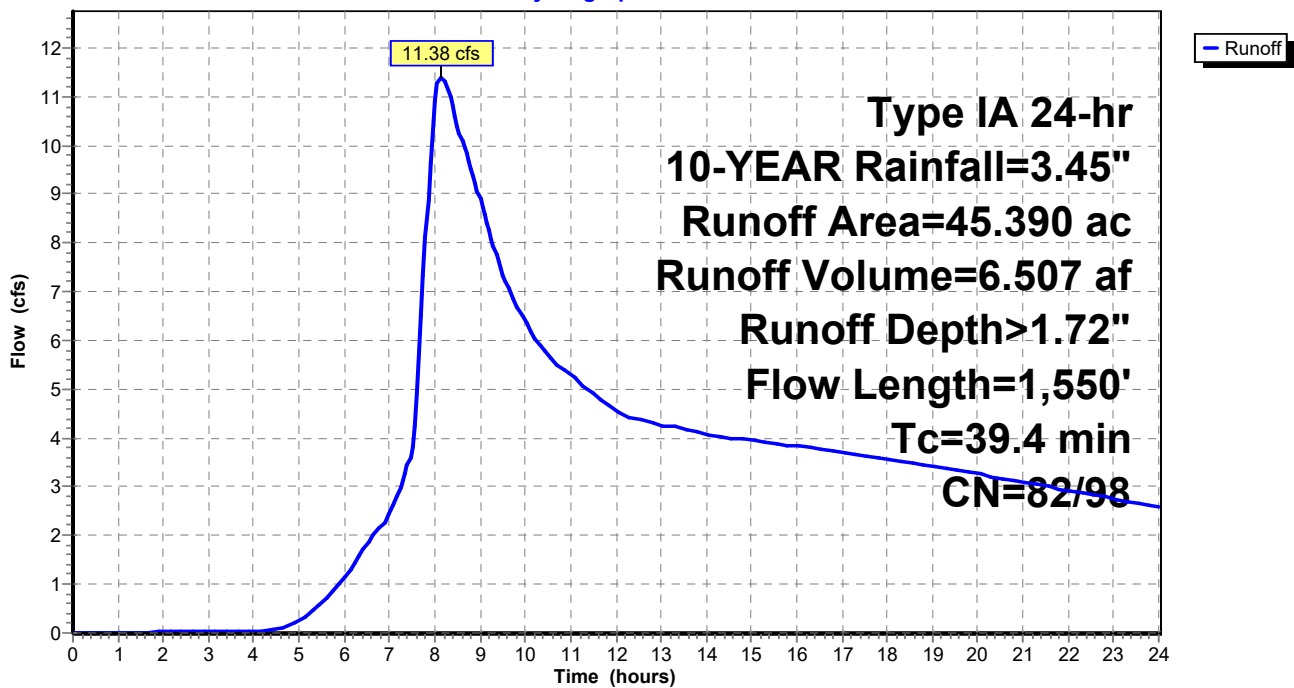
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-YEAR Rainfall=3.45"

Area (ac)	CN	Description
32.480	79	<50% Grass cover, Poor, HSG B
0.480	98	Paved parking, HSG D
12.430	89	<50% Grass cover, Poor, HSG D
45.390	82	Weighted Average
44.910	82	98.94% Pervious Area
0.480	98	1.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
21.4	1,100	0.0150	0.86		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
3.4	350	0.0600	1.71		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
39.4	1,550	Total			

Subcatchment 4S (E): Pre-Dev Niemeyer

Hydrograph



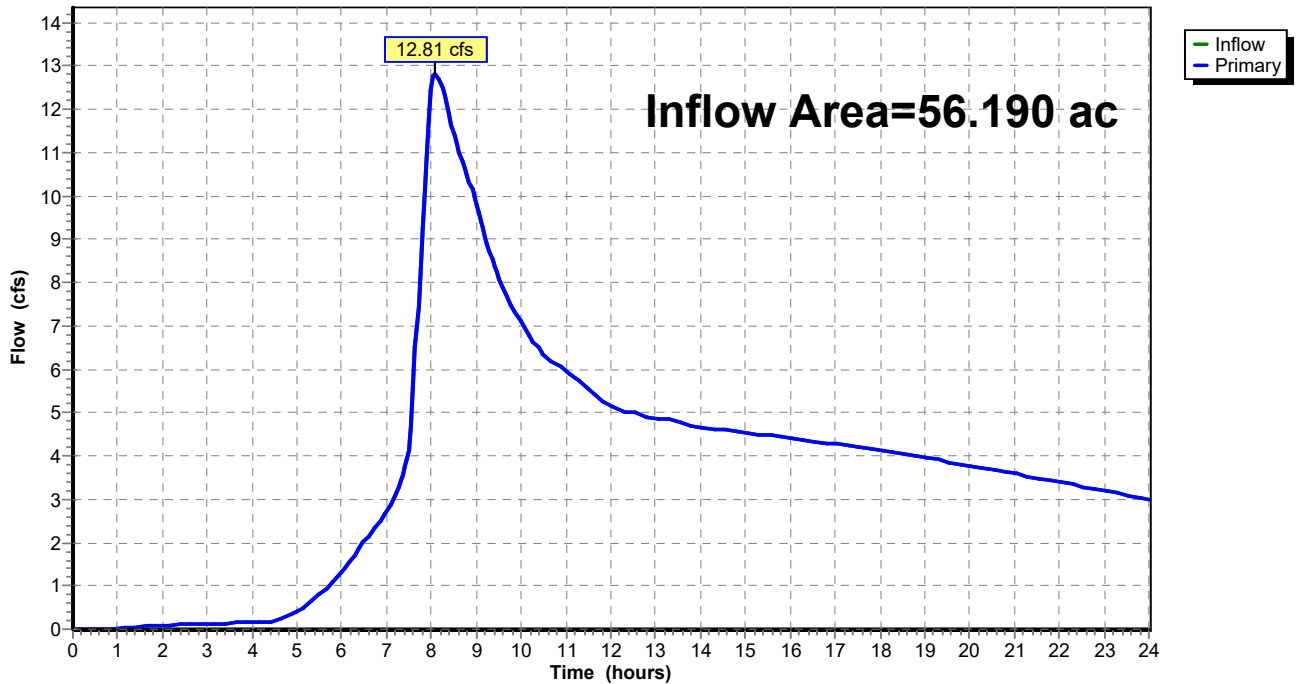
Summary for Link 2L (E): Pre-Dev Flow

Inflow Area = 56.190 ac, 2.72% Impervious, Inflow Depth > 1.58" for 10-YEAR event
Inflow = 12.81 cfs @ 8.07 hrs, Volume= 7.413 af
Primary = 12.81 cfs @ 8.07 hrs, Volume= 7.413 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L (E): Pre-Dev Flow

Hydrograph



7971 PRE-DEV*Type IA 24-hr 25-YEAR Rainfall=3.90"*

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SBUH method, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S (E): Pre-Dev Polley East Runoff Area=9.540 ac 2.10% Impervious Runoff Depth>1.07"
Flow Length=1,075' Tc=15.2 min CN=66/98 Runoff=1.34 cfs 0.851 af

Subcatchment2S (E): Pre-Dev Polley West Runoff Area=0.320 ac 0.00% Impervious Runoff Depth>0.97"
Tc=5.0 min CN=65/0 Runoff=0.05 cfs 0.026 af

Subcatchment3S (E): Pre-Dev Oregon St Runoff Area=0.940 ac 90.43% Impervious Runoff Depth>3.49"
Tc=5.0 min CN=79/98 Runoff=0.82 cfs 0.273 af

Subcatchment4S (E): Pre-Dev Niemeyer Runoff Area=45.390 ac 1.06% Impervious Runoff Depth>2.09"
Flow Length=1,550' Tc=39.4 min CN=82/98 Runoff=14.32 cfs 7.910 af

Link 2L (E): Pre-Dev Flow

Inflow=16.37 cfs 9.060 af
Primary=16.37 cfs 9.060 af

Total Runoff Area = 56.190 ac Runoff Volume = 9.060 af Average Runoff Depth = 1.93"
97.28% Pervious = 54.660 ac 2.72% Impervious = 1.530 ac

Summary for Subcatchment 1S (E): Pre-Dev Polley East

Runoff = 1.34 cfs @ 8.06 hrs, Volume= 0.851 af, Depth> 1.07"

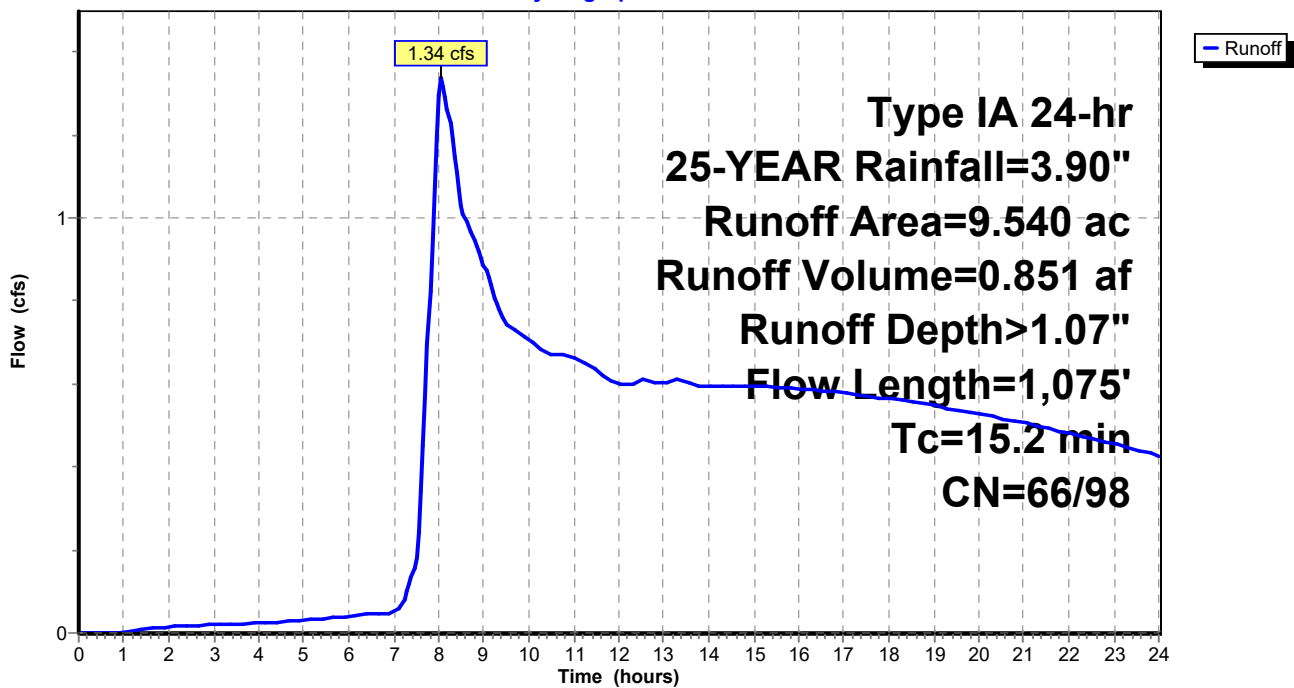
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-YEAR Rainfall=3.90"

Area (ac)	CN	Description
8.920	65	Woods/grass comb., Fair, HSG B
0.200	98	Paved parking, HSG B
0.420	96	Gravel surface, HSG B
9.540	67	Weighted Average
9.340	66	97.90% Pervious Area
0.200	98	2.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.1000	0.29		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
5.6	750	0.1000	2.21		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
3.8	225	0.0200	0.99		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
15.2	1,075	Total			

Subcatchment 1S (E): Pre-Dev Polley East

Hydrograph



Summary for Subcatchment 2S (E): Pre-Dev Polley West

Runoff = 0.05 cfs @ 8.01 hrs, Volume= 0.026 af, Depth> 0.97"

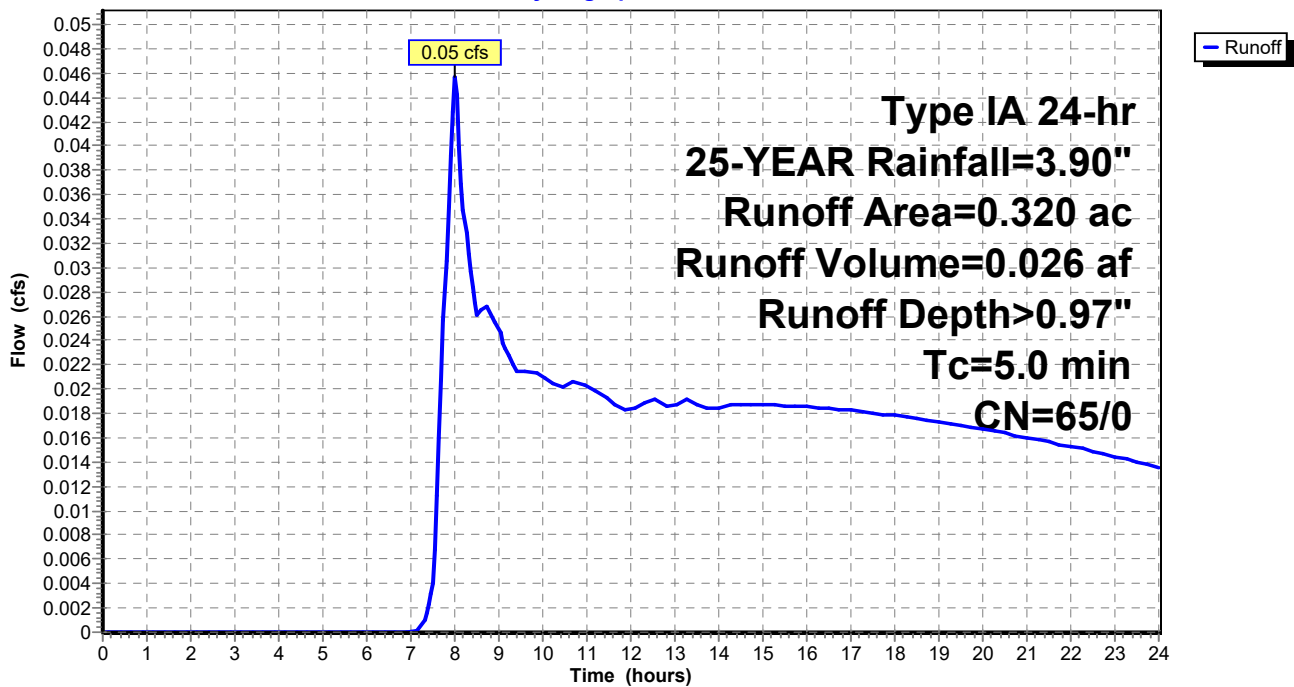
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 25-YEAR Rainfall=3.90"

Area (ac)	CN	Description
* 0.320	65	Woods/grass comb., Fair, HSG B
0.320	65	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S (E): Pre-Dev Polley West

Hydrograph



Summary for Subcatchment 3S (E): Pre-Dev Oregon St

Runoff = 0.82 cfs @ 7.90 hrs, Volume= 0.273 af, Depth> 3.49"

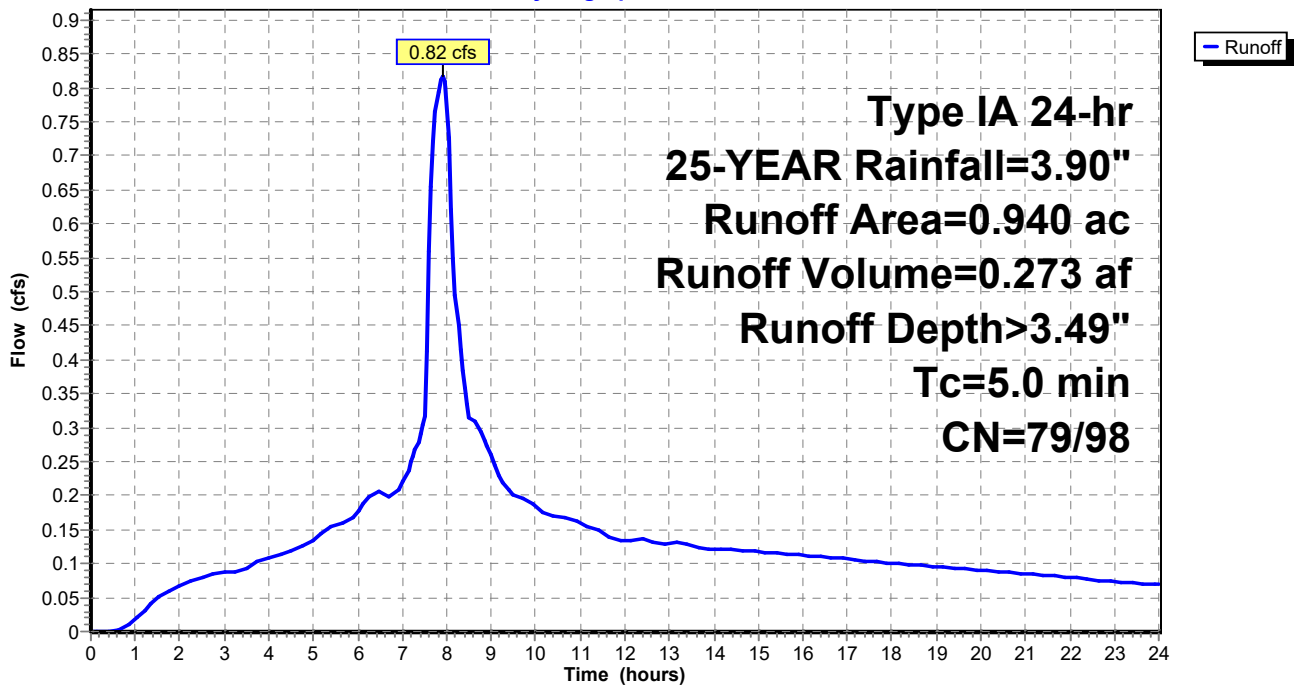
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 25-YEAR Rainfall=3.90"

Area (ac)	CN	Description
* 0.850	98	Paved Street, HSG B
0.090	79	<50% Grass cover, Poor, HSG B
0.940	96	Weighted Average
0.090	79	9.57% Pervious Area
0.850	98	90.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S (E): Pre-Dev Oregon St

Hydrograph



Summary for Subcatchment 4S (E): Pre-Dev Niemeyer

Runoff = 14.32 cfs @ 8.13 hrs, Volume= 7.910 af, Depth> 2.09"

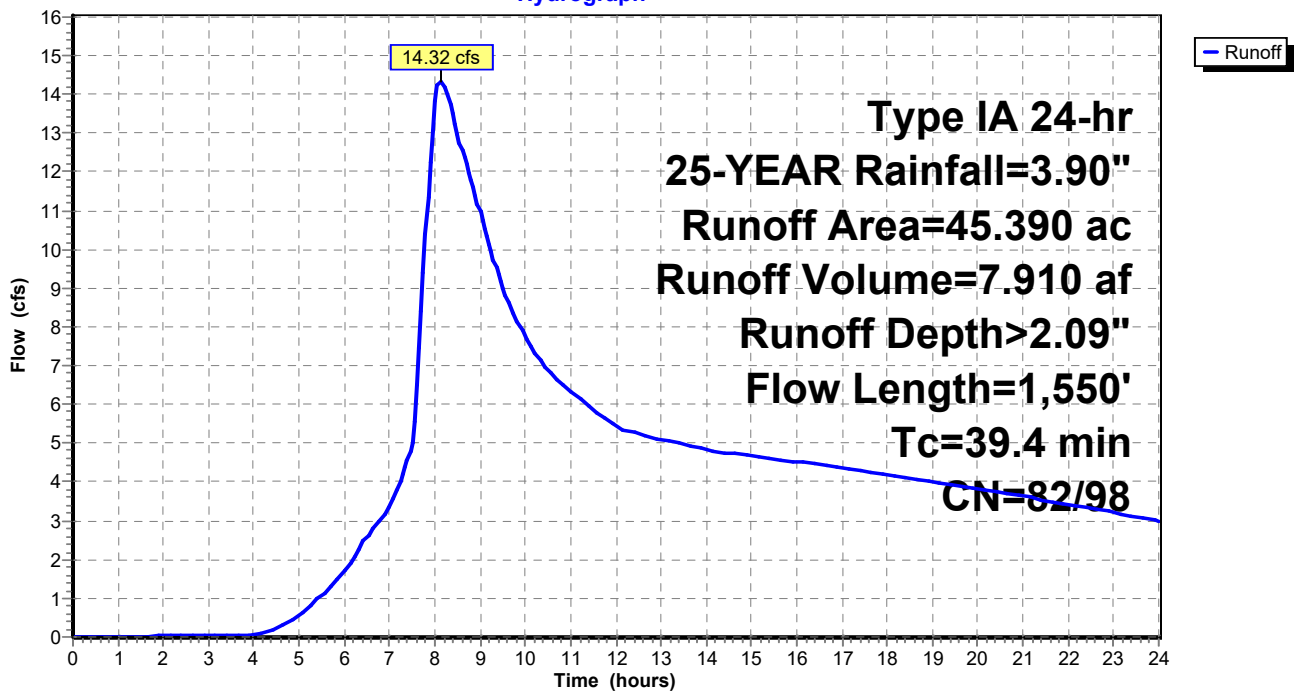
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-YEAR Rainfall=3.90"

Area (ac)	CN	Description
32.480	79	<50% Grass cover, Poor, HSG B
0.480	98	Paved parking, HSG D
12.430	89	<50% Grass cover, Poor, HSG D
45.390	82	Weighted Average
44.910	82	98.94% Pervious Area
0.480	98	1.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
21.4	1,100	0.0150	0.86		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
3.4	350	0.0600	1.71		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
39.4	1,550	Total			

Subcatchment 4S (E): Pre-Dev Niemeyer

Hydrograph



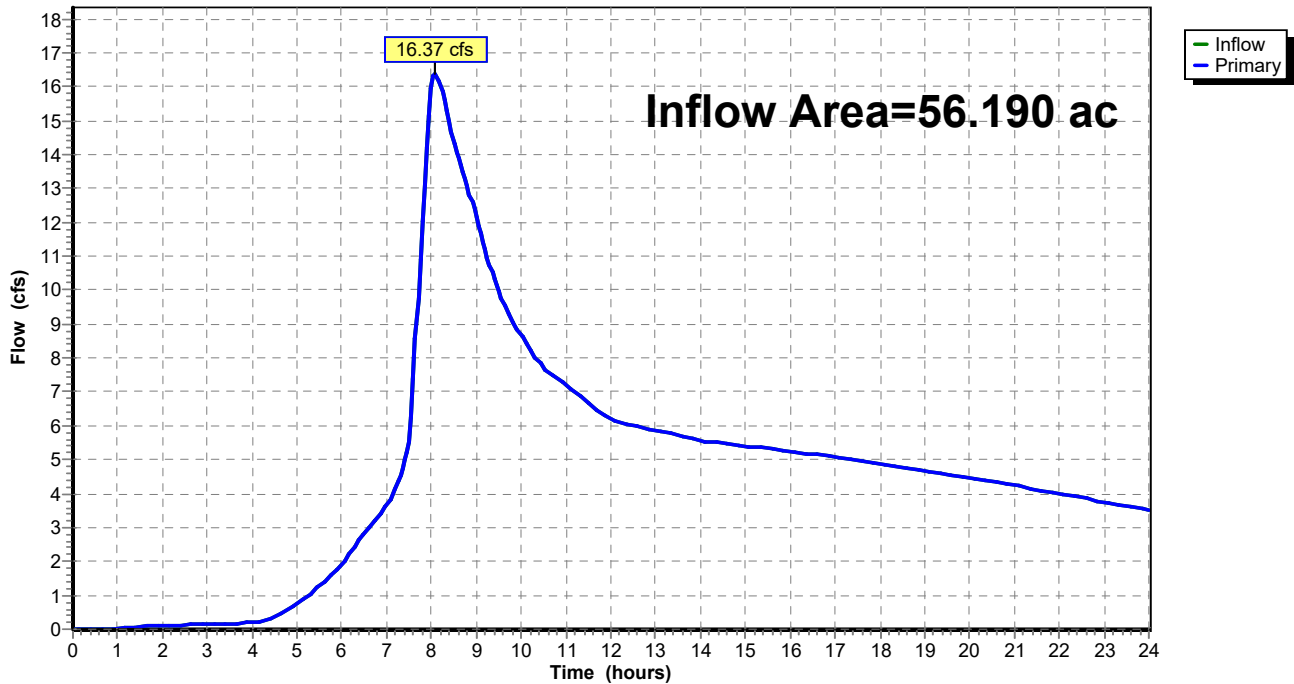
Summary for Link 2L (E): Pre-Dev Flow

Inflow Area = 56.190 ac, 2.72% Impervious, Inflow Depth > 1.93" for 25-YEAR event
Inflow = 16.37 cfs @ 8.07 hrs, Volume= 9.060 af
Primary = 16.37 cfs @ 8.07 hrs, Volume= 9.060 af, Atten= 0%, Lag= 0.0 min

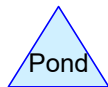
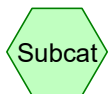
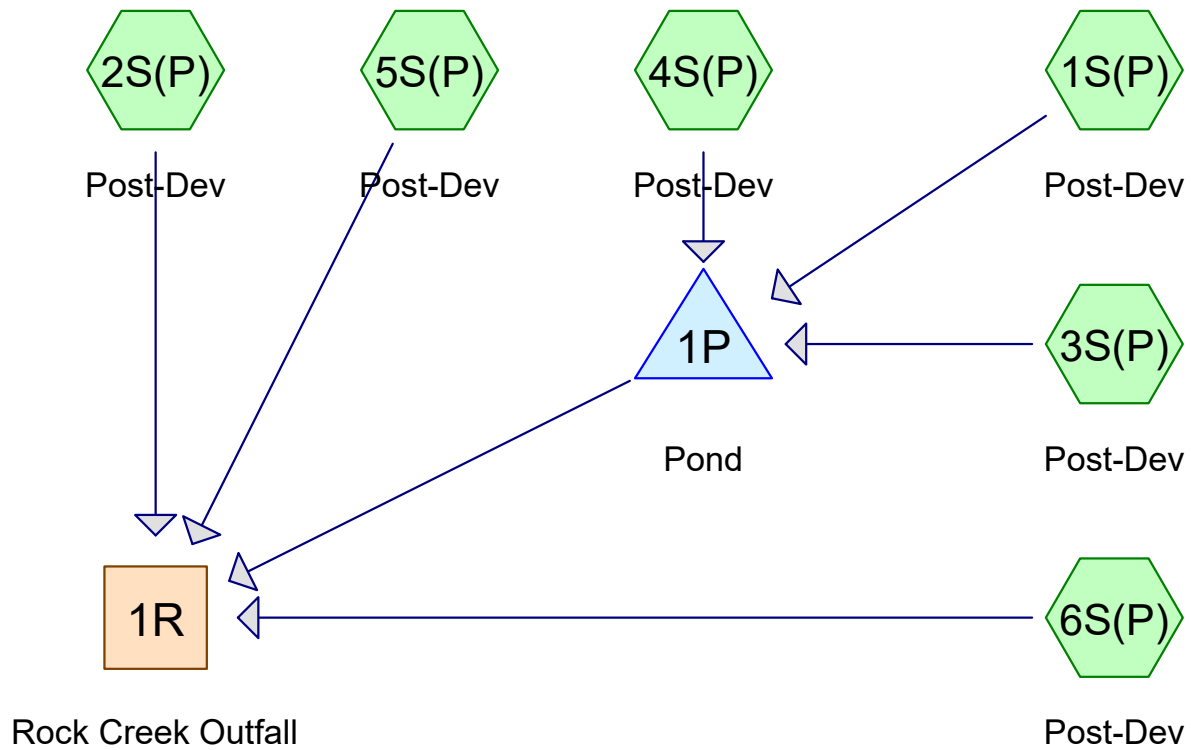
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 2L (E): Pre-Dev Flow

Hydrograph



Post-Developed Node Diagram and Area Summary Table



Routing Diagram for 7971 POST-DEV
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Post-Developed 2-yr Storm Event Peak Flow Calculations

7971 POST-DEV

Type IA 24-hr 2-YEAR Rainfall=2.50"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S(P): Post-Dev Runoff Area=6.570 ac 83.56% Impervious Runoff Depth>2.03"
Tc=5.0 min CN=79/98 Runoff=3.33 cfs 1.112 af

Subcatchment2S(P): Post-Dev Runoff Area=0.830 ac 100.00% Impervious Runoff Depth>2.27"
Tc=5.0 min CN=0/98 Runoff=0.48 cfs 0.157 af

Subcatchment3S(P): Post-Dev Runoff Area=1.550 ac 85.81% Impervious Runoff Depth>2.06"
Tc=5.0 min CN=79/98 Runoff=0.80 cfs 0.267 af

Subcatchment4S(P): Post-Dev Runoff Area=0.550 ac 100.00% Impervious Runoff Depth>2.27"
Tc=5.0 min CN=0/98 Runoff=0.32 cfs 0.104 af

Subcatchment5S(P): Post-Dev Runoff Area=1.340 ac 20.15% Impervious Runoff Depth>1.12"
Tc=5.0 min CN=79/98 Runoff=0.33 cfs 0.125 af

Subcatchment6S(P): Post-Dev Runoff Area=45.390 ac 1.06% Impervious Runoff Depth>0.99"
Flow Length=1,550' Tc=39.4 min CN=82/98 Runoff=5.73 cfs 3.736 af

Reach 1R: Rock Creek Outfall Inflow=6.39 cfs 4.166 af
Outflow=6.39 cfs 4.166 af

Pond 1P: Pond Peak Elev=135.59' Storage=58,108 cf Inflow=4.44 cfs 1.483 af
Outflow=0.10 cfs 0.148 af

Total Runoff Area = 56.230 ac Runoff Volume = 5.501 af Average Runoff Depth = 1.17"
84.08% Pervious = 47.280 ac 15.92% Impervious = 8.950 ac

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Type IA 24-hr 2-YEAR Rainfall=2.50"

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Summary for Subcatchment 1S(P): Post-Dev

Runoff = 3.33 cfs @ 7.91 hrs, Volume= 1.112 af, Depth> 2.03"

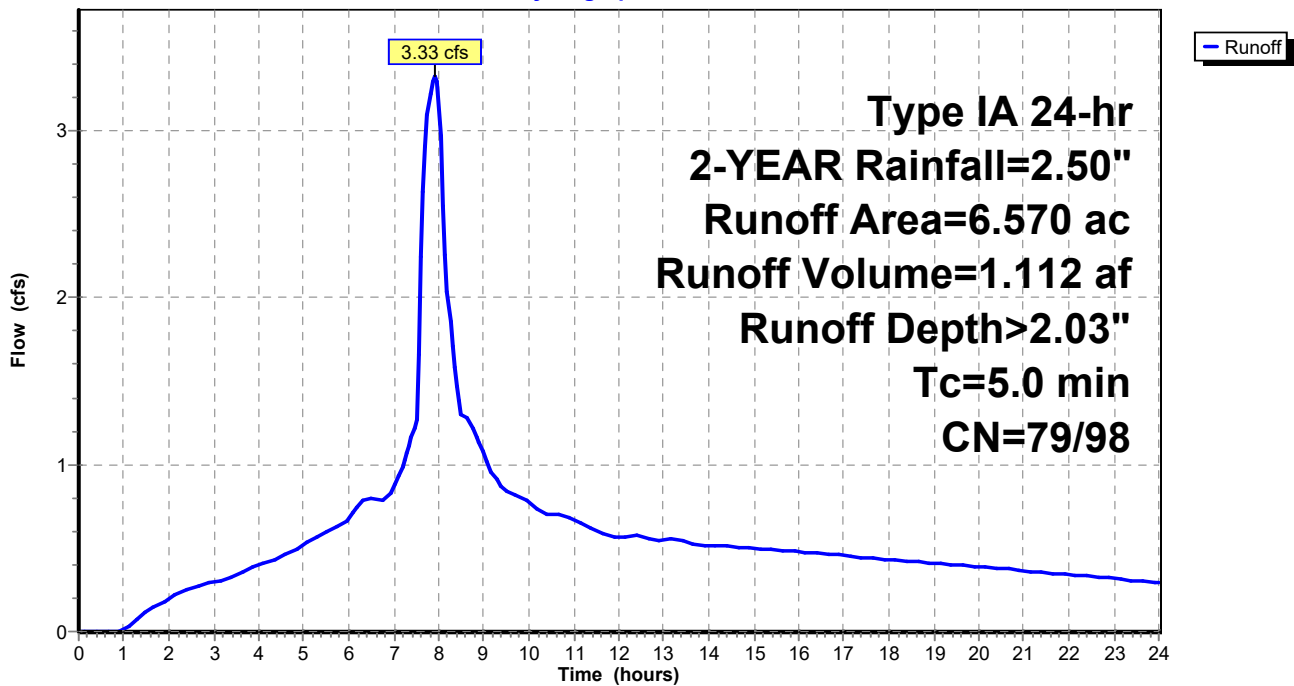
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 2-YEAR Rainfall=2.50"

Area (ac)	CN	Description
* 5.490	98	Paved parking, roofs, HSG B
1.080	79	<50% Grass cover, Poor, HSG B
6.570	95	Weighted Average
1.080	79	16.44% Pervious Area
5.490	98	83.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S(P): Post-Dev

Hydrograph



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Type IA 24-hr 2-YEAR Rainfall=2.50"

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Summary for Subcatchment 2S(P): Post-Dev

Runoff = 0.48 cfs @ 7.90 hrs, Volume= 0.157 af, Depth> 2.27"

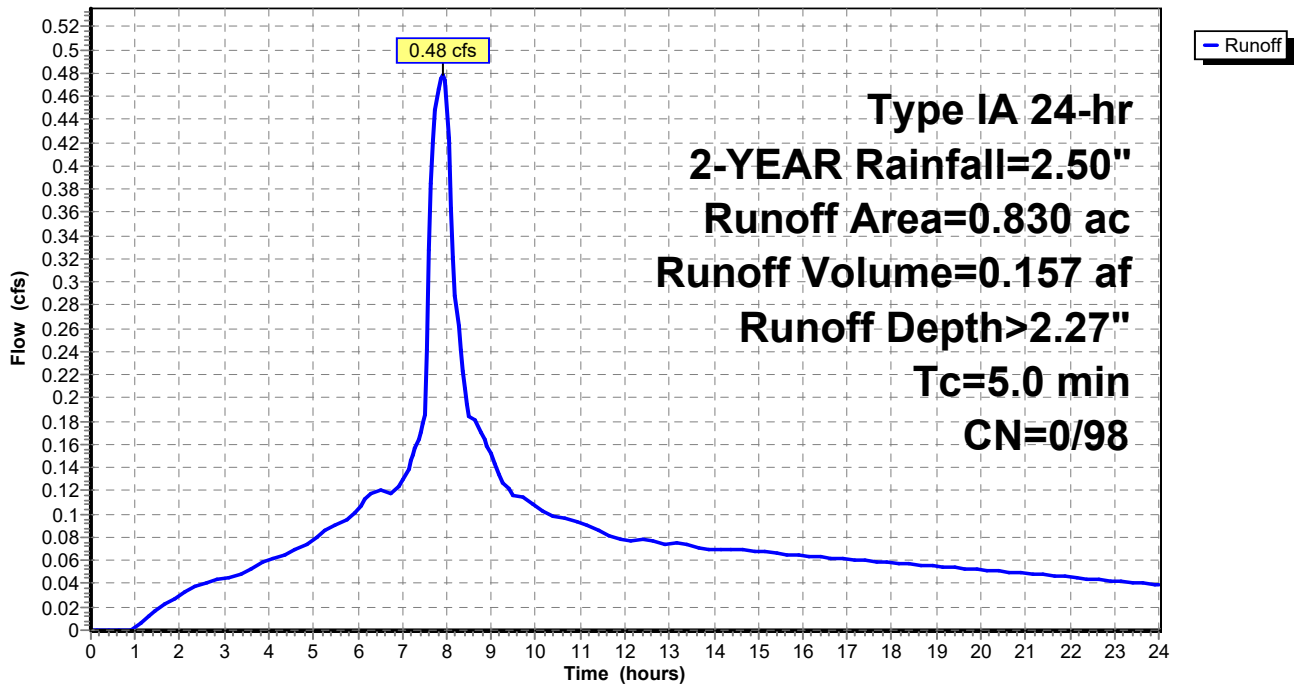
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-YEAR Rainfall=2.50"

Area (ac)	CN	Description
0.830	98	Paved roads w/curbs & sewers, HSG D
0.830	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S(P): Post-Dev

Hydrograph



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Type IA 24-hr 2-YEAR Rainfall=2.50"

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Summary for Subcatchment 3S(P): Post-Dev

Runoff = 0.80 cfs @ 7.91 hrs, Volume= 0.267 af, Depth> 2.06"

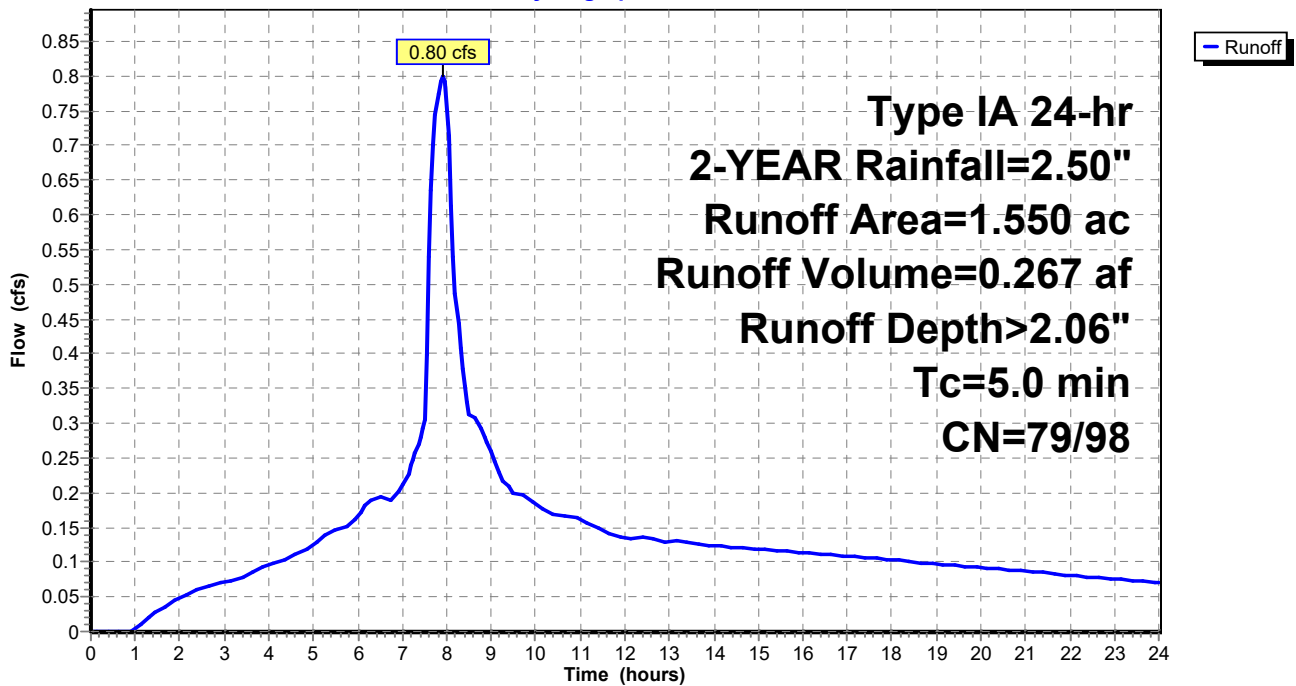
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-YEAR Rainfall=2.50"

Area (ac)	CN	Description
* 1.330	98	Paved parking, roofs, HSG B
0.220	79	<50% Grass cover, Poor, HSG B
1.550	95	Weighted Average
0.220	79	14.19% Pervious Area
1.330	98	85.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S(P): Post-Dev

Hydrograph



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Type IA 24-hr 2-YEAR Rainfall=2.50"

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Summary for Subcatchment 4S(P): Post-Dev

Runoff = 0.32 cfs @ 7.90 hrs, Volume= 0.104 af, Depth> 2.27"

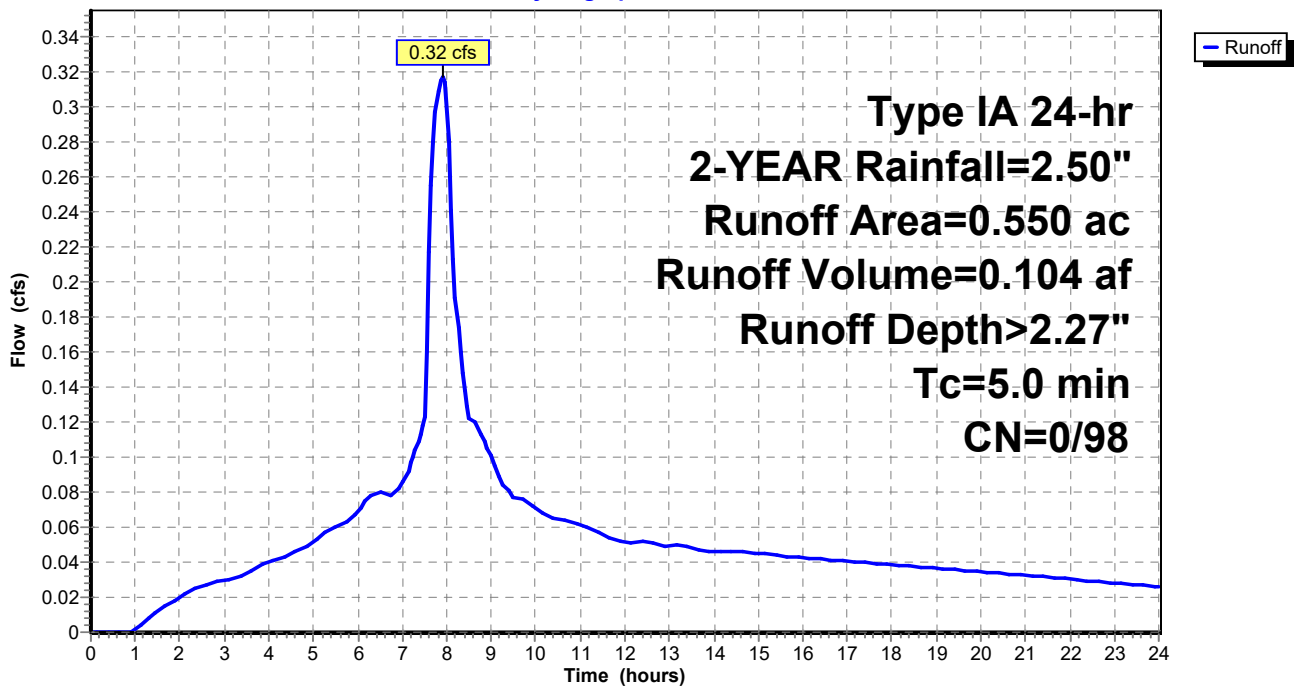
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-YEAR Rainfall=2.50"

Area (ac)	CN	Description
0.550	98	Water Surface, HSG B
0.550	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 4S(P): Post-Dev

Hydrograph



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Type IA 24-hr 2-YEAR Rainfall=2.50"

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Summary for Subcatchment 5S(P): Post-Dev

Runoff = 0.33 cfs @ 7.98 hrs, Volume= 0.125 af, Depth> 1.12"

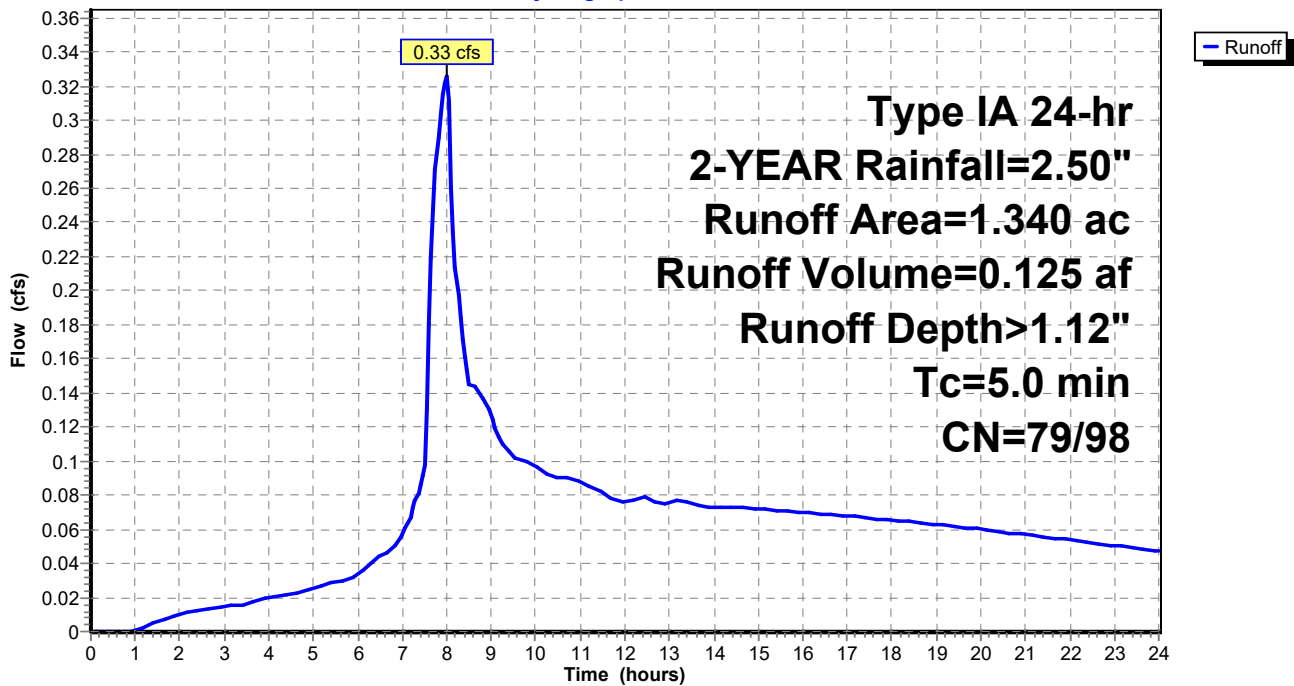
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-YEAR Rainfall=2.50"

Area (ac)	CN	Description
0.270	98	Paved parking, HSG B
1.070	79	<50% Grass cover, Poor, HSG B
1.340	83	Weighted Average
1.070	79	79.85% Pervious Area
0.270	98	20.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 5S(P): Post-Dev

Hydrograph



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Type IA 24-hr 2-YEAR Rainfall=2.50"

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Summary for Subcatchment 6S(P): Post-Dev

Runoff = 5.73 cfs @ 8.21 hrs, Volume= 3.736 af, Depth> 0.99"

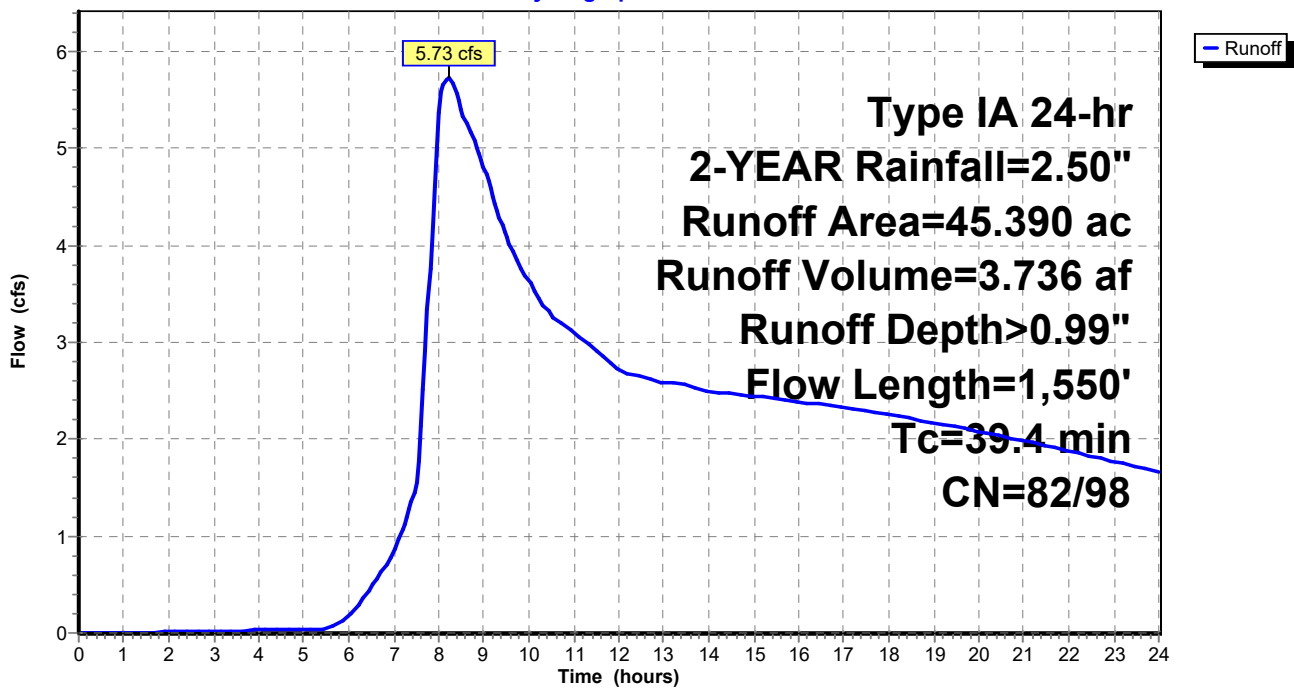
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 2-YEAR Rainfall=2.50"

Area (ac)	CN	Description
32.480	79	<50% Grass cover, Poor, HSG B
0.480	98	Paved parking, HSG D
12.430	89	<50% Grass cover, Poor, HSG D
45.390	82	Weighted Average
44.910	82	98.94% Pervious Area
0.480	98	1.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
21.4	1,100	0.0150	0.86		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
3.4	350	0.0600	1.71		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
39.4	1,550	Total			

Subcatchment 6S(P): Post-Dev

Hydrograph



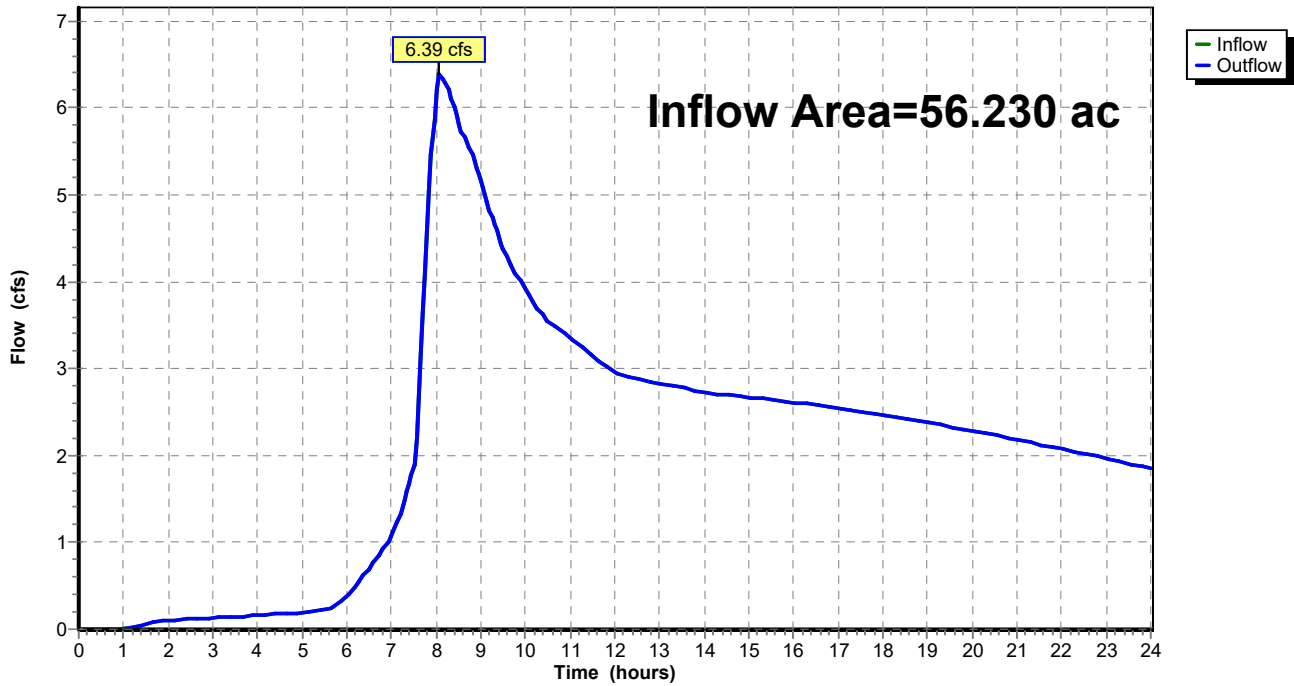
Summary for Reach 1R: Rock Creek Outfall

Inflow Area = 56.230 ac, 15.92% Impervious, Inflow Depth > 0.89" for 2-YEAR event
Inflow = 6.39 cfs @ 8.07 hrs, Volume= 4.166 af
Outflow = 6.39 cfs @ 8.07 hrs, Volume= 4.166 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2

Reach 1R: Rock Creek Outfall

Hydrograph



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Type IA 24-hr 2-YEAR Rainfall=2.50"

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Summary for Pond 1P: Pond

Inflow Area = 8.670 ac, 85.01% Impervious, Inflow Depth > 2.05" for 2-YEAR event
 Inflow = 4.44 cfs @ 7.91 hrs, Volume= 1.483 af
 Outflow = 0.10 cfs @ 24.00 hrs, Volume= 0.148 af, Atten= 98%, Lag= 965.4 min
 Primary = 0.10 cfs @ 24.00 hrs, Volume= 0.148 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 135.59' @ 24.00 hrs Surf.Area= 19,033 sf Storage= 58,108 cf

Plug-Flow detention time= 621.0 min calculated for 0.148 af (10% of inflow)
 Center-of-Mass det. time= 161.2 min (845.0 - 683.8)

Volume	Invert	Avail.Storage	Storage Description
#1	132.00'	111,009 cf	Custom Stage Data (Prismatic) Listed below
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
132.00	13,337	0	0
133.00	14,863	14,100	14,100
134.00	16,432	15,648	29,748
135.00	18,051	17,242	46,989
136.00	19,718	18,885	65,874
137.00	23,200	21,459	87,333
138.00	24,152	23,676	111,009

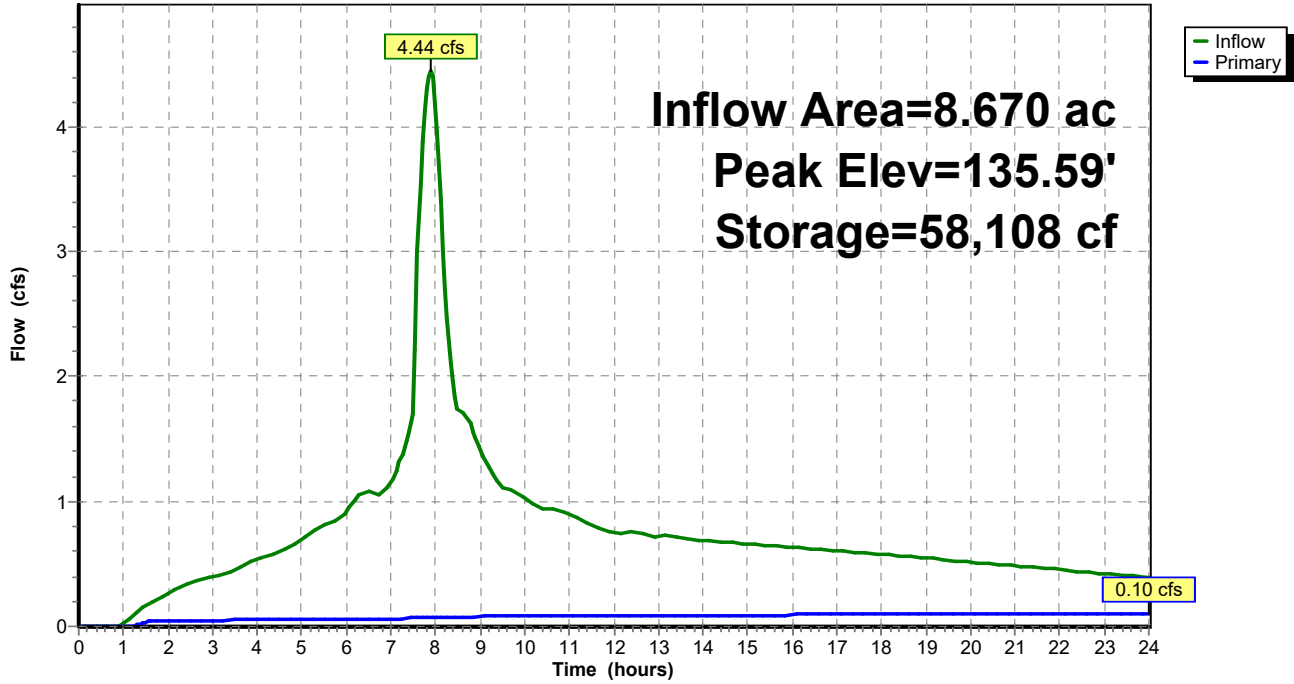
Device	Routing	Invert	Outlet Devices
#1	Primary	131.00'	18.0" Vert. 18" Pond Outlet C= 0.620
#2	Device 1	136.70'	4.2" Horiz. 5-year Orifice C= 0.620 Limited to weir flow at low heads
#3	Device 1	137.25'	6.0" Horiz. 10/25-year Orifice C= 0.620 Limited to weir flow at low heads
#4	Device 1	131.00'	1.3" Horiz. WQ Orifice C= 0.620 Limited to weir flow at low heads
#5	Device 4	132.00'	27.0" x 24.0" Horiz. WQ Inlet (Bottom) C= 0.600 Limited to weir flow at low heads
#6	Device 1	137.99'	27.0" x 24.0" Horiz. Overflow Inlet (Top) C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.10 cfs @ 24.00 hrs HW=135.59' TW=0.00' (Dynamic Tailwater)

- 1=18" Pond Outlet (Passes 0.10 cfs of 17.23 cfs potential flow)
- 2=5-year Orifice (Controls 0.00 cfs)
- 3=10/25-year Orifice (Controls 0.00 cfs)
- 4=WQ Orifice (Orifice Controls 0.10 cfs @ 10.66 fps)
- 5=WQ Inlet (Bottom) (Passes 0.10 cfs of 41.05 cfs potential flow)
- 6=Overflow Inlet (Top) (Controls 0.00 cfs)

Pond 1P: Pond

Hydrograph



Post-Developed 5-yr Storm Event Peak Flow Calculations

7971 POST-DEV*Type IA 24-hr 5-YEAR Rainfall=3.10"*

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S(P): Post-Dev Runoff Area=6.570 ac 83.56% Impervious Runoff Depth>2.60"
Tc=5.0 min CN=79/98 Runoff=4.25 cfs 1.423 af

Subcatchment2S(P): Post-Dev Runoff Area=0.830 ac 100.00% Impervious Runoff Depth>2.86"
Tc=5.0 min CN=0/98 Runoff=0.60 cfs 0.198 af

Subcatchment3S(P): Post-Dev Runoff Area=1.550 ac 85.81% Impervious Runoff Depth>2.64"
Tc=5.0 min CN=79/98 Runoff=1.02 cfs 0.340 af

Subcatchment4S(P): Post-Dev Runoff Area=0.550 ac 100.00% Impervious Runoff Depth>2.86"
Tc=5.0 min CN=0/98 Runoff=0.40 cfs 0.131 af

Subcatchment5S(P): Post-Dev Runoff Area=1.340 ac 20.15% Impervious Runoff Depth>1.58"
Tc=5.0 min CN=79/98 Runoff=0.48 cfs 0.177 af

Subcatchment6S(P): Post-Dev Runoff Area=45.390 ac 1.06% Impervious Runoff Depth>1.44"
Flow Length=1,550' Tc=39.4 min CN=82/98 Runoff=9.20 cfs 5.451 af

Reach 1R: Rock Creek Outfall Inflow=10.15 cfs 5.986 af
Outflow=10.15 cfs 5.986 af

Pond 1P: Pond Peak Elev=136.45' Storage=75,490 cf Inflow=5.66 cfs 1.895 af
Outflow=0.11 cfs 0.161 af

Total Runoff Area = 56.230 ac Runoff Volume = 7.720 af Average Runoff Depth = 1.65"
84.08% Pervious = 47.280 ac 15.92% Impervious = 8.950 ac

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Type IA 24-hr 5-YEAR Rainfall=3.10"

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Summary for Subcatchment 1S(P): Post-Dev

Runoff = 4.25 cfs @ 7.91 hrs, Volume= 1.423 af, Depth> 2.60"

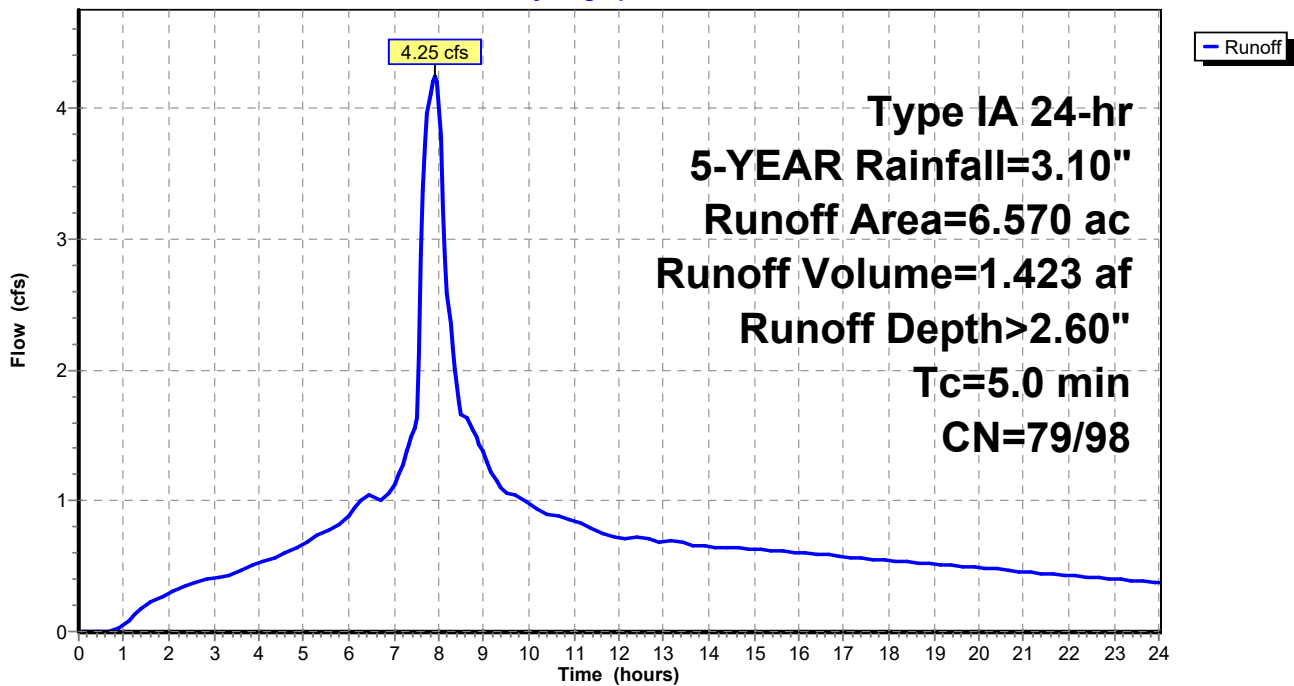
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5-YEAR Rainfall=3.10"

Area (ac)	CN	Description
* 5.490	98	Paved parking, roofs, HSG B
1.080	79	<50% Grass cover, Poor, HSG B
6.570	95	Weighted Average
1.080	79	16.44% Pervious Area
5.490	98	83.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S(P): Post-Dev

Hydrograph



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Type IA 24-hr 5-YEAR Rainfall=3.10"

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Summary for Subcatchment 2S(P): Post-Dev

Runoff = 0.60 cfs @ 7.90 hrs, Volume= 0.198 af, Depth> 2.86"

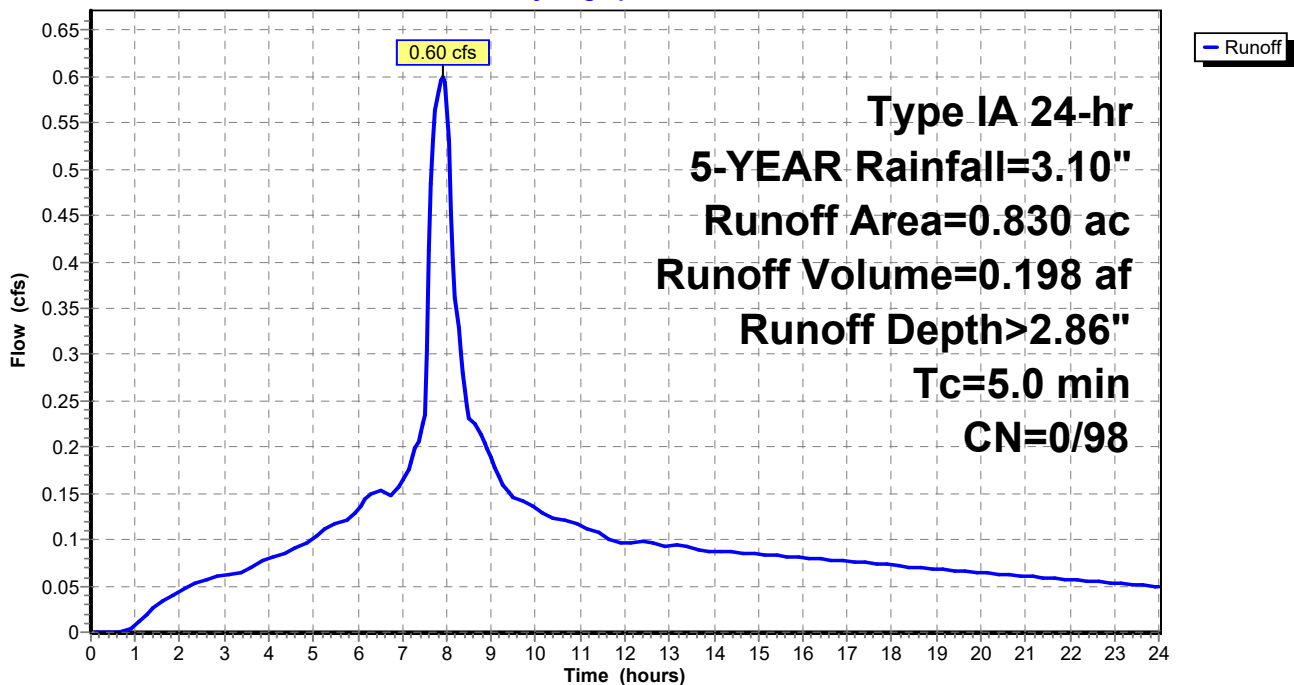
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5-YEAR Rainfall=3.10"

Area (ac)	CN	Description
0.830	98	Paved roads w/curbs & sewers, HSG D
0.830	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S(P): Post-Dev

Hydrograph



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Type IA 24-hr 5-YEAR Rainfall=3.10"

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Summary for Subcatchment 3S(P): Post-Dev

Runoff = 1.02 cfs @ 7.91 hrs, Volume= 0.340 af, Depth> 2.64"

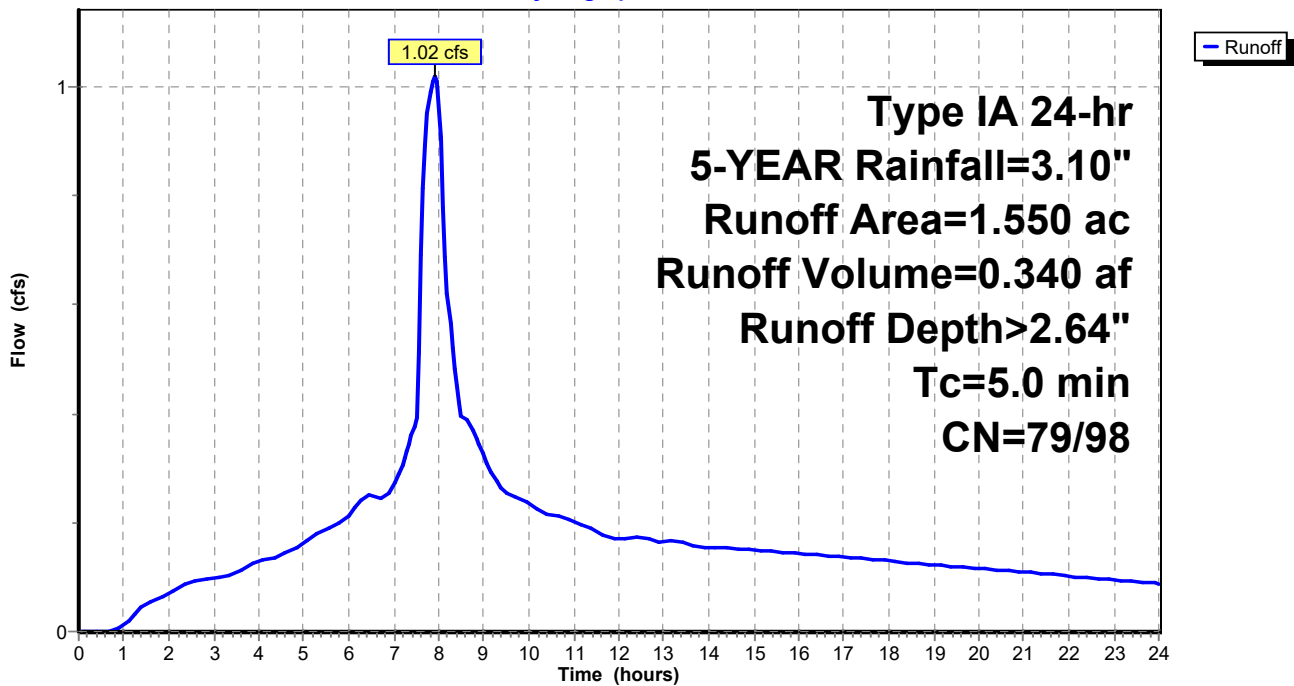
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5-YEAR Rainfall=3.10"

Area (ac)	CN	Description
* 1.330	98	Paved parking, roofs, HSG B
0.220	79	<50% Grass cover, Poor, HSG B
1.550	95	Weighted Average
0.220	79	14.19% Pervious Area
1.330	98	85.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S(P): Post-Dev

Hydrograph



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Type IA 24-hr 5-YEAR Rainfall=3.10"

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Summary for Subcatchment 4S(P): Post-Dev

Runoff = 0.40 cfs @ 7.90 hrs, Volume= 0.131 af, Depth> 2.86"

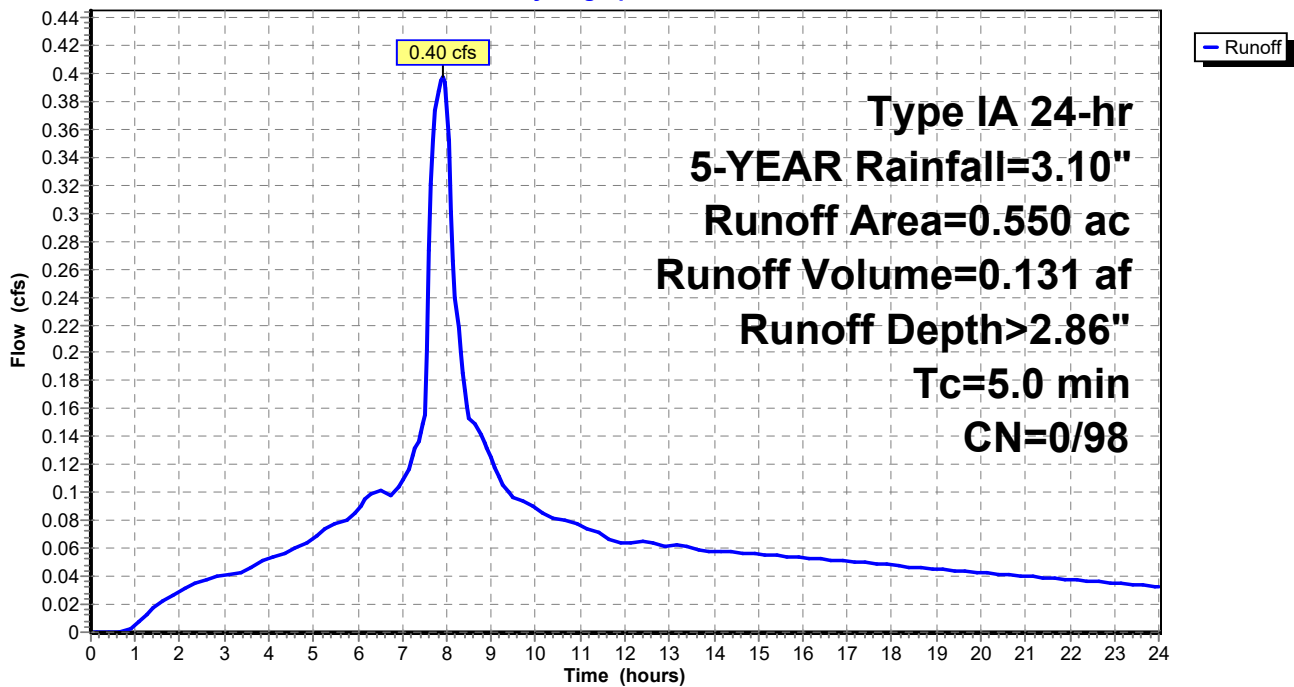
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5-YEAR Rainfall=3.10"

Area (ac)	CN	Description
0.550	98	Water Surface, HSG B
0.550	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 4S(P): Post-Dev

Hydrograph



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Type IA 24-hr 5-YEAR Rainfall=3.10"

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Summary for Subcatchment 5S(P): Post-Dev

Runoff = 0.48 cfs @ 7.98 hrs, Volume= 0.177 af, Depth> 1.58"

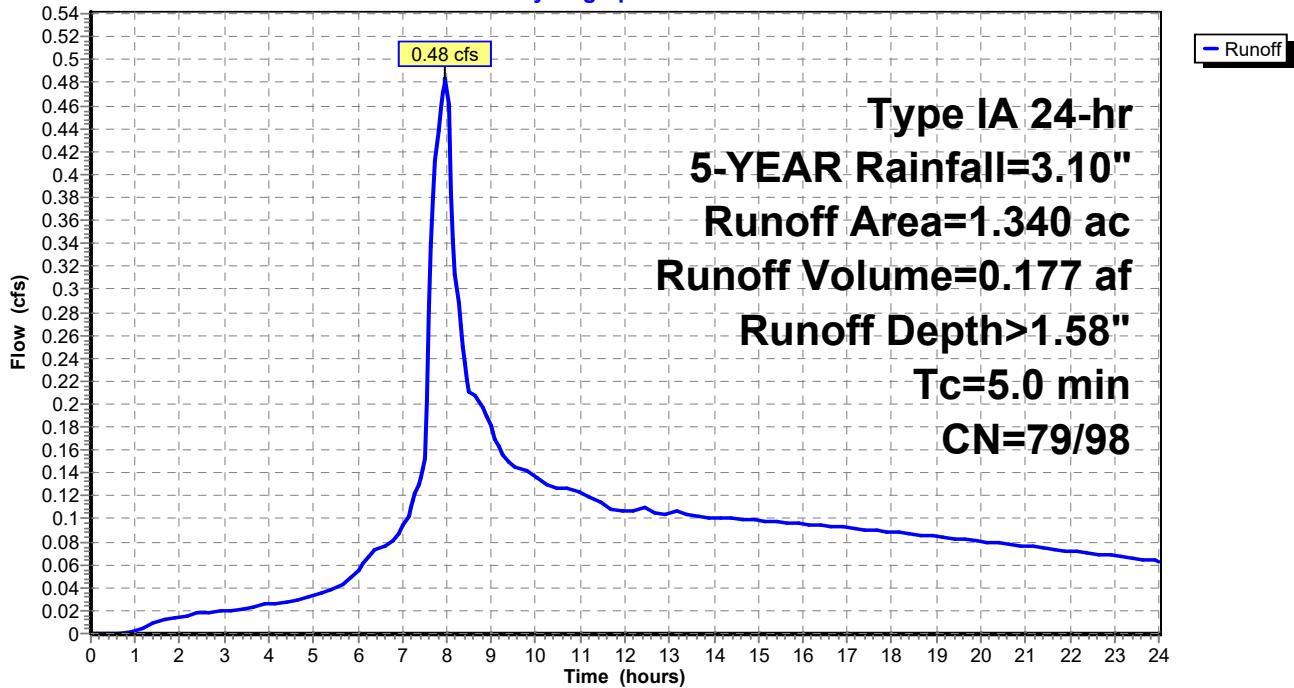
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5-YEAR Rainfall=3.10"

Area (ac)	CN	Description
0.270	98	Paved parking, HSG B
1.070	79	<50% Grass cover, Poor, HSG B
1.340	83	Weighted Average
1.070	79	79.85% Pervious Area
0.270	98	20.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 5S(P): Post-Dev

Hydrograph



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Type IA 24-hr 5-YEAR Rainfall=3.10"

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Summary for Subcatchment 6S(P): Post-Dev

Runoff = 9.20 cfs @ 8.16 hrs, Volume= 5.451 af, Depth> 1.44"

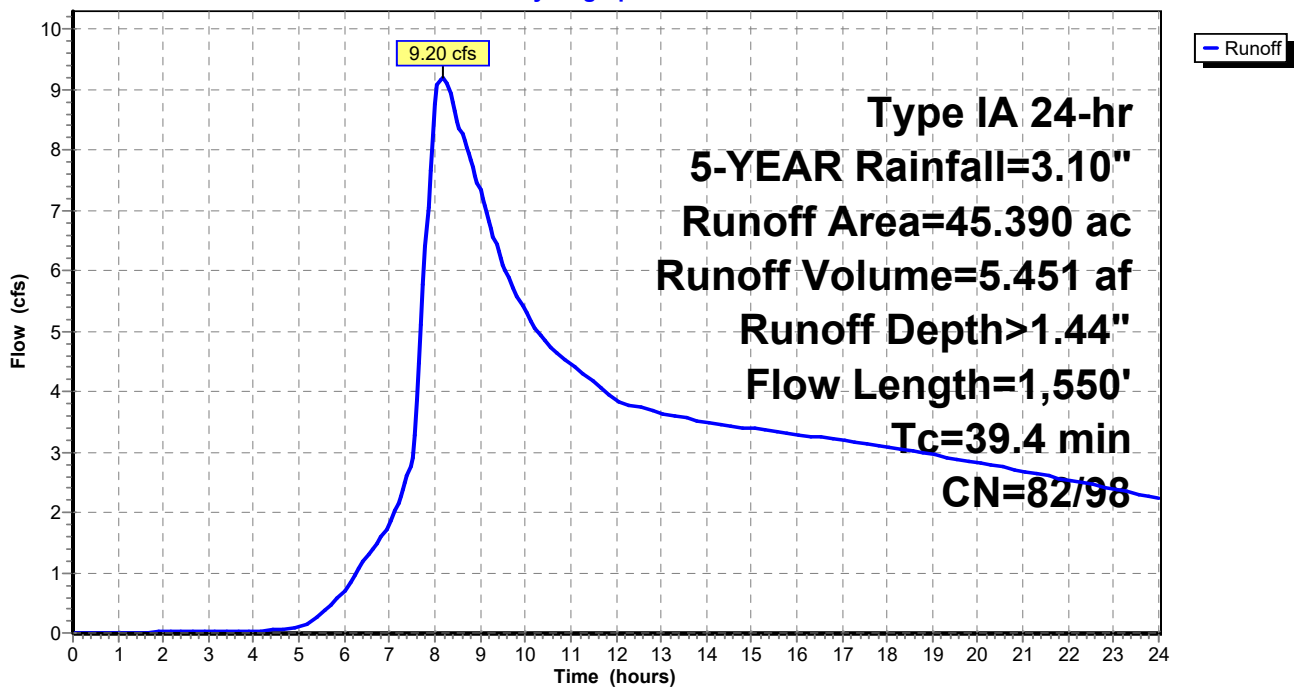
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 5-YEAR Rainfall=3.10"

Area (ac)	CN	Description
32.480	79	<50% Grass cover, Poor, HSG B
0.480	98	Paved parking, HSG D
12.430	89	<50% Grass cover, Poor, HSG D
45.390	82	Weighted Average
44.910	82	98.94% Pervious Area
0.480	98	1.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
21.4	1,100	0.0150	0.86		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
3.4	350	0.0600	1.71		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
39.4	1,550	Total			

Subcatchment 6S(P): Post-Dev

Hydrograph



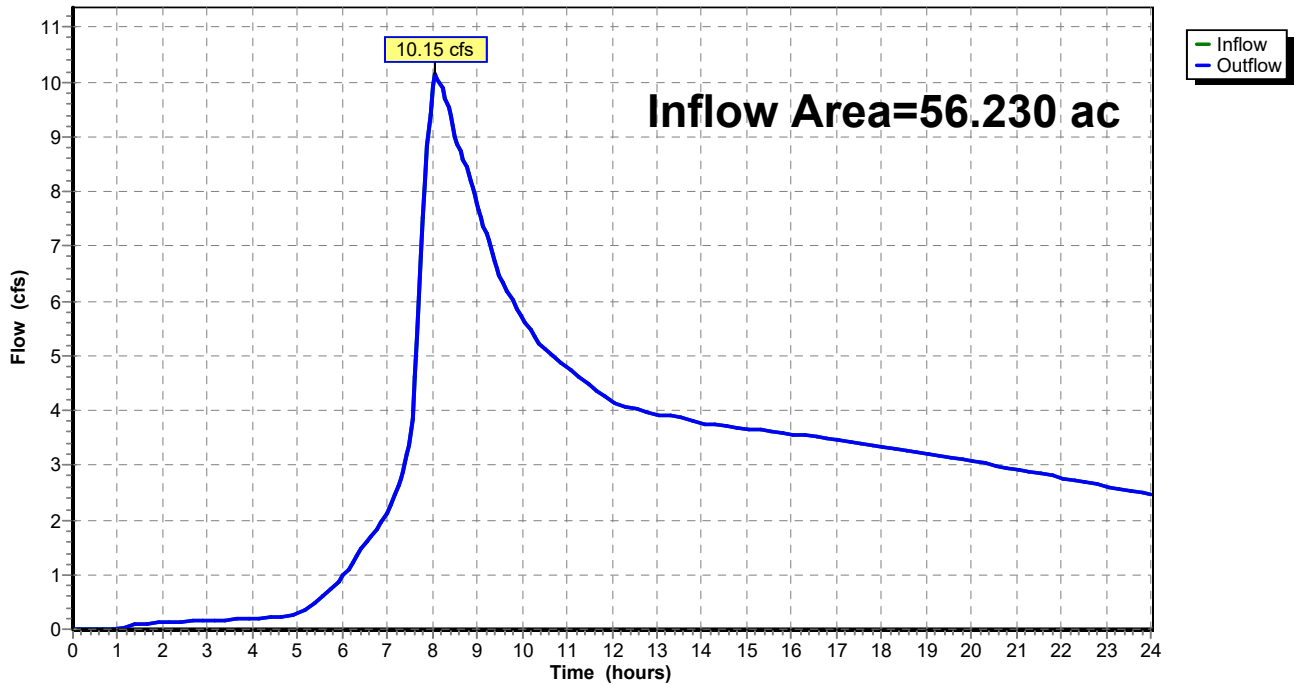
Summary for Reach 1R: Rock Creek Outfall

Inflow Area = 56.230 ac, 15.92% Impervious, Inflow Depth > 1.28" for 5-YEAR event
Inflow = 10.15 cfs @ 8.07 hrs, Volume= 5.986 af
Outflow = 10.15 cfs @ 8.07 hrs, Volume= 5.986 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2

Reach 1R: Rock Creek Outfall

Hydrograph



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Type IA 24-hr 5-YEAR Rainfall=3.10"

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Summary for Pond 1P: Pond

Inflow Area = 8.670 ac, 85.01% Impervious, Inflow Depth > 2.62" for 5-YEAR event
 Inflow = 5.66 cfs @ 7.91 hrs, Volume= 1.895 af
 Outflow = 0.11 cfs @ 24.00 hrs, Volume= 0.161 af, Atten= 98%, Lag= 965.6 min
 Primary = 0.11 cfs @ 24.00 hrs, Volume= 0.161 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 136.45' @ 24.00 hrs Surf.Area= 21,278 sf Storage= 75,490 cf

Plug-Flow detention time= 649.9 min calculated for 0.161 af (8% of inflow)
 Center-of-Mass det. time= 168.3 min (846.2 - 677.8)

Volume	Invert	Avail.Storage	Storage Description
#1	132.00'	111,009 cf	Custom Stage Data (Prismatic) Listed below
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
132.00	13,337	0	0
133.00	14,863	14,100	14,100
134.00	16,432	15,648	29,748
135.00	18,051	17,242	46,989
136.00	19,718	18,885	65,874
137.00	23,200	21,459	87,333
138.00	24,152	23,676	111,009

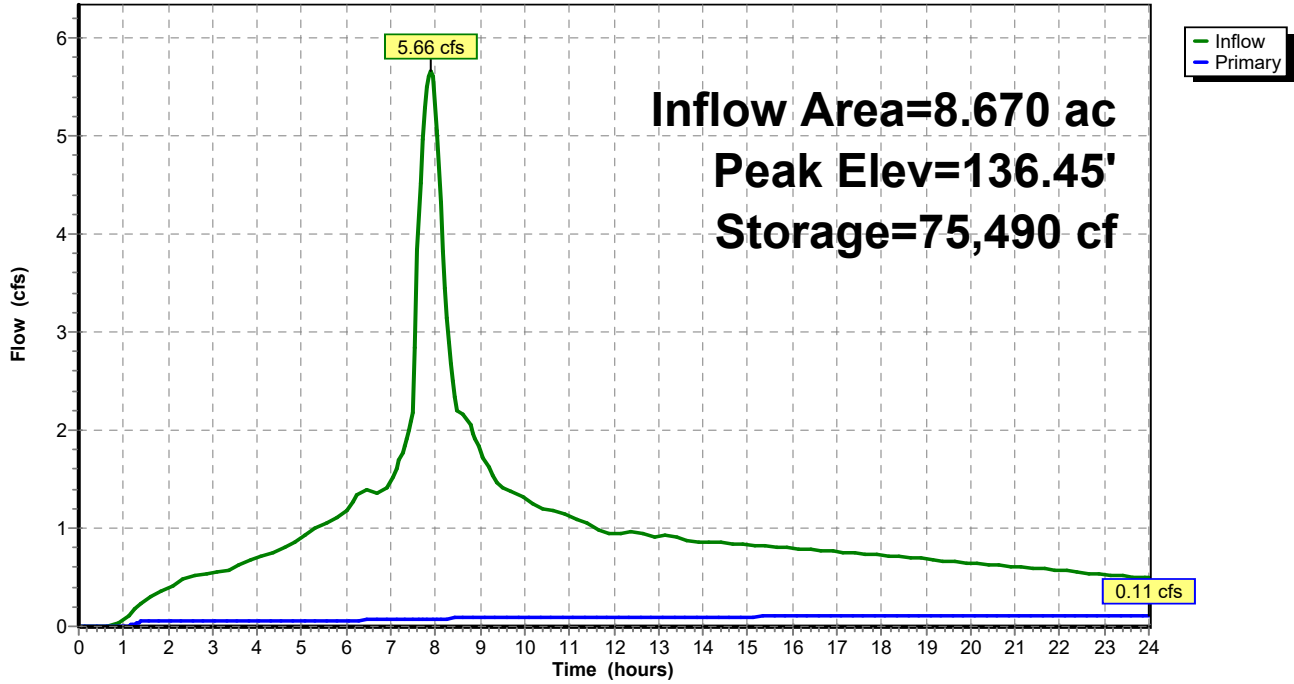
Device	Routing	Invert	Outlet Devices
#1	Primary	131.00'	18.0" Vert. 18" Pond Outlet C= 0.620
#2	Device 1	136.70'	4.2" Horiz. 5-year Orifice C= 0.620 Limited to weir flow at low heads
#3	Device 1	137.25'	6.0" Horiz. 10/25-year Orifice C= 0.620 Limited to weir flow at low heads
#4	Device 1	131.00'	1.3" Horiz. WQ Orifice C= 0.620 Limited to weir flow at low heads
#5	Device 4	132.00'	27.0" x 24.0" Horiz. WQ Inlet (Bottom) C= 0.600 Limited to weir flow at low heads
#6	Device 1	137.99'	27.0" x 24.0" Horiz. Overflow Inlet (Top) C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.11 cfs @ 24.00 hrs HW=136.45' TW=0.00' (Dynamic Tailwater)

- 1=18" Pond Outlet (Passes 0.11 cfs of 19.06 cfs potential flow)
- 2=5-year Orifice (Controls 0.00 cfs)
- 3=10/25-year Orifice (Controls 0.00 cfs)
- 4=WQ Orifice (Orifice Controls 0.11 cfs @ 11.61 fps)
- 5=WQ Inlet (Bottom) (Passes 0.11 cfs of 45.70 cfs potential flow)
- 6=Overflow Inlet (Top) (Controls 0.00 cfs)

Pond 1P: Pond

Hydrograph





Post-Developed 10-yr Storm Event Peak Flow Calculations

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Type IA 24-hr 10-YEAR Rainfall=3.45"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S(P): Post-Dev Runoff Area=6.570 ac 83.56% Impervious Runoff Depth>2.93"
Tc=5.0 min CN=79/98 Runoff=4.79 cfs 1.606 af

Subcatchment2S(P): Post-Dev Runoff Area=0.830 ac 100.00% Impervious Runoff Depth>3.21"
Tc=5.0 min CN=0/98 Runoff=0.67 cfs 0.222 af

Subcatchment3S(P): Post-Dev Runoff Area=1.550 ac 85.81% Impervious Runoff Depth>2.97"
Tc=5.0 min CN=79/98 Runoff=1.15 cfs 0.384 af

Subcatchment4S(P): Post-Dev Runoff Area=0.550 ac 100.00% Impervious Runoff Depth>3.21"
Tc=5.0 min CN=0/98 Runoff=0.44 cfs 0.147 af

Subcatchment5S(P): Post-Dev Runoff Area=1.340 ac 20.15% Impervious Runoff Depth>1.86"
Tc=5.0 min CN=79/98 Runoff=0.58 cfs 0.208 af

Subcatchment6S(P): Post-Dev Runoff Area=45.390 ac 1.06% Impervious Runoff Depth>1.72"
Flow Length=1,550' Tc=39.4 min CN=82/98 Runoff=11.38 cfs 6.507 af

Reach 1R: Rock Creek Outfall Inflow=12.50 cfs 7.131 af
Outflow=12.50 cfs 7.131 af

Pond 1P: Pond Peak Elev=136.87' Storage=84,634 cf Inflow=6.38 cfs 2.137 af
Outflow=0.31 cfs 0.194 af

Total Runoff Area = 56.230 ac Runoff Volume = 9.074 af Average Runoff Depth = 1.94"
84.08% Pervious = 47.280 ac 15.92% Impervious = 8.950 ac

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Type IA 24-hr 10-YEAR Rainfall=3.45"

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Summary for Subcatchment 1S(P): Post-Dev

Runoff = 4.79 cfs @ 7.91 hrs, Volume= 1.606 af, Depth> 2.93"

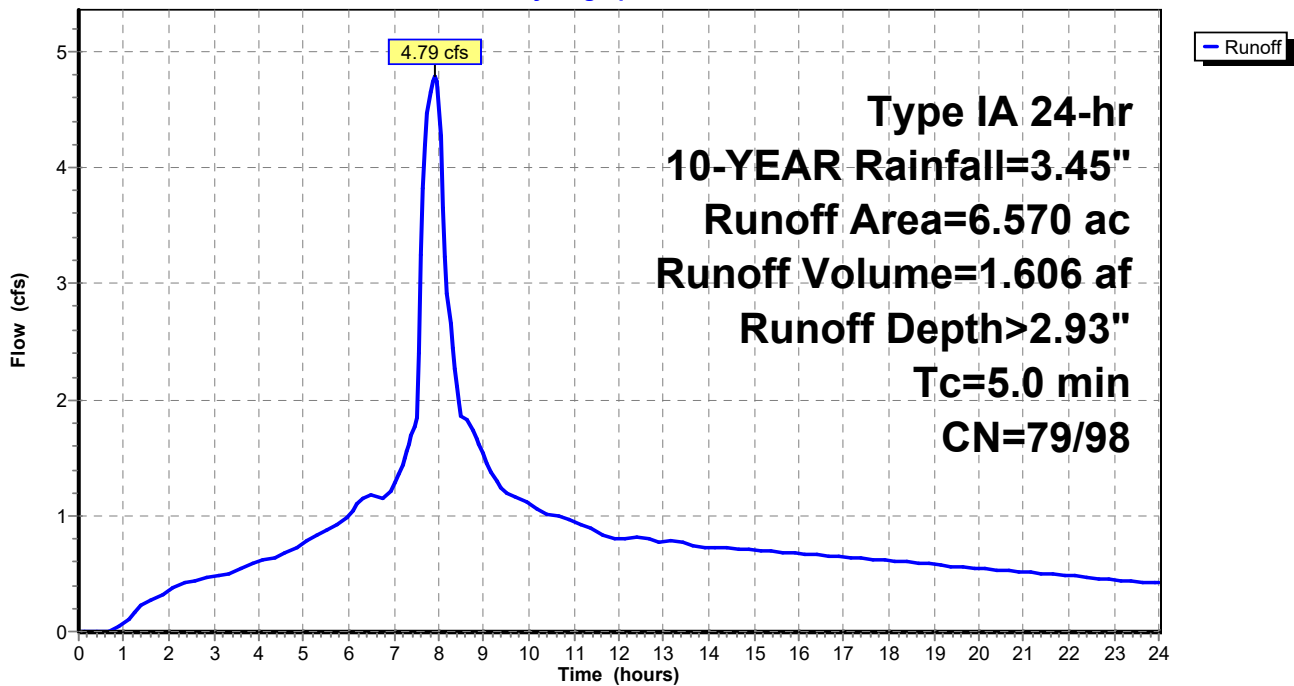
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-YEAR Rainfall=3.45"

Area (ac)	CN	Description
* 5.490	98	Paved parking, roofs, HSG B
1.080	79	<50% Grass cover, Poor, HSG B
6.570	95	Weighted Average
1.080	79	16.44% Pervious Area
5.490	98	83.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S(P): Post-Dev

Hydrograph



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Type IA 24-hr 10-YEAR Rainfall=3.45"

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Summary for Subcatchment 2S(P): Post-Dev

Runoff = 0.67 cfs @ 7.90 hrs, Volume= 0.222 af, Depth> 3.21"

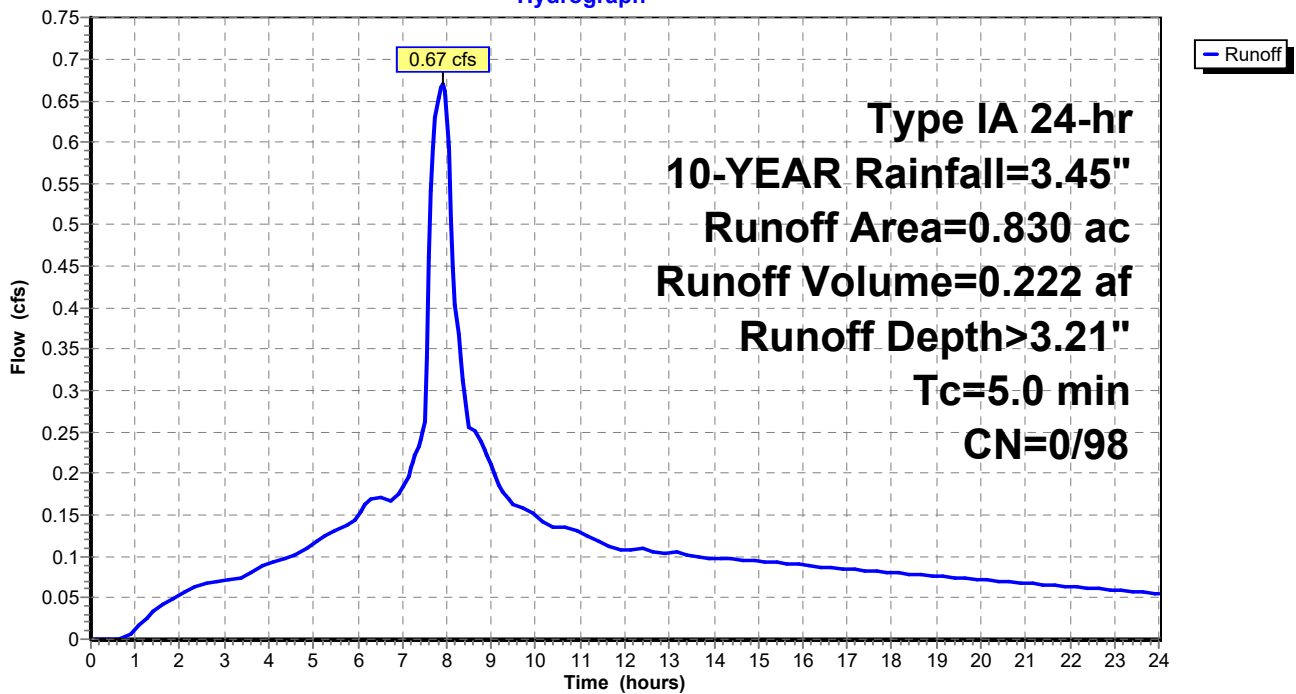
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-YEAR Rainfall=3.45"

Area (ac)	CN	Description
0.830	98	Paved roads w/curbs & sewers, HSG D
0.830	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S(P): Post-Dev

Hydrograph



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Type IA 24-hr 10-YEAR Rainfall=3.45"

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Summary for Subcatchment 3S(P): Post-Dev

Runoff = 1.15 cfs @ 7.91 hrs, Volume= 0.384 af, Depth> 2.97"

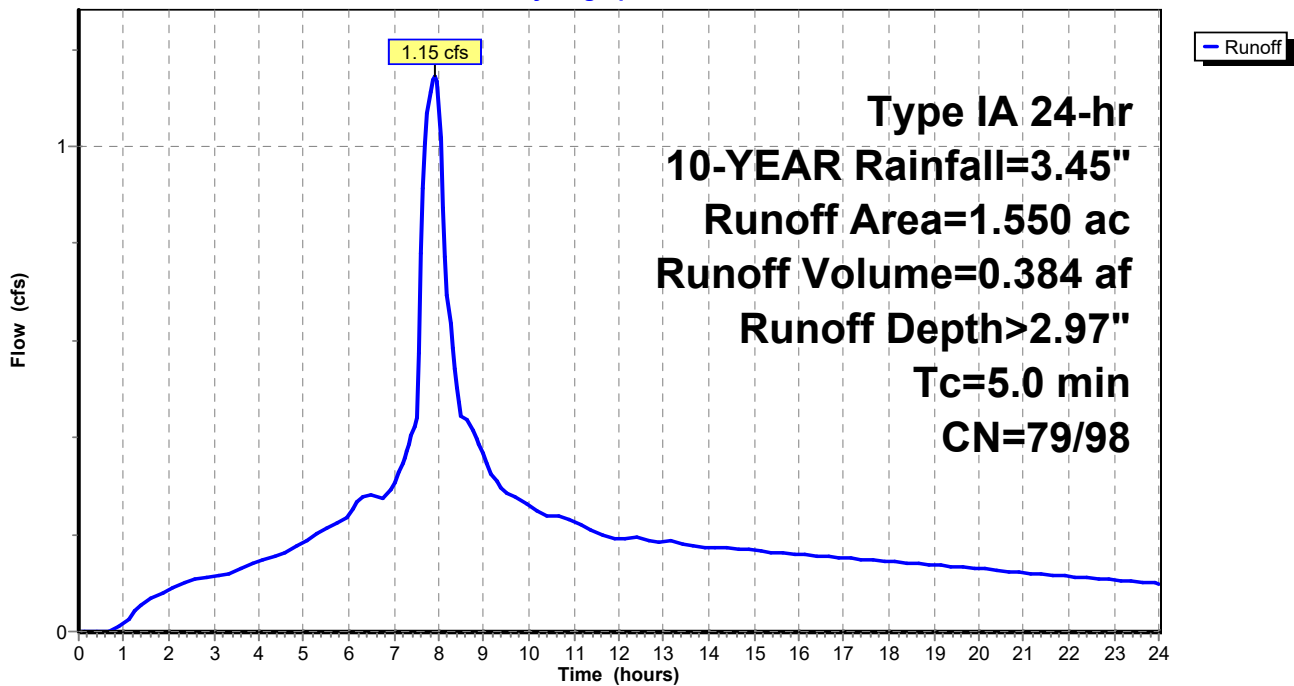
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-YEAR Rainfall=3.45"

Area (ac)	CN	Description
* 1.330	98	Paved parking, roofs, HSG B
0.220	79	<50% Grass cover, Poor, HSG B
1.550	95	Weighted Average
0.220	79	14.19% Pervious Area
1.330	98	85.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S(P): Post-Dev

Hydrograph



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Type IA 24-hr 10-YEAR Rainfall=3.45"

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Summary for Subcatchment 4S(P): Post-Dev

Runoff = 0.44 cfs @ 7.90 hrs, Volume= 0.147 af, Depth> 3.21"

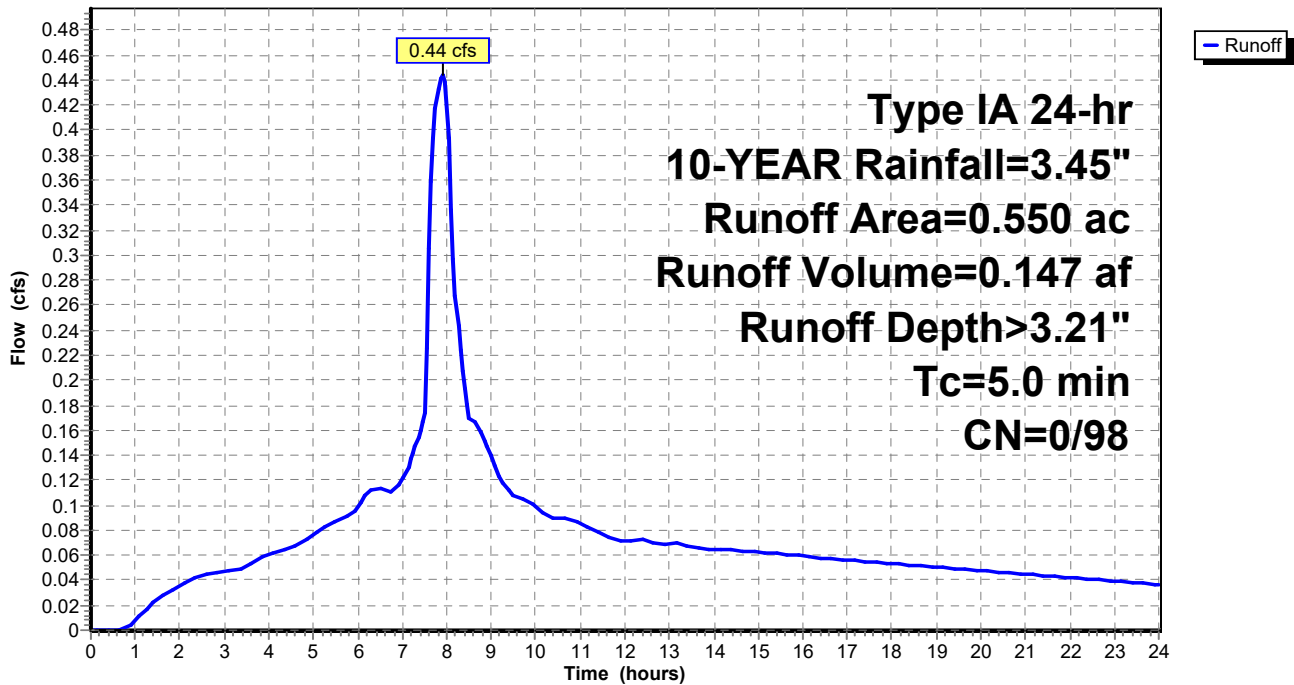
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-YEAR Rainfall=3.45"

Area (ac)	CN	Description
0.550	98	Water Surface, HSG B
0.550	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 4S(P): Post-Dev

Hydrograph



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Type IA 24-hr 10-YEAR Rainfall=3.45"

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Summary for Subcatchment 5S(P): Post-Dev

Runoff = 0.58 cfs @ 7.97 hrs, Volume= 0.208 af, Depth> 1.86"

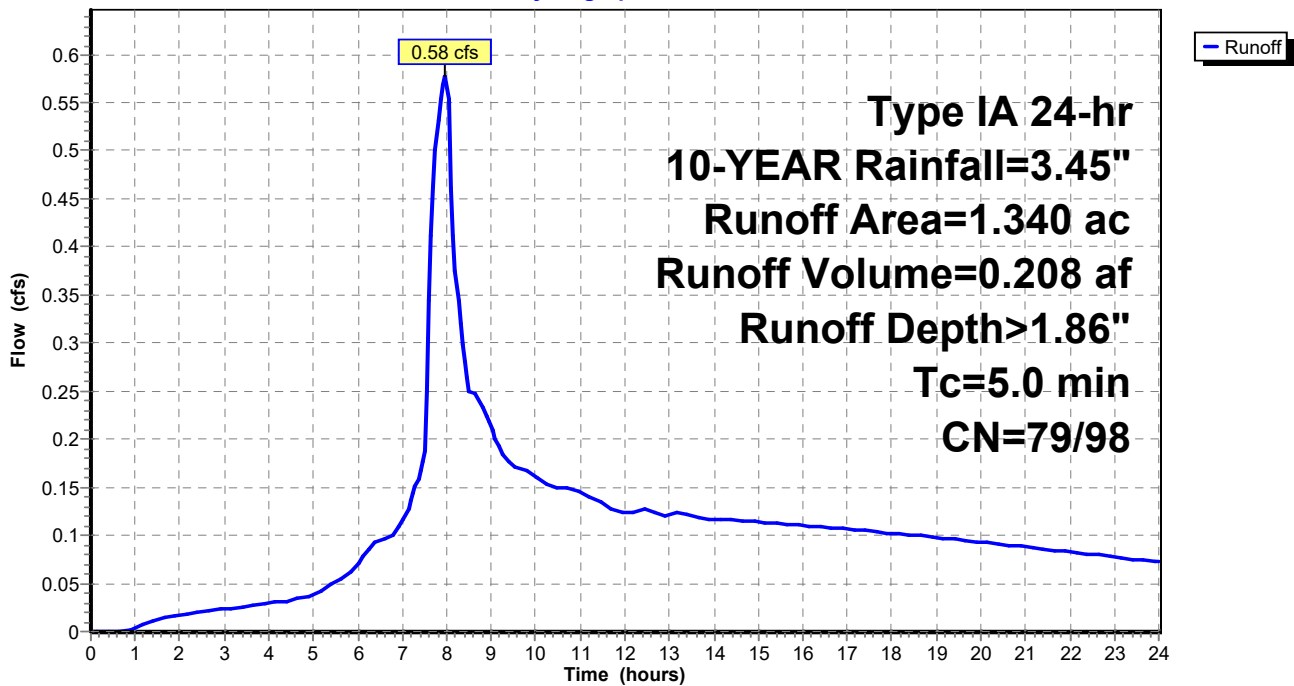
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 10-YEAR Rainfall=3.45"

Area (ac)	CN	Description
0.270	98	Paved parking, HSG B
1.070	79	<50% Grass cover, Poor, HSG B
1.340	83	Weighted Average
1.070	79	79.85% Pervious Area
0.270	98	20.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 5S(P): Post-Dev

Hydrograph



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Type IA 24-hr 10-YEAR Rainfall=3.45"

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Summary for Subcatchment 6S(P): Post-Dev

Runoff = 11.38 cfs @ 8.14 hrs, Volume= 6.507 af, Depth> 1.72"

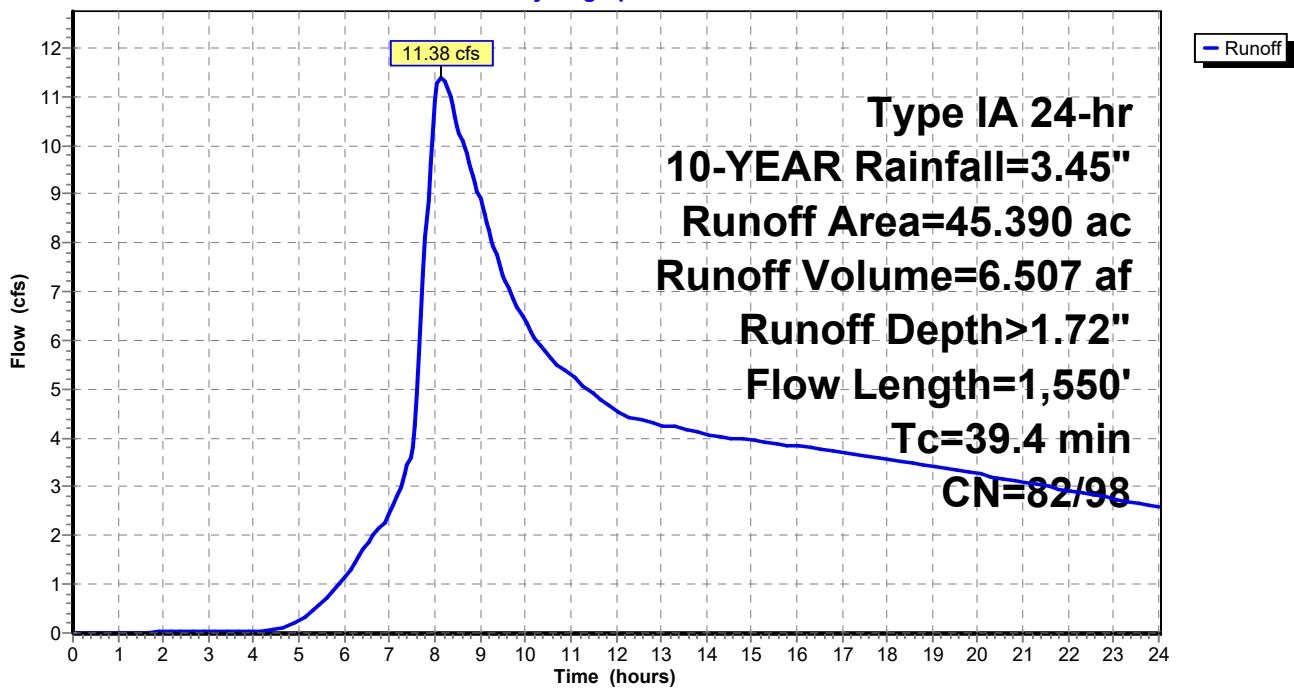
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10-YEAR Rainfall=3.45"

Area (ac)	CN	Description
32.480	79	<50% Grass cover, Poor, HSG B
0.480	98	Paved parking, HSG D
12.430	89	<50% Grass cover, Poor, HSG D
45.390	82	Weighted Average
44.910	82	98.94% Pervious Area
0.480	98	1.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
21.4	1,100	0.0150	0.86		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
3.4	350	0.0600	1.71		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
39.4	1,550	Total			

Subcatchment 6S(P): Post-Dev

Hydrograph



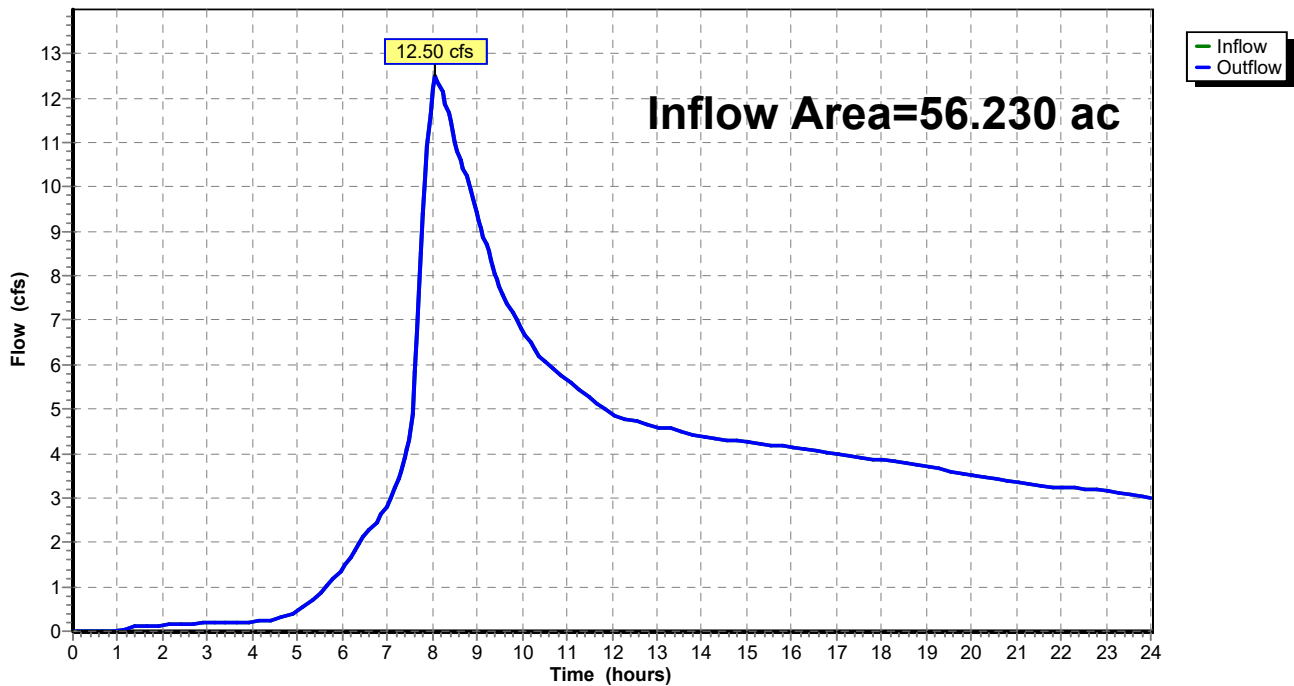
Summary for Reach 1R: Rock Creek Outfall

Inflow Area = 56.230 ac, 15.92% Impervious, Inflow Depth > 1.52" for 10-YEAR event
Inflow = 12.50 cfs @ 8.06 hrs, Volume= 7.131 af
Outflow = 12.50 cfs @ 8.06 hrs, Volume= 7.131 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2

Reach 1R: Rock Creek Outfall

Hydrograph



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Type IA 24-hr 10-YEAR Rainfall=3.45"

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Summary for Pond 1P: Pond

Inflow Area = 8.670 ac, 85.01% Impervious, Inflow Depth > 2.96" for 10-YEAR event
 Inflow = 6.38 cfs @ 7.91 hrs, Volume= 2.137 af
 Outflow = 0.31 cfs @ 24.00 hrs, Volume= 0.194 af, Atten= 95%, Lag= 965.6 min
 Primary = 0.31 cfs @ 24.00 hrs, Volume= 0.194 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 136.87' @ 24.00 hrs Surf.Area= 22,762 sf Storage= 84,634 cf

Plug-Flow detention time= 721.6 min calculated for 0.193 af (9% of inflow)
 Center-of-Mass det. time= 244.4 min (919.5 - 675.1)

Volume	Invert	Avail.Storage	Storage Description
#1	132.00'	111,009 cf	Custom Stage Data (Prismatic) Listed below
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
132.00	13,337	0	0
133.00	14,863	14,100	14,100
134.00	16,432	15,648	29,748
135.00	18,051	17,242	46,989
136.00	19,718	18,885	65,874
137.00	23,200	21,459	87,333
138.00	24,152	23,676	111,009

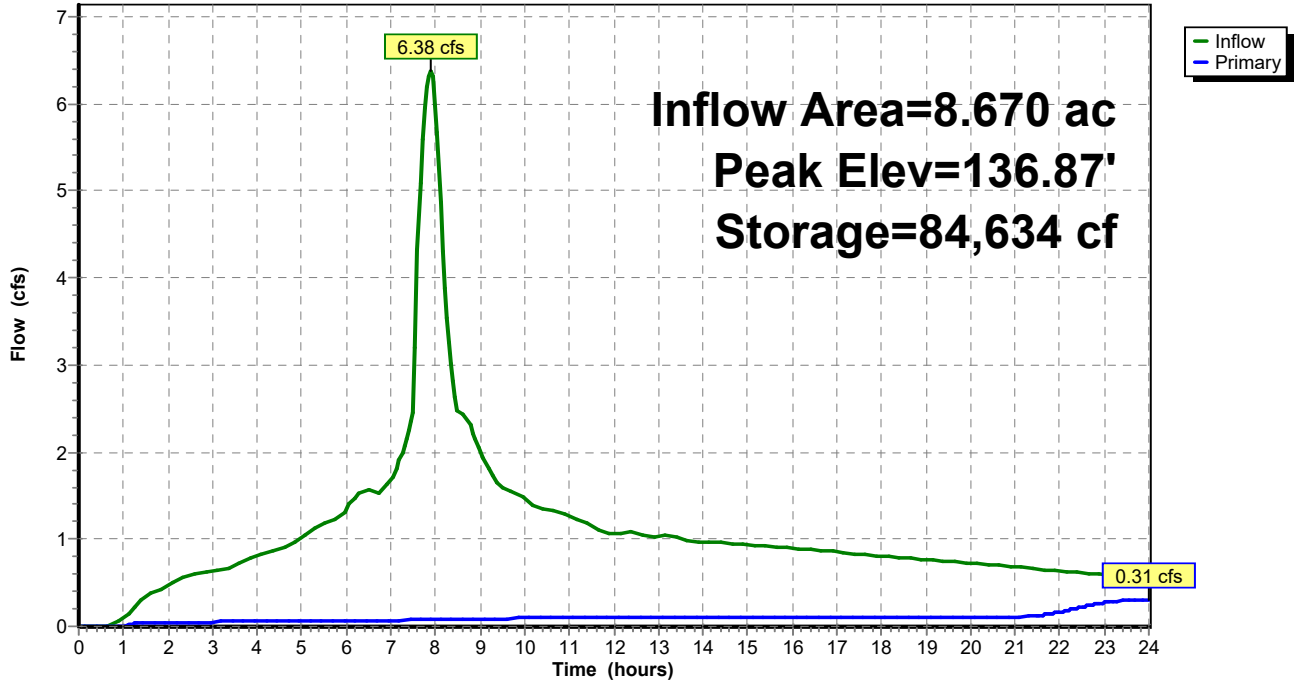
Device	Routing	Invert	Outlet Devices
#1	Primary	131.00'	18.0" Vert. 18" Pond Outlet C= 0.620
#2	Device 1	136.70'	4.2" Horiz. 5-year Orifice C= 0.620 Limited to weir flow at low heads
#3	Device 1	137.25'	6.0" Horiz. 10/25-year Orifice C= 0.620 Limited to weir flow at low heads
#4	Device 1	131.00'	1.3" Horiz. WQ Orifice C= 0.620 Limited to weir flow at low heads
#5	Device 4	132.00'	27.0" x 24.0" Horiz. WQ Inlet (Bottom) C= 0.600 Limited to weir flow at low heads
#6	Device 1	137.99'	27.0" x 24.0" Horiz. Overflow Inlet (Top) C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.31 cfs @ 24.00 hrs HW=136.87' TW=0.00' (Dynamic Tailwater)

- 1=18" Pond Outlet (Passes 0.31 cfs of 19.90 cfs potential flow)
- 2=5-year Orifice (Orifice Controls 0.20 cfs @ 2.08 fps)
- 3=10/25-year Orifice (Controls 0.00 cfs)
- 4=WQ Orifice (Orifice Controls 0.11 cfs @ 12.06 fps)
- 5=WQ Inlet (Bottom) (Passes 0.11 cfs of 47.84 cfs potential flow)
- 6=Overflow Inlet (Top) (Controls 0.00 cfs)

Pond 1P: Pond

Hydrograph



Post-Developed 25-yr Storm Event Peak Flow Calculations

7971 POST-DEV*Type IA 24-hr 25-YEAR Rainfall=3.90"*

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 2

Runoff by SBUH method, Split Pervious/Imperv.

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1S(P): Post-Dev Runoff Area=6.570 ac 83.56% Impervious Runoff Depth>3.37"
Tc=5.0 min CN=79/98 Runoff=5.49 cfs 1.843 af

Subcatchment2S(P): Post-Dev Runoff Area=0.830 ac 100.00% Impervious Runoff Depth>3.66"
Tc=5.0 min CN=0/98 Runoff=0.76 cfs 0.253 af

Subcatchment3S(P): Post-Dev Runoff Area=1.550 ac 85.81% Impervious Runoff Depth>3.41"
Tc=5.0 min CN=79/98 Runoff=1.31 cfs 0.440 af

Subcatchment4S(P): Post-Dev Runoff Area=0.550 ac 100.00% Impervious Runoff Depth>3.66"
Tc=5.0 min CN=0/98 Runoff=0.50 cfs 0.168 af

Subcatchment5S(P): Post-Dev Runoff Area=1.340 ac 20.15% Impervious Runoff Depth>2.24"
Tc=5.0 min CN=79/98 Runoff=0.71 cfs 0.250 af

Subcatchment6S(P): Post-Dev Runoff Area=45.390 ac 1.06% Impervious Runoff Depth>2.09"
Flow Length=1,550' Tc=39.4 min CN=82/98 Runoff=14.32 cfs 7.910 af

Reach 1R: Rock Creek Outfall Inflow=15.65 cfs 8.742 af
Outflow=15.65 cfs 8.742 af

Pond 1P: Pond Peak Elev=137.21' Storage=92,372 cf Inflow=7.30 cfs 2.451 af
Outflow=0.46 cfs 0.330 af

Total Runoff Area = 56.230 ac Runoff Volume = 10.863 af Average Runoff Depth = 2.32"
84.08% Pervious = 47.280 ac 15.92% Impervious = 8.950 ac

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Type IA 24-hr 25-YEAR Rainfall=3.90"

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Summary for Subcatchment 1S(P): Post-Dev

Runoff = 5.49 cfs @ 7.91 hrs, Volume= 1.843 af, Depth> 3.37"

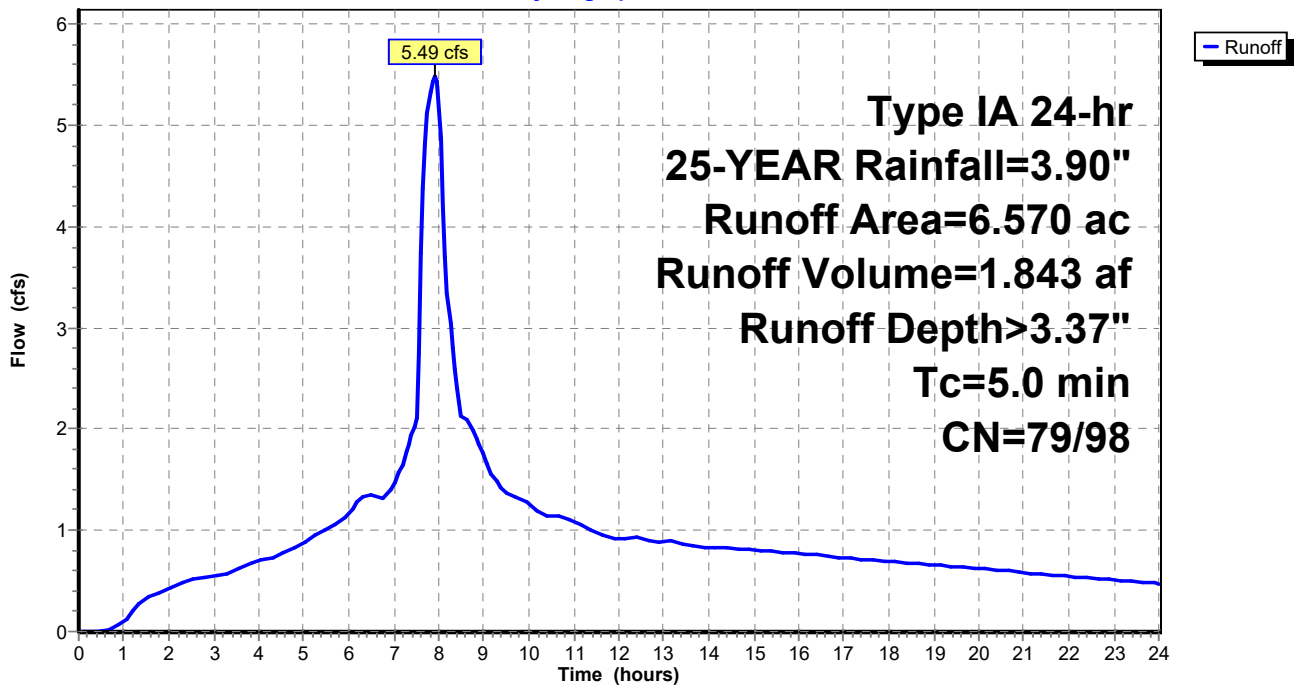
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 25-YEAR Rainfall=3.90"

Area (ac)	CN	Description
* 5.490	98	Paved parking, roofs, HSG B
1.080	79	<50% Grass cover, Poor, HSG B
6.570	95	Weighted Average
1.080	79	16.44% Pervious Area
5.490	98	83.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 1S(P): Post-Dev

Hydrograph



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Type IA 24-hr 25-YEAR Rainfall=3.90"

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Summary for Subcatchment 2S(P): Post-Dev

Runoff = 0.76 cfs @ 7.90 hrs, Volume= 0.253 af, Depth> 3.66"

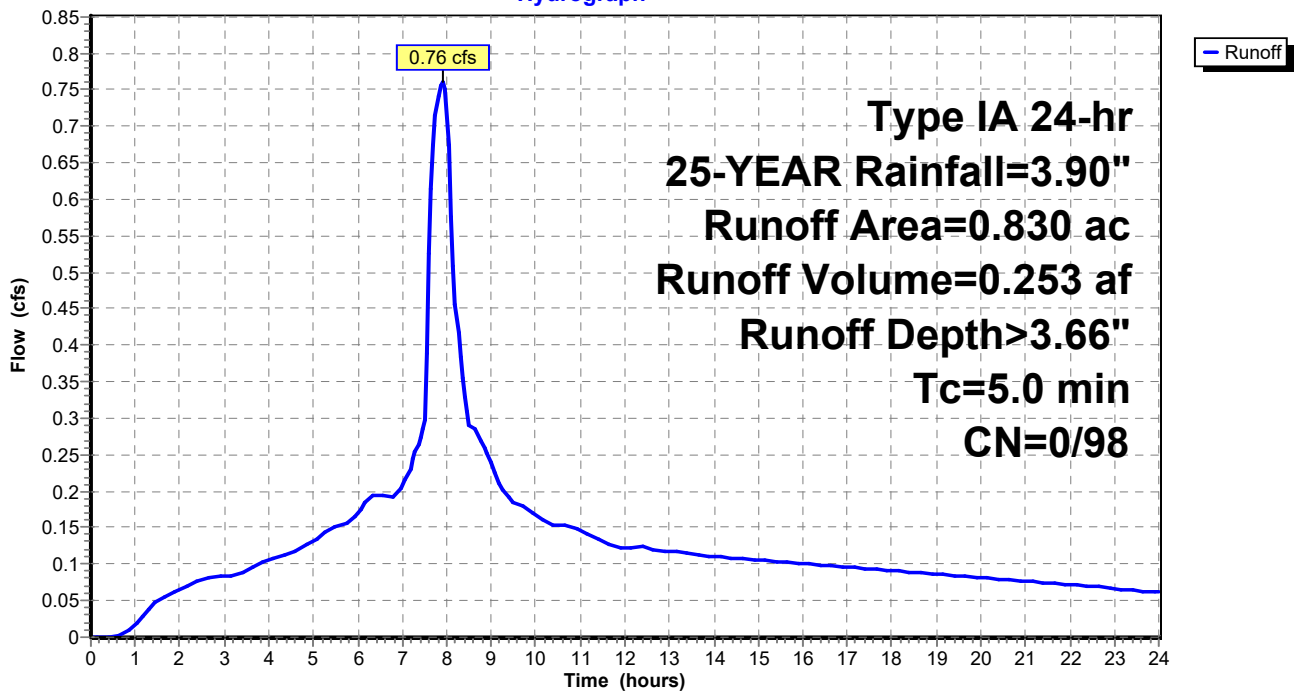
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-YEAR Rainfall=3.90"

Area (ac)	CN	Description
0.830	98	Paved roads w/curbs & sewers, HSG D
0.830	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 2S(P): Post-Dev

Hydrograph



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Type IA 24-hr 25-YEAR Rainfall=3.90"

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Summary for Subcatchment 3S(P): Post-Dev

Runoff = 1.31 cfs @ 7.90 hrs, Volume= 0.440 af, Depth> 3.41"

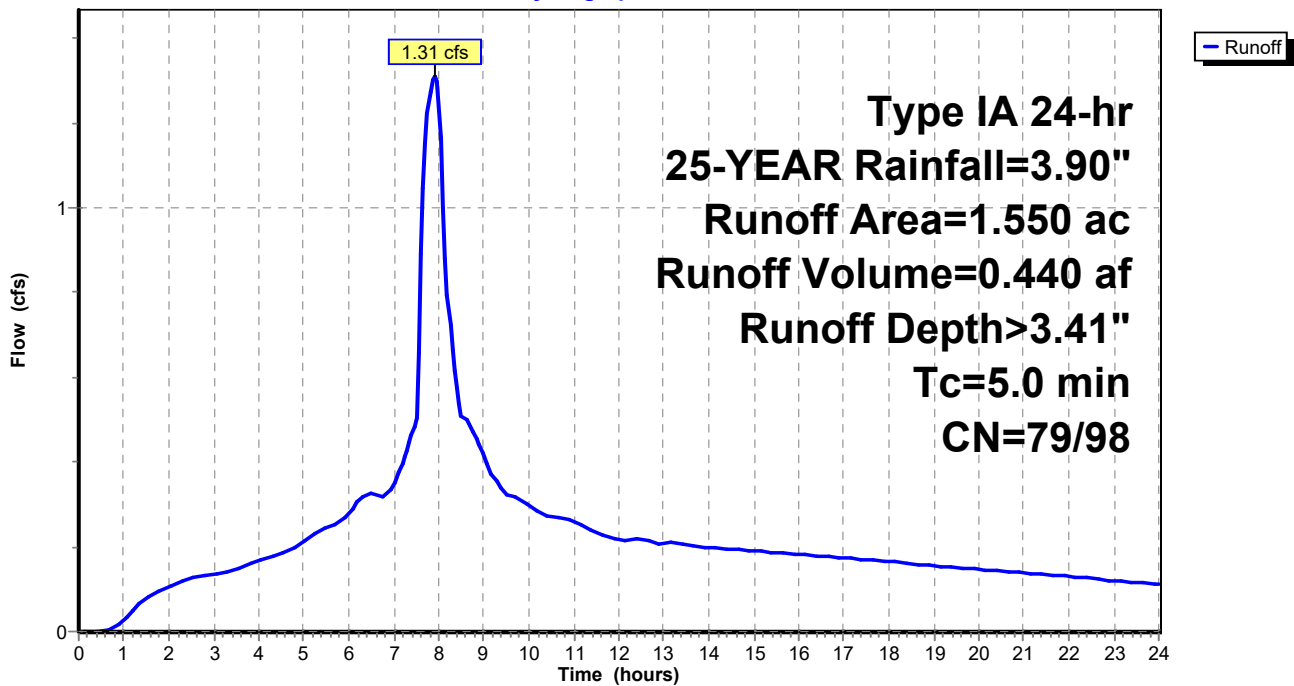
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-YEAR Rainfall=3.90"

Area (ac)	CN	Description
* 1.330	98	Paved parking, roofs, HSG B
0.220	79	<50% Grass cover, Poor, HSG B
1.550	95	Weighted Average
0.220	79	14.19% Pervious Area
1.330	98	85.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 3S(P): Post-Dev

Hydrograph



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Type IA 24-hr 25-YEAR Rainfall=3.90"

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Summary for Subcatchment 4S(P): Post-Dev

Runoff = 0.50 cfs @ 7.90 hrs, Volume= 0.168 af, Depth> 3.66"

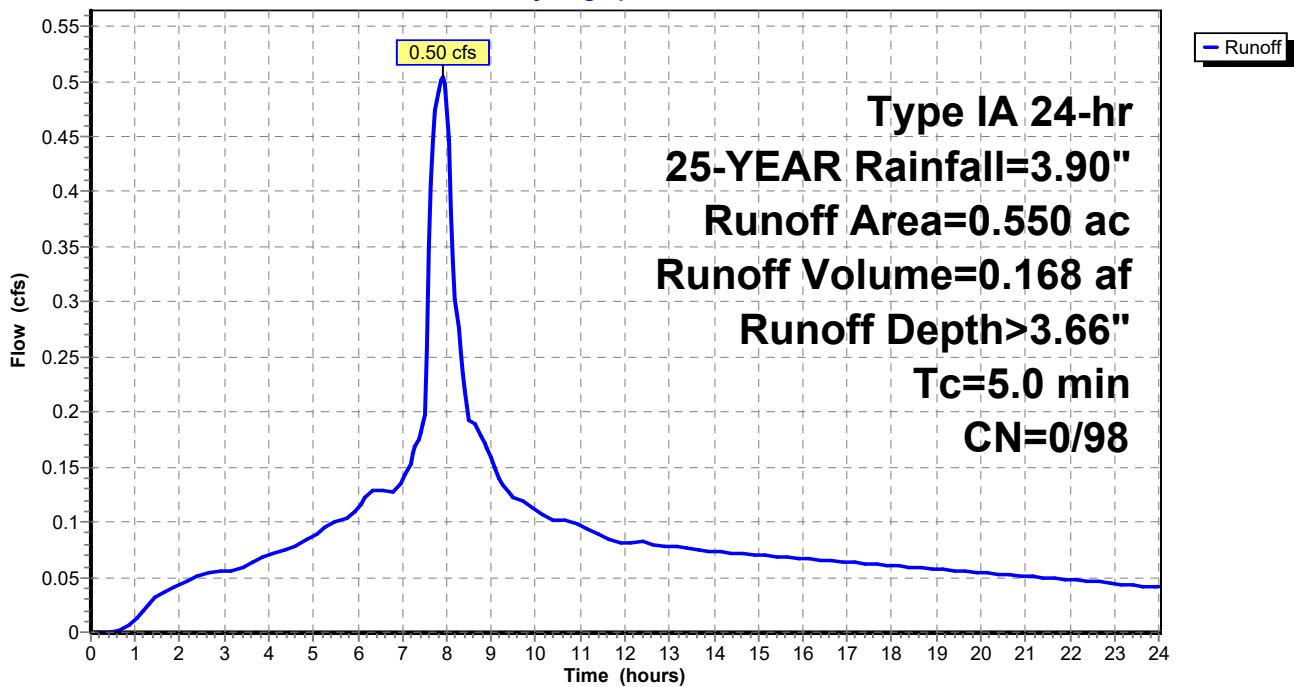
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-YEAR Rainfall=3.90"

Area (ac)	CN	Description
0.550	98	Water Surface, HSG B
0.550	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 4S(P): Post-Dev

Hydrograph



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Type IA 24-hr 25-YEAR Rainfall=3.90"

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Summary for Subcatchment 5S(P): Post-Dev

Runoff = 0.71 cfs @ 7.97 hrs, Volume= 0.250 af, Depth> 2.24"

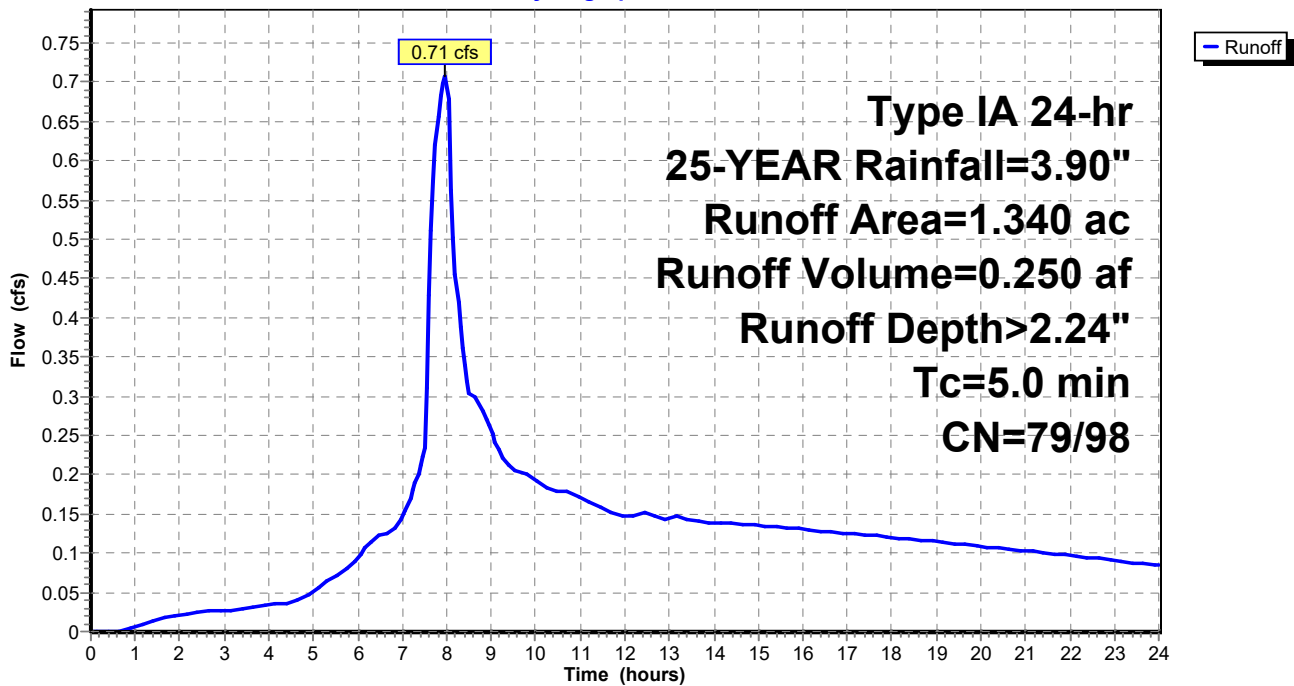
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type IA 24-hr 25-YEAR Rainfall=3.90"

Area (ac)	CN	Description
0.270	98	Paved parking, HSG B
1.070	79	<50% Grass cover, Poor, HSG B
1.340	83	Weighted Average
1.070	79	79.85% Pervious Area
0.270	98	20.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 5S(P): Post-Dev

Hydrograph



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Type IA 24-hr 25-YEAR Rainfall=3.90"

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Summary for Subcatchment 6S(P): Post-Dev

Runoff = 14.32 cfs @ 8.13 hrs, Volume= 7.910 af, Depth> 2.09"

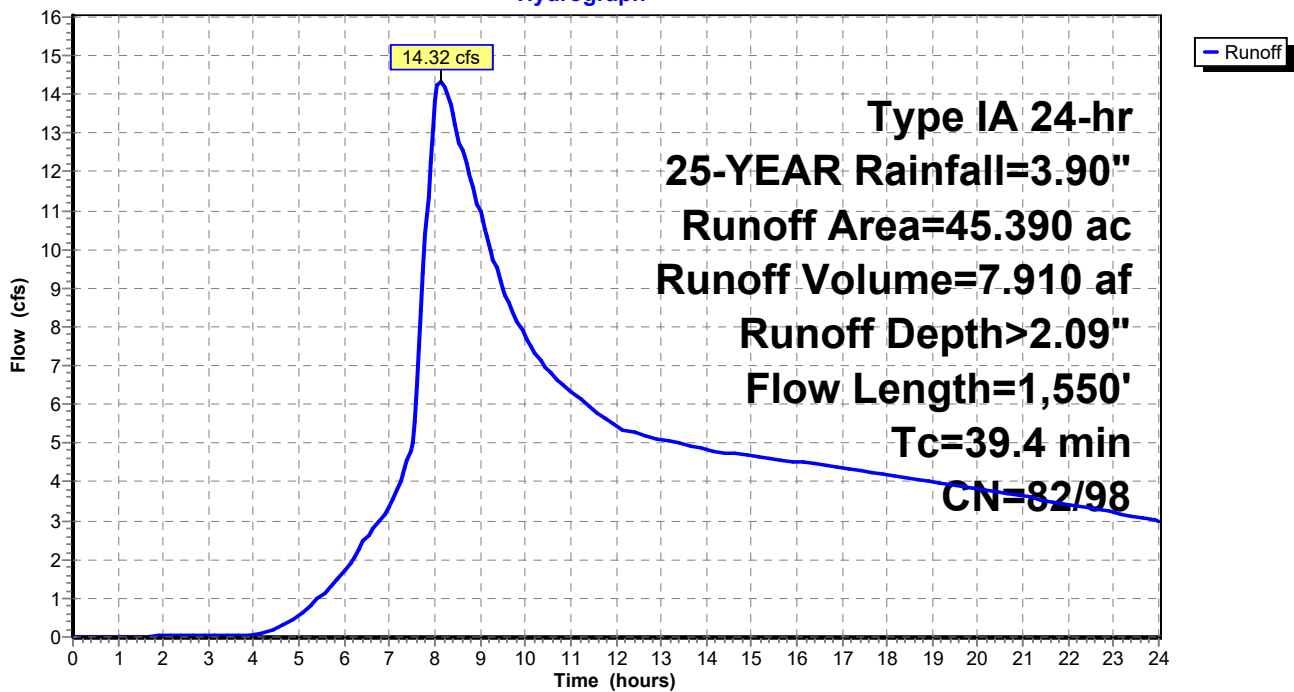
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 25-YEAR Rainfall=3.90"

Area (ac)	CN	Description
32.480	79	<50% Grass cover, Poor, HSG B
0.480	98	Paved parking, HSG D
12.430	89	<50% Grass cover, Poor, HSG D
45.390	82	Weighted Average
44.910	82	98.94% Pervious Area
0.480	98	1.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.50"
21.4	1,100	0.0150	0.86		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
3.4	350	0.0600	1.71		Shallow Concentrated Flow, Shallow Concentrated Short Grass Pasture Kv= 7.0 fps
39.4	1,550	Total			

Subcatchment 6S(P): Post-Dev

Hydrograph



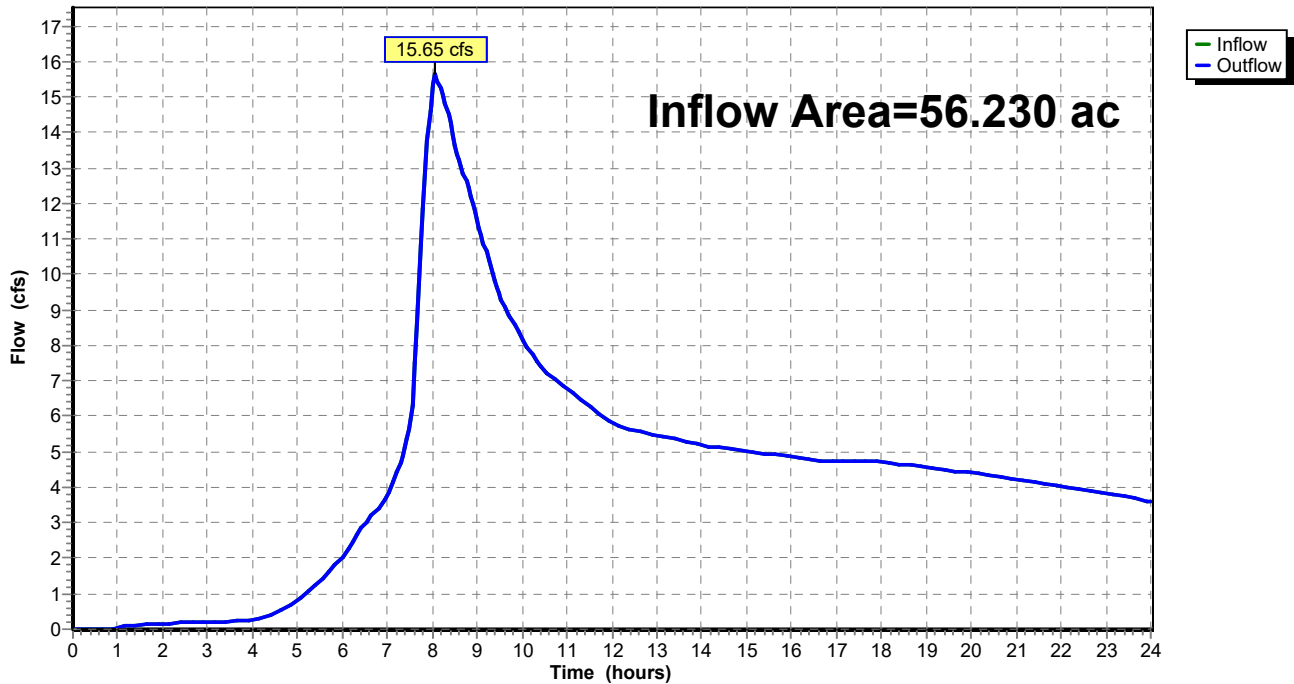
Summary for Reach 1R: Rock Creek Outfall

Inflow Area = 56.230 ac, 15.92% Impervious, Inflow Depth > 1.87" for 25-YEAR event
Inflow = 15.65 cfs @ 8.06 hrs, Volume= 8.742 af
Outflow = 15.65 cfs @ 8.06 hrs, Volume= 8.742 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2

Reach 1R: Rock Creek Outfall

Hydrograph



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Type IA 24-hr 25-YEAR Rainfall=3.90"

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Summary for Pond 1P: Pond

Inflow Area = 8.670 ac, 85.01% Impervious, Inflow Depth > 3.39" for 25-YEAR event
 Inflow = 7.30 cfs @ 7.90 hrs, Volume= 2.451 af
 Outflow = 0.46 cfs @ 24.00 hrs, Volume= 0.330 af, Atten= 94%, Lag= 965.7 min
 Primary = 0.46 cfs @ 24.00 hrs, Volume= 0.330 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 137.21' @ 24.00 hrs Surf.Area= 23,403 sf Storage= 92,372 cf

Plug-Flow detention time= 807.3 min calculated for 0.329 af (13% of inflow)
 Center-of-Mass det. time= 368.0 min (1,040.2 - 672.1)

Volume	Invert	Avail.Storage	Storage Description
#1	132.00'	111,009 cf	Custom Stage Data (Prismatic) Listed below
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
132.00	13,337	0	0
133.00	14,863	14,100	14,100
134.00	16,432	15,648	29,748
135.00	18,051	17,242	46,989
136.00	19,718	18,885	65,874
137.00	23,200	21,459	87,333
138.00	24,152	23,676	111,009

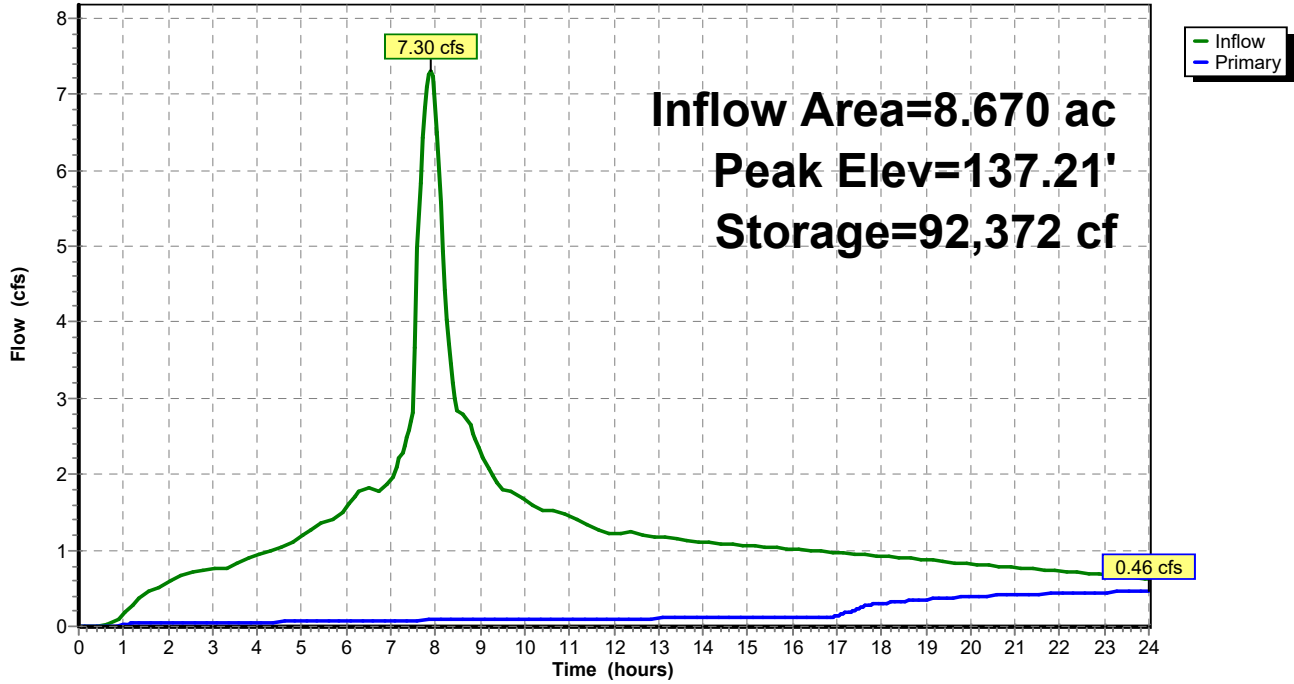
Device	Routing	Invert	Outlet Devices
#1	Primary	131.00'	18.0" Vert. 18" Pond Outlet C= 0.620
#2	Device 1	136.70'	4.2" Horiz. 5-year Orifice C= 0.620 Limited to weir flow at low heads
#3	Device 1	137.25'	6.0" Horiz. 10/25-year Orifice C= 0.620 Limited to weir flow at low heads
#4	Device 1	131.00'	1.3" Horiz. WQ Orifice C= 0.620 Limited to weir flow at low heads
#5	Device 4	132.00'	27.0" x 24.0" Horiz. WQ Inlet (Bottom) C= 0.600 Limited to weir flow at low heads
#6	Device 1	137.99'	27.0" x 24.0" Horiz. Overflow Inlet (Top) C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.46 cfs @ 24.00 hrs HW=137.21' TW=0.00' (Dynamic Tailwater)

- ↑ **1=18" Pond Outlet** (Passes 0.46 cfs of 20.55 cfs potential flow)
- ↑ **2=5-year Orifice** (Orifice Controls 0.34 cfs @ 3.56 fps)
- ↑ **3=10/25-year Orifice** (Controls 0.00 cfs)
- ↑ **4=WQ Orifice** (Orifice Controls 0.11 cfs @ 12.40 fps)
- ↑ **5=WQ Inlet (Bottom)** (Passes 0.11 cfs of 49.47 cfs potential flow)
- ↑ **6=Overflow Inlet (Top)** (Controls 0.00 cfs)

Pond 1P: Pond

Hydrograph

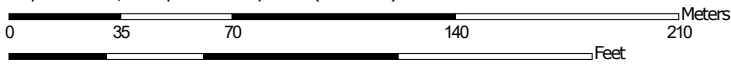


**Appendix B:
USDA – NRCS Soil Resource Report**

Soil Map—Washington County, Oregon



Map Scale: 1:2,370 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84



Natural Resources Conservation Service

Web Soil Survey National Cooperative Soil Survey

7/28/2021 Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Washington County, Oregon

Survey Area Data: Version 18, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 1, 2019—Sep 12, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5B	Briedwell stony silt loam, 0 to 7 percent slopes	9.4	84.9%
13	Cove silty clay loam	0.9	8.3%
28B	Laurelwood silt loam, 3 to 7 percent slopes	0.8	6.8%
Totals for Area of Interest		11.0	100.0%

Appendix C: TR 55 Runoff Curve Numbers

Table 2-2a Runoff curve numbers for urban areas ^{1/}

Cover description	Average percent impervious area ^{2/}	Curve numbers for hydrologic soil group			
		A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) ^{3/} :					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) ^{4/}		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82

Developing urban areas

Newly graded areas
(pervious areas only, no vegetation) ^{5/}

	77	86	91	94
--	----	----	----	----

Idle lands (CN's are determined using cover types
similar to those in table 2-2c).

¹ Average runoff condition, and $I_a = 0.2S$.

² The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

³ CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

⁴ Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

⁵ Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Appendix D: Water Quality Calculations



STORMWATER QUALITY CALCULATIONS

AKS ENGINEERING & FORESTRY, LLC | 12965 SW Herman Rd, Suite 100 | Tualatin, OR 97062

p: 503.563.6151 | f: 503.563.6152 | www.aks-eng.com

PROJECT

Polley Industrial Site

AKS JOB NO.

7971

DATE

5/12/2022

PREPARED FOR:

Oregon Street Business
Park, LLC

ADDRESS

PO Box 1489

CITY/STATE/ZIP

Sherwood, OR 97140

PROJECT MANAGER:

JPC

PREPARED BY:

BDL

REVIEWED BY:

JPC

IMPERVIOUS AREA TABLE (Drains to Rock Creek)

SUBCATCHMENT		NET CHANGE (sq ft)
Existing 1S(E) (ac)	PROPOSED 1S(P) (ac)	
0.63	7.640	7.01
*TOTAL		7.640

Note:

*Runoff generated on impervious area to be treated by new pond.



STORMWATER QUALITY CALCULATIONS

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PROJECT

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7971

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5/12/2022

SUBCATCHMENT 1S(P)

IMPERVIOUS AREA USED IN DESIGN

Per CWS 4.05.5 - R&O 07-20

332,798 square feet

WATER QUALITY VOLUME (WQV)

Per CWS 4.05.6b - R&O 07-20

PREPARED FOR:

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ADDRESS

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Sherwood, OR 97140

$$WQV = \frac{0.36 \text{ in.} \times \text{Area (sq ft.)}}{12 \text{ in. per ft.}} =$$

9984 cubic feet

WATER QUALITY FLOW (WQF)

Per CWS 4.05.6b - R&O 07-20

$$WQF = \frac{WQV \text{ (sf)}}{14,400 \text{ seconds}} =$$

0.69 cubic feet per second

PROJECT MANAGER:

JPC

WATER QUALITY MANHOLE SUMP VOLUME CALCULATIONS

Per CWS 4.06.1b - R&O 07-20

CWS Criteria: Sump Volume = 20 cubic feet per 1.0 cfs of flow

PREPARED BY:

BDL

Calculated 25-year Flow through WQ Manhole = **7** cubic feet per second

REVIEWED BY:

JPC

Calculated Manhole Sump Volume = **140** cubic feet

Calculated Manhole Sump Depth (60" dia. MH) = **7.1** feet **therefore sump = 5.0 ft.**
3 ft. minimum < Sump Depth < 5 ft. maximum



STORMWATER QUALITY CALCULATIONS

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REVIEWED BY:

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EXTENDED DRY BASIN WATER QUALITY FLOW DESIGN AND CALCULATIONS

Hydraulic Design Criteria (Per CWS 4.06.3 - R&O 07-20)

Design Flow: Water Quality Flow

Water Quality Drawdown Time: 48 hours

Maximum Water Design Depth: 4.0 feet

Minimum Freeboard: 1.0 foot (for facilities not protected from high flows)

48-HOUR WATER QUALITY DRAW DOWN RATE (Q):

Water Quality Volume Pond Depth = **0.50** feet

$$Q = \frac{WQV \text{ (sf)}}{172,800 \text{ seconds}} = \mathbf{0.058} \text{ cubic feet per second}$$

ORIFICE SIZING

Diameter of Orifice

$$D = 24 \times \left[\frac{Q / (C[2gH]^{0.5})}{\pi} \right]^{0.5} = \mathbf{1.60} \text{ inches}$$

ORIFICE SIZING ASSUMPTIONS:

Q	C	g	H*
(cfs)		(ft/s ²)	(ft)
0.058	0.62	32.2	0.7

Note:

* H is 2/3 of the temporary detention height to centerline of orifice

POND ELEVATIONS:

Top of Pond =	138.50	feet
Top of WQV Storage =	133.00	feet
Top of Dead Storage =	132.50	feet
Centerline of Orifice Elevation =	132.00	feet

25-YEAR STORM EVENT:

Peak Flow Elevation =	137.21	feet
Freeboard depth =	1.29	foot
Ponding depth =	4.71	feet
Total Pond Depth =	6.00	feet



STORMWATER QUALITY CALCULATIONS

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REVIEWED BY:

JPC

EXTENDED DRY BASIN VOLUME

Contour Elevation (Feet)	Contour Area (SF)	Average Area (SF)	Contour Interval (Feet)	Incremental Volume (CF)	Cumulative Volume (CF)	
132.00	13,337			0	0	
		13,717	0.5			
132.5	14,096			6,859	6,859	
		14,480	0.5			
133.00	14,863			7,240	14,099	Top of WQV
		15,648	1.0			
134.0	16,432			15,648	29,747	
		17,242	1.0			
135.0	18,051			17,242	46,989	
		18,885	1.0			
136.0	19,718			18,885	65,874	
		20,576	1.0			
137.0	21,434			20,576	86,450	
		22,317	1.0			
138.0	23,200			22,317	108,767	
		23,676	0.5			
138.5	24,152			11,838	120,605	

Appendix E: Geotechnical Report



Real-World Geotechnical Solutions
Investigation • Design • Construction Support

June 22, 2020
Project No. 20-5500

Bruce Polley

21720 SW Oregon Street
Sherwood, Oregon 97140
Via email: bruce@airteknw.com

**SUBJECT: GEOTECHNICAL ENGINEERING REPORT
PROPOSED COMMERCIAL DEVELOPMENT
21720 SW OREGON STREET
SHERWOOD, OREGON**

This report presents the results of a geotechnical engineering study conducted by GeoPacific Engineering, Inc. (GeoPacific) for the above-referenced project. The purpose of our investigation was to evaluate subsurface conditions at the site and to provide geotechnical recommendations for site development. This geotechnical study was performed in accordance with GeoPacific Proposal No. P-7334, dated May 4, 2020 and your subsequent authorization of our proposal and *General Conditions for Geotechnical Services*.

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The subject site is located to the southeast of the intersection of SW Oregon Street and SW Tonquin Road in the City of Sherwood, Washington County, Oregon (Figures 1 & 2). The site is approximately 8.5 acres in size. Topography on the site generally slopes down to the east at average grades of 15 percent or less. The property is currently occupied by a single family residence and a separate shop building. Both structures are located in the north-central portion of the site and are accessed by a driveway on SW Oregon Street. Vegetation consists of grass pasture and dense to sparse trees.

We understand that plans for site development consist of the construction of four new industrial buildings, parking areas, driving lanes, stormwater management facility, and associated underground utilities. The structures will likely be supported by a spread footing foundation incorporating a slab-on-grade. Plans for site development have not yet been finalized, but we anticipate cuts and fills of 10 feet or less.

REGIONAL AND LOCAL GEOLOGIC SETTING

Regionally, the subject site lies within the Willamette Valley/Puget Sound lowland, a broad structural depression situated between the Coast Range on the west and the Cascade Range on the east. A series of discontinuous faults subdivide the Willamette Valley into a mosaic of fault-

bounded, structural blocks (Yeats et al., 1996). Uplifted structural blocks form bedrock highlands, while down-warped structural blocks form sedimentary basins.

The site is underlain by the Quaternary age (last 1.6 million years) Willamette Formation, a catastrophic flood deposit associated with repeated glacial outburst flooding of the Willamette Valley (Schlicker and Deacon, 1967; Yeats et al., 1996). The last of these outburst floods occurred about 10,000 years ago. In this vicinity, these flood deposits consist of coarse grained deposits typically consisting of pebbles and boulders in a silty matrix and fine grained deposits consisting of silt (Schlicker and Deacon, 1967; Beeson et al., 1989).

The catastrophic flood deposits are underlain by the Columbia River Basalt Formation (Schlicker and Deacon, 1967; Gannett and Caldwell, 1998). In the central and southern portions of the site, the Columbia River Basalt Formation is near the ground surface. The Miocene aged (about 14.5 to 16.5 million years ago) Columbia River Basalts are a thick sequence of lava flows which form the crystalline basement of the Tualatin Valley. The basalts are composed of dense, finely crystalline rock that is commonly fractured along blocky and columnar vertical joints. Individual basalt flow units typically range from 25 to 125 feet thick and interflow zones are typically vesicular, scoriaceous, brecciated, and sometimes include sedimentary rocks.

REGIONAL SEISMIC SETTING

At least three potential source zones capable of generating damaging earthquakes are thought to exist in the region. These include the Portland Hills Fault Zone, the Gales Creek-Newberg-Mt. Angel Structural Zone, and the Cascadia Subduction Zone, as discussed below.

Portland Hills Fault Zone

The Portland Hills Fault Zone is a series of NW-trending faults that include the central Portland Hills Fault, the western Oatfield Fault, and the eastern East Bank Fault. These faults occur in a northwest-trending zone that varies in width between 3.5 and 5.0 miles. The combined three faults vertically displace the Columbia River Basalt by 1,130 feet and appear to control thickness changes in late Pleistocene (approx. 780,000 years) sediment (Madin, 1990). The Portland Hills Fault occurs along the Willamette River at the base of the Portland Hills, and is approximately 11 miles northeast of the site. The East Bank Fault occurs along the eastern margin of the Willamette River, and is approximately 14 miles northeast of the site. The Oatfield Fault occurs along the western side of the Portland Hills, and is approximately 9 miles northeast of the site. The accuracy of the fault mapping is stated to be within 500 meters (Wong, et al., 2000). No historical seismicity is correlated with the mapped portion of the Portland Hills Fault Zone, but in 1991 a M3.5 earthquake occurred on a NW-trending shear plane located 1.3 miles east of the fault (Yelin, 1992). Although there is no definitive evidence of recent activity, the Portland Hills Fault Zone is assumed to be potentially active (Geomatrix Consultants, 1995).

Gales Creek-Newberg-Mt. Angel Structural Zone

The Gales Creek-Newberg-Mt. Angel Structural Zone is a 50-mile-long zone of discontinuous, NW-trending faults that lies approximately 8.4 miles southwest of the subject site. These faults are recognized in the subsurface by vertical separation of the Columbia River Basalt and offset seismic reflectors in the overlying basin sediment (Yeats et al., 1996; Werner et al., 1992). A geologic reconnaissance and photogeologic analysis study conducted for the Scoggins Dam site in the Tualatin Basin revealed no evidence of deformed geomorphic surfaces along the structural zone (Unruh et al., 1994). No seismicity has been recorded on the Gales Creek Fault or Newberg Fault;

however, these faults are considered to be potentially active because they may connect with the seismically active Mount Angel Fault and the rupture plane of the 1993 M5.6 Scotts Mills earthquake (Werner et al. 1992; Geomatrix Consultants, 1995).

Cascadia Subduction Zone

The Cascadia Subduction Zone is a 680-mile-long zone of active tectonic convergence where oceanic crust of the Juan de Fuca Plate is subducting beneath the North American continent at a rate of 4 cm per year (Goldfinger et al., 1996). A growing body of geologic evidence suggests that prehistoric subduction zone earthquakes have occurred (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). This evidence includes: (1) buried tidal marshes recording episodic, sudden subsidence along the coast of northern California, Oregon, and Washington, (2) burial of subsided tidal marshes by tsunami wave deposits, (3) paleoliquefaction features, and (4) geodetic uplift patterns on the Oregon coast. Radiocarbon dates on buried tidal marshes indicate a recurrence interval for major subduction zone earthquakes of 250 to 650 years with the last event occurring 300 years ago (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). The inferred seismogenic portion of the plate interface lies approximately 50 miles west of the Portland Basin at depths of between 20 and 40 kilometers below the surface.

FIELD EXPLORATION

Our site-specific exploration for this report was conducted on May 14, 2020. Nine exploratory test pits were excavated with a medium sized backhoe to depths ranging between 1 and 13 feet at the approximate locations presented on Figure 2. On May 26, 2020, seven hand auger borings were performed with hand equipment to depths of 1 to 5 feet, as presented on Figure 2. It should be noted that exploration locations were located in the field by pacing or taping distances from apparent property corners and other site features shown on the plans provided. As such, the locations of the explorations should be considered approximate.

A GeoPacific Engineering Geologist continuously monitored the field exploration program and logged the explorations. Soils observed were classified in general accordance with the Unified Soil Classification System (USCS). Rock hardness was classified in accordance with Table 1, modified from the ODOT Rock Hardness Classification Chart. During exploration, our geologist also noted geotechnical conditions such as soil consistency, moisture and groundwater conditions. Logs of the test pits and hand auger borings are attached to this report. The following report sections are based on the exploration program and summarize subsurface conditions encountered at the site.

Table 1. Rock Hardness Classification Chart

ODOT Rock Hardness Rating	Field Criteria	Unconfined Compressive Strength	Typical Equipment Needed For Excavation
Extremely Soft (R0)	Indented by thumbnail	<100 psi	Small excavator
Very Soft (R1)	Scratched by thumbnail, crumbled by rock hammer	100-1,000 psi	Small excavator
Soft (R2)	Not scratched by thumbnail, indented by rock hammer	1,000-4,000 psi	Medium excavator (slow digging with small excavator)
Medium Hard (R3)	Scratched or fractured by rock hammer	4,000-8,000 psi	Medium to large excavator (slow to very slow digging), typically requires chipping with hydraulic hammer or mass excavation)
Hard (R4)	Scratched or fractured w/ difficulty	8,000-16,000 psi	Slow chipping with hydraulic hammer and/or blasting
Very Hard (R5)	Not scratched or fractured after many blows, hammer rebounds	>16,000 psi	Blasting

Undocumented Fill: Undocumented fill was encountered at the ground surface in test pit TP-9. The fill generally consisted of abundant inorganic debris (concrete, bricks, fabric) in a silty GRAVEL (GM) matrix that extended to a depth of 6.5 feet. The fill was loose to medium dense and significant caving of the sidewalls was observed. Topography indicates additional fill is present in the vicinity of the shop building, as presented on Figure 2. It is likely that other areas of undocumented fill may exist in the vicinity of the existing structures.

Topsoil Horizon: The ground surface in test pits TP-1 through TP-8 and hand auger borings HA-1 through HA-7 was directly underlain by a topsoil horizon generally consisting of brown, moderately to highly organic silt (ML-OL). Generally, the topsoil horizon was loose, contained fine roots throughout, and extended to a depth of approximately 7 to 12 inches below the ground surface.

Catastrophic Flood Deposits (Willamette Formation):

Fine Grained: Underlying the topsoil horizon in test pits TP-1, TP-2, TP-4 through TP-8 and hand auger borings HA-1 through HA-3, HA-5, and HA-7 and the undocumented fill in test pit TP-9 was fine grained catastrophic flood deposits. These soils generally consisted of light brown clayey silt (ML) that typically had a stiff to very stiff consistency. Test pits TP-1 and TP-2 encountered additional fine grained flood deposits beneath the coarse grained deposits. Fine grained catastrophic flood deposits extended to depths of approximately 1.5 to 9 feet in test pits TP-4 through TP-8 and beyond the maximum depth of exploration in test pits TP-1, TP-2, and TP-9.

Coarse Grained: In test pits TP-1, TP-2, TP-4 through TP-6, and TP-8 and hand auger borings HA-1 through HA-3, HA-5, and HA-7, the fine grained flood deposits were underlain by coarse

grained flood deposits. In explorations, these soils typically consisted of silty GRAVEL, COBBLES, and BOULDERS (GM) that had a dense to very dense relative density. In test pits TP-1, TP-2, TP-4, TP-5, and TP-7, the coarse grained flood deposits extended to depths of 8.5 to 11 feet. Practical refusal was achieved in hand auger borings HA-1 through HA-3, HA-5, and HA-7 and with a medium sized backhoe equipped with rock teeth was achieved on very dense flood deposits in test pit TP-6 and TP-8 at a depth of 10 feet. In our test pits we observed boulders up to 30 inches in diameter. It is possible that larger boulders are present on the site in areas outside our explorations.

Peat Deposit: A deposit of PEAT (PT) was encountered beneath the fine grained flood deposits in test pit TP-7. The highly organic peat was approximately 1 foot in thickness in test pit TP-7 and extended from a depth of 9 to 10 feet. Laboratory testing indicates the peat soils have an organic content of 14.3 percent. The results of laboratory testing are attached at the end of this report.

Columbia River Basalt Formation: Basalt bedrock belonging to the Columbia River Basalt Formation was encountered beneath the topsoil horizon in test pit TP-3 and hand auger borings HA-4 and HA-6 and the coarse grained flood deposits in test pits TP-4, TP-5, and TP-7. In our explorations, the gray rock contained trace silty clay to clayey silt matrix and was weathered to very soft (R1) to hard (R4) according to the ODOT Rock Hardness Chart (Table 1). Basalt belonging to the Columbia River Basalt Formation extended beyond the maximum depth of exploration in test pits TP-5 (11 feet) and TP-7 (13 feet). Practical refusal on hard (R4) basalt was achieved at 1 foot in test pit TP-3 and hand augers HA-4 and HA-6 and at 8.5 feet in test pit TP-4.

Soil Moisture and Groundwater

On May 14 and 26, 2020, soils encountered in our explorations were damp to wet. Perched groundwater seepage was encountered in test pits TP-4, TP-6, TP-7 and hand auger borings HA-1, HA-2, and HA-7 at depths of 1.5 to 9 feet. Discharge was visually estimated at less than ¼ gallon per minute to ½ gallon per minute. Static groundwater was not encountered in explorations to a maximum depth of 13 feet. Experience has shown that temporary perched storm-related groundwater conditions often occur within the surface soils over fine-grained native deposits such as those beneath the site, particularly during the wet season. It is anticipated that groundwater conditions will vary depending on the season, local subsurface conditions, changes in site utilization, and other factors.

CONCLUSIONS AND RECOMMENDATIONS

Our investigation indicates that the proposed development is geotechnically feasible, provided that the recommendations of this report are incorporated into the design and construction phases of the project. In our opinion, the primary geotechnical issues for the proposed development include:

- 1) The presence of undocumented fill in the central portion of the site. Up to 6.5 feet of fill was encountered in test pit TP-9 and topography indicates other fill is present in the vicinity of the existing shop building. Existing fill should be removed and replaced with engineered fill as described in the following *Site Preparation* and *Engineered Fill* sections.
- 2) The potential to encounter very dense flood boulders and hard, basalt bedrock. Practical refusal on hard (R4) basalt bedrock was achieved with a medium sized backhoe equipped with rock teeth at a depth of 1 foot in test pit TP-3 and 8.5 feet in test pit TP-4. Practical refusal on very dense flood deposit boulders was achieved at a depth of 10 feet in test pits

TP-6 and TP-8. The hard basalt bedrock and very dense flood boulders could hamper deep excavations (such as for utility trenching). Contractors should be prepared to manage difficult excavation conditions and budget accordingly. The presence of cobbles and boulders may also complicate reuse of the native soils as engineered fill material. Reuse of the native coarse grained flood deposit soils may require sorting operations under the supervision of GeoPacific.

- 3) The potential to encounter peat soils. Highly organic peat was encountered at depths of 9 to 10 feet in test pit TP-7. Hand auger explorations conducted in the vicinity of test pit TP-7 did not encounter peat soils indicating that the peat layer does not extend significantly north, south, or east from test pit TP-7. However, we recommend that the extent of the peat soils be evaluated further in the field by potholing during construction in an effort to verify that peat is not present within the influence zone of the building. If peat soils are encountered within the influence zones of proposed structures during construction, removal and backfill with engineered fill material may be necessary.

Site Preparation

Areas of proposed buildings, streets, and areas to receive fill should be cleared of vegetation and any organic and inorganic debris. Existing fill should be completely removed. Undocumented fill was encountered in test pit TP-9 and extended to a depth of approximately 6.5 feet. Topography indicated additional fill may be present in the vicinity of test pit TP-9, as presented on Figure 2. It is likely that other areas of fill are present in the vicinity of the existing structures and driveway. Existing buried structures such as septic tanks, should be demolished and any cavities structurally backfilled. Inorganic debris should be removed from the site.

Organic-rich topsoil should then be stripped from native soil areas of the site. Depth of stripping of existing topsoil is estimated to be approximately 6 to 9 inches across the majority of the site. The final depth of soil removal will be determined on the basis of a site inspection after the stripping/excavation has been performed. Stripped topsoil should preferably be removed from the site due to the high density of the proposed development. Any remaining topsoil should be stockpiled only in designated areas and stripping operations should be observed and documented by the geotechnical engineer or his representative.

Once topsoil stripping and removal of organic and inorganic debris is approved in a particular area, the area must be ripped or tilled to a depth of 12 inches, moisture conditioned, root-picked, and compacted in-place prior to the placement of engineered fill or crushed aggregate base for pavement. Exposed subgrade soils should be evaluated by the geotechnical engineer. For large areas, this evaluation is normally performed by proof-rolling the exposed subgrade with a fully loaded scraper or dump truck. For smaller areas where access is restricted, the subgrade should be evaluated by probing the soil with a steel probe. Soft/loose soils identified during subgrade preparation should be compacted to a firm and unyielding condition, over-excavated and replaced with engineered fill (as described below) or stabilized with rock prior to placement of engineered fill. The depth of overexcavation, if required, should be evaluated by the geotechnical engineer at the time of construction.

Engineered Fill

All grading for the proposed construction should be performed as engineered grading in accordance with the applicable building code at time of construction with the exceptions and additions noted herein. Proper test frequency and earthwork documentation usually requires daily observation and testing during stripping, rough grading, and placement of engineered fill. Imported

fill material must be approved by the geotechnical engineer prior to being imported to the site. Oversize material greater than 6 inches in size should not be used within 3 feet of foundation footings, and material greater than 12 inches in diameter should not be used in engineered fill.

Engineered fill should be compacted in horizontal lifts not exceeding 8 inches using standard compaction equipment. We recommend that engineered fill be compacted to at least 95% of the maximum dry density determined by ASTM D698 (Standard Proctor) or equivalent. Field density testing should conform to ASTM D2922 and D3017, or D1556. All engineered fill should be observed and tested by the project geotechnical engineer or his representative. Typically, one density test is performed for at least every 2 vertical feet of fill placed or every 500 yd³, whichever requires more testing. Because testing is performed on an on-call basis, we recommend that the earthwork contractor be held contractually responsible for test scheduling and frequency. Site earthwork will be impacted by soil moisture and shallow groundwater conditions. Earthwork in wet weather would likely require extensive use of cement or lime treatment, or other special measures, at considerable additional cost compared to earthwork performed under dry-weather conditions.

Excavating Conditions and Utility Trenches

We anticipate that on-site soils can be excavated using conventional heavy equipment such as trackhoes to a depth of at least 13 feet; however practical refusal on hard (R4) basalt bedrock was achieved with a medium sized backhoe at a depth of 1 foot in test pit TP-3 and 8.5 feet in test pit TP-4. Practical refusal on very dense flood deposit boulders was achieved at a depth of 10 feet in test pits TP-6 and TP-8. Difficult excavating conditions especially for utility trenching should be expected. The selected contractor for site development should be prepared for encountering very dense boulders and hard rock conditions.

All temporary cuts in excess of 4 feet in height should be sloped in accordance with U.S. Occupational Safety and Health Administration (OSHA) regulations (29 CFR Part 1926), or be shored. The existing near surface native soil is classified as Type B Soils and temporary excavation side slope inclinations as steep as 1H:1V may be assumed for planning purposes. This cut slope inclination is applicable to excavations above the water table only. Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the contractor. Actual slope inclinations at the time of construction should be determined based on safety requirements and actual soil and groundwater conditions.

Saturated soils and groundwater may be encountered in utility trenches, particularly during the wet season. We anticipate that dewatering systems consisting of ditches, sumps and pumps would be adequate for control of perched groundwater. Regardless of the dewatering system used, it should be installed and operated such that in-place soils are prevented from being removed along with the groundwater.

Vibrations created by traffic and construction equipment may cause some caving and raveling of excavation walls. In such an event, lateral support for the excavation walls should be provided by the contractor to prevent loss of ground support and possible distress to existing or previously constructed structural improvements.

PVC pipe should be installed in accordance with the procedures specified in ASTM D2321. We recommend that trench backfill be compacted to at least 95% of the maximum dry density obtained by Standard Proctor ASTM D698 or equivalent. Initial backfill lift thickness for a ¾"-0 crushed aggregate base may need to be as great as 4 feet to reduce the risk of flattening underlying flexible pipe. Subsequent lift thickness should not exceed 1 foot. If imported granular fill material is used,

then the lifts for large vibrating plate-compaction equipment (e.g. hoe compactor attachments) may be up to 2 feet, provided that proper compaction is being achieved and each lift is tested. Use of large vibrating compaction equipment should be carefully monitored near existing structures and improvements due to the potential for vibration-induced damage.

Adequate density testing should be performed during construction to verify that the recommended relative compaction is achieved. Typically, one density test is taken for every 4 vertical feet of backfill on each 200-lineal-foot section of trench.

Erosion Control Considerations

During our field exploration program, we did not observe soil types that would be considered highly susceptible to erosion. In our opinion, the primary concern regarding erosion potential will occur during construction, in areas that have been stripped of vegetation. Erosion at the site during construction can be minimized by implementing the project erosion control plan, which should include judicious use of straw wattles and silt fences. If used, these erosion control devices should be in place and remain in place throughout site preparation and construction.

Erosion and sedimentation of exposed soils can also be minimized by quickly re-vegetating exposed areas of soil, and by staging construction such that large areas of the project site are not denuded and exposed at the same time. Areas of exposed soil requiring immediate and/or temporary protection against exposure should be covered with either mulch or erosion control netting/blankets. Areas of exposed soil requiring permanent stabilization should be seeded with an approved grass seed mixture, or hydroseeded with an approved seed-mulch-fertilizer mixture.

Wet Weather Earthwork

Soils underlying the site are likely to be moisture sensitive and may be difficult to handle or traverse with construction equipment during periods of wet weather. Earthwork is typically most economical when performed under dry weather conditions. Earthwork performed during the wet-weather season will probably require expensive measures such as cement treatment or imported granular material to compact fill to the recommended engineering specifications. If earthwork is to be performed or fill is to be placed in wet weather or under wet conditions when soil moisture content is difficult to control, the following recommendations should be incorporated into the contract specifications.

- Earthwork should be performed in small areas to minimize exposure to wet weather. Excavation or the removal of unsuitable soils should be followed promptly by the placement and compaction of clean engineered fill. The size and type of construction equipment used may have to be limited to prevent soil disturbance. Under some circumstances, it may be necessary to excavate soils with a backhoe to minimize subgrade disturbance caused by equipment traffic;
- The ground surface within the construction area should be graded to promote run-off of surface water and to prevent the ponding of water;
- Material used as engineered fill should consist of clean, granular soil containing less than 5 percent fines. The fines should be non-plastic. Alternatively, cement treatment of on-site soils may be performed to facilitate wet weather placement;
- The ground surface within the construction area should be sealed by a smooth drum vibratory roller, or equivalent, and under no circumstances should be left uncompacted and exposed to

moisture. Soils which become too wet for compaction should be removed and replaced with clean granular materials;

- Excavation and placement of fill should be observed by the geotechnical engineer to verify that all unsuitable materials are removed and suitable compaction and site drainage is achieved; and
- Geotextile silt fences, straw wattles, and fiber rolls should be strategically located to control erosion.

If cement or lime treatment is used to facilitate wet weather construction, GeoPacific should be contacted to provide additional recommendations and field monitoring.

Structural Foundations

Based on our understanding of the proposed project and the results of our exploration program, and assuming our recommendations for site preparation are followed, native deposits or engineered fill are anticipated to be encountered at or near the foundation level of the proposed structure. These soils are generally stiff to dense and should provide adequate support of the structural loads; however, approximately 6.5 feet of undocumented fill was encountered at the ground surface in test pit TP-9 which was located near a large shop building. Topography indicates more fill is present in the vicinity of the shop building, as presented on Figure 2. These fill areas should be removed beneath structural areas and replaced with engineered fill. Peat soils were encountered at depths of 9 to 10 feet in test pit TP-7. Supplemental hand auger borings conducted in the vicinity of test pit TP-7 did not encounter peat soil. However, we recommend that the extent of the peat soils be evaluated further in the field during construction in an effort to verify that peat is not present within the influence of the building. GeoPacific should be contacted for further recommendations if additional areas of peat are encountered.

The allowable soil bearing capacity for spread or continuous foundations bearing on competent, unimproved, native soil and/or engineered fill is 2,000 psf with a coefficient of subgrade reaction of 150 kcf (87 pci). Higher allowable bearing pressures may be possible if the subgrade is overexcavated and compacted base rock is placed underneath the footings. If higher allowable bearing capacities are desired, GeoPacific may be consulted to provide additional recommendations.

The recommended maximum allowable bearing pressure may be increased by 1/3 for short-term transient conditions such as wind and seismic loading. The maximum anticipated total and differential footing movements under static loading conditions are 1 inch and 3/4 inch over a span of 20 feet, respectively. We anticipate that the majority of the estimated settlement will occur during construction, as loads are applied. Excavations near structural footings should not extend within a 1H:1V plane projected downward from the bottom edge of footings.

Wind, earthquakes, and unbalanced earth loads will subject the proposed structure to lateral forces. Lateral forces on a structure will be resisted by a combination of sliding resistance of its base or footing on the underlying soil and passive earth pressure against the buried portions of the structure. For use in design, a coefficient of friction of 0.42 may be assumed along the interface between the base of the footing and subgrade soils. Passive earth pressure for buried portions of structures may be calculated using an equivalent fluid weight of 320 pounds per cubic foot (pcf), assuming footings are cast against native soils or engineered fill. The recommended coefficient of friction and passive earth pressure values do not include a safety factor. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement or slabs on grade.

Footing excavations should be trimmed neat and the bottom of the excavation should be carefully prepared. Loose, wet or otherwise softened soil should be removed from the footing excavation prior to placing reinforcing steel bars. The above foundation recommendations are for dry weather conditions. Due to the high moisture sensitivity of on-site soils, construction during wet weather may require additional overexcavation of footings and backfill with compacted, crushed aggregate. GeoPacific should observe foundation excavations prior to placing formwork and reinforcing steel, to verify that adequate bearing soils have been reached.

We recommend a minimum thickness of 12 inches of 1½"-0 crushed aggregate beneath the slab. The total thickness of crushed aggregate will be dependent on the subgrade conditions at the time of construction and should be verified visually by proof-rolling. Under-slab aggregate should be compacted to at least 90 percent of its maximum dry density as determined by ASTM D1557 (Modified Proctor) or equivalent.

In areas where moisture will be detrimental to floor coverings or equipment inside the proposed structure, appropriate vapor barrier and damp-proofing measures should be implemented. Appropriate design professionals should be consulted regarding vapor barrier and damp proofing systems, ventilation, building material selection and mold prevention issues, which are outside GeoPacific's area of expertise.

Concrete Slabs-on-Grade

Preparation of areas beneath concrete slab-on-grade floors should be performed as recommended in the *Site Preparation and Undocumented Fill Removal* section. Care should be taken during excavation for foundations and floor slabs, to avoid disturbing subgrade soils. If subgrade soils have been adversely impacted by wet weather or otherwise disturbed, the surficial soils should be scarified to a minimum depth of 8 inches, moisture conditioned to within about 3 percent of optimum moisture content and compacted to engineered fill specifications. Alternatively, disturbed soils may be removed and the removal zone backfilled with additional crushed rock.

For evaluation of the concrete slab-on-grade floors using the beam on elastic foundation method, a modulus of subgrade reaction of 150 kcf (87 pci) should be assumed for the medium stiff native silt soils anticipated at subgrade depth. This value assumes the concrete slab system is designed and constructed as recommended herein, with a minimum thickness of crushed rock of 8 inches beneath the slab.

Interior slab-on-grade floors should be provided with an adequate moisture break. The capillary break material should consist of ODOT open graded aggregate per ODOT Standard Specifications 02630-2. The minimum recommended thickness of capillary break materials on re-compacted soil subgrade is 8 inches. The total thickness of crushed aggregate will be dependent on the subgrade conditions at the time of construction, and should be verified visually by proof-rolling. Under-slab aggregate should be compacted to at least 90% of its maximum dry density as determined by ASTM D1557 or equivalent.

In areas where moisture will be detrimental to floor coverings or equipment inside the proposed structure, appropriate vapor barrier and damp-proofing measures should be implemented. A commonly applied vapor barrier system consists of a 10-mil polyethylene vapor barrier placed directly over the capillary break material. Other damp/vapor barrier systems may also be feasible. Appropriate design professionals should be consulted regarding vapor barrier and damp proofing systems, ventilation, building material selection and mold prevention issues, which are outside GeoPacific's area of expertise.

Permanent Below-Grade Walls

Lateral earth pressures against below-grade retaining walls will depend upon the inclination of any adjacent slopes, type of backfill, degree of wall restraint, method of backfill placement, degree of backfill compaction, drainage provisions, and magnitude and location of any adjacent surcharge loads. At-rest soil pressure is exerted on a retaining wall when it is restrained against rotation. In contrast, active soil pressure will be exerted on a wall if its top is allowed to rotate or yield a distance of roughly 0.001 times its height or greater.

If the subject retaining walls will be free to rotate at the top, they should be designed for an active earth pressure equivalent to that generated by a fluid weighing 35 pcf for level backfill against the wall. For restrained wall, an at-rest equivalent fluid pressure of 55 pcf should be used in design, again assuming level backfill against the wall. These values assume that drainage provisions are incorporated, free draining gravel backfill is used, and hydrostatic pressures are not allowed to develop against the wall.

During a seismic event, lateral earth pressures acting on below-grade structural walls will increase by an incremental amount that corresponds to the earthquake loading. Based on the Mononobe-Okabe equation and peak horizontal accelerations appropriate for the site location, seismic loading should be modeled using the active or at-rest earth pressures recommended above, plus an incremental rectangular-shaped seismic load of magnitude $6.5H$, where H is the total height of the wall.

We assume relatively level ground surface below the base of the walls. As such, we recommend passive earth pressure of 320 pcf for use in design, assuming wall footings are cast against competent native soils or engineered fill. If the ground surface slopes down and away from the base of any of the walls, a lower passive earth pressure should be used and GeoPacific should be contacted for additional recommendations.

A coefficient of friction of 0.42 may be assumed along the interface between the base of the wall footing and subgrade soils. The recommended coefficient of friction and passive earth pressure values do not include a safety factor, and an appropriate safety factor should be included in design. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement or slabs on grade.

The above recommendations for lateral earth pressures assume that the backfill behind the subsurface walls will consist of properly compacted structural fill, and no adjacent surcharge loading. If the walls will be subjected to the influence of surcharge loading within a horizontal distance equal to or less than the height of the wall, the walls should be designed for the additional horizontal pressure. For uniform surcharge pressures, a uniformly distributed lateral pressure of 0.3 times the surcharge pressure should be added. Traffic surcharges may be estimated using an additional vertical load of 250 psf (2 feet of additional fill), in accordance with local practice.

The recommended equivalent fluid densities assume a free-draining condition behind the walls so that hydrostatic pressures do not build-up. This can be accomplished by placing a 12 to 18-inch wide zone of sand and gravel containing less than 5 percent passing the No. 200 sieve against the walls. A 3-inch minimum diameter perforated, plastic drain pipe should be installed at the base of the walls and connected to a suitable discharge point to remove water in this zone of sand and gravel. The drain pipe should be wrapped in filter fabric (Mirafi 140N or other as approved by the geotechnical engineer) to minimize clogging.

Wall drains are recommended to prevent detrimental effects of surface water runoff on foundations – not to dewater groundwater. Drains should not be expected to eliminate all potential sources of water entering a basement or beneath a slab-on-grade. An adequate grade to a low point outlet drain in the crawlspace is required by code. Underslab drains are sometimes added beneath the slab when placed over soils of low permeability and shallow, perched groundwater.

Water collected from the wall drains should be directed into the local storm drain system or other suitable outlet. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. Down spouts and roof drains should not be connected to the wall drains in order to reduce the potential for clogging. The drains should include clean-outs to allow periodic maintenance and inspection. Grades around the proposed structure should be sloped such that surface water drains away from the building.

GeoPacific should be contacted during construction to verify subgrade strength in wall keyway excavations, to verify that backslope soils are in accordance with our assumptions, and to take density tests on the wall backfill materials.

Structures should be located a horizontal distance of at least 1.5H away from the back of the retaining wall, where H is the total height of the wall. GeoPacific should be contacted for additional foundation recommendations where structures are located closer than 1.5H to the top of any wall.

Pavement Design

For design purposes, we used an estimated resilient modulus of 6,000 for compacted native soil or engineered fill. Table 2 presents our recommended minimum pavement section for dry weather construction.

Table 2. Recommended Minimum Dry-Weather Pavement Section

Material Layer	Light Duty Public Streets	Compaction Standard
Asphaltic Concrete (AC)	3 in.	92% of Rice Density AASHTO T-209
Crushed Aggregate Base ¾"-0 (leveling course)	2 in.	95% of Modified Proctor AASHTO T-180
Crushed Aggregate Base 1½"-0	8 in.	95% of Modified Proctor AASHTO T-180
Subgrade	12 in.	90% of Modified Proctor AASHTO T-180 or equivalent

Any pockets of organic debris or loose fill encountered during ripping or tilling should be removed and replaced with engineered fill (see *Site Preparation* Section). In order to verify subgrade strength, we recommend proof-rolling directly on subgrade with a loaded dump truck during dry weather and on top of base course in wet weather. Soft areas that pump, rut, or weave should be stabilized prior to paving. If pavement areas are to be constructed during wet weather, the subgrade and construction plan should be reviewed by the project geotechnical engineer at the time of construction so that condition specific recommendations can be provided. The moisture sensitive subgrade soils make the site a difficult wet weather construction project.

During placement of pavement section materials, density testing should be performed to verify compliance with project specifications. Generally, one subgrade, one base course, and one asphalt compaction test is performed for every 100 to 200 linear feet of paving.

Drains

The outside edge of perimeter walls should be provided with a drainage system consisting of 3-inch diameter, slotted, flexible plastic pipe embedded in a minimum of 1 ft³ per lineal foot of clean, free-draining gravel or 1 1/2" - 3/4" drain rock. The drain pipe and surrounding drain rock should be wrapped in non-woven geotextile (Mirafi 140N, or approved equivalent) to minimize the potential for clogging and/or ground loss due to piping. Water collected from the footing drains should be directed into the local storm drain system or other suitable outlet. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. Down spouts and roof drains should not be connected to the foundation drains in order to reduce the potential for clogging. The footing drains should include clean-outs to allow periodic maintenance and inspection. Grades around the proposed structure should be sloped such that surface water drains away from the building.

Footing drains are recommended to prevent detrimental effects of surface water runoff on foundations – not to dewater groundwater. Footing drains should not be expected to eliminate all potential sources of water entering a basement or beneath a slab-on-grade. An adequate grade to a low point outlet drain in the crawlspace is required by code. Underslab drains are sometimes added beneath the slab when placed over soils of low permeability and shallow, perched groundwater.

Seismic Design

The Oregon Department of Geology and Mineral Industries (Dogami), Oregon HazVu: 2020 Statewide GeoHazards Viewer indicates that the site is in an area where *very strong* to *severe* ground shaking is anticipated during an earthquake (Dogami HazVu, 2020). Structures should be designed to resist earthquake loading in accordance with the methodology described in the 2015 International Building Code (IBC) with applicable Oregon Structural Specialty Code (OSSC) revisions (current 2014). We recommend Site Class D be used for design as defined in ASCE 7, Chapter 20, Table 20.3-1. Design values determined for the site using the ATC (Applied Technology Council) *ASCE7-10 Hazards by Location online Tool* website are summarized in Table 3.

Table 3. Recommended Earthquake Ground Motion Parameters (IBC-2015)

Parameter	Value
Location (Lat, Long), degrees	45.361, -122.822
Mapped Spectral Acceleration Values (MCE):	
Peak Ground Acceleration PGA_M	0.449 g
Short Period, S_s	0.940 g
1.0 Sec Period, S_1	0.418 g
Soil Factors for Site Class D:	
F_a	1.124
F_v	1.582
$SD_s = 2/3 \times F_a \times S_s$	0.704 g
$SD_1 = 2/3 \times F_v \times S_1$	0.441 g
Seismic Design Category	D

Soil Liquefaction

Soil liquefaction is a phenomenon wherein saturated soil deposits temporarily lose strength and behave as a liquid in response to earthquake shaking. Soil liquefaction is generally limited to loose, granular soils located below the water table. The Oregon Department of Geology and Mineral Industries (DOGAMI), Oregon HazVu: 2020 Statewide GeoHazards Viewer indicates that the majority of the site is considered to not have a risk for soil liquefaction. A narrow portion of the site along SW Oregon Street is mapped as having a low risk for soil liquefaction during an earthquake and the southwestern portion of the site is mapped as having a high risk for soil liquefaction (Hazvu, 2020). Our explorations in the southwestern portion of the site encountered stiff, fine grained soils underlain by dense to very dense, silty gravel above the water table, underlain by basalt bedrock. It is our opinion that soils underlying the site are not considered susceptible to liquefaction.

Other Potential Seismic Impacts

Other potential seismic impacts include fault rupture potential. However, based on our review of available geologic literature, we are not aware of any mapped active (demonstrating movement in the last 10,000 years) faults on the site. During our field investigation, we did not observe any evidence of surface rupture or recent faulting. Therefore, we conclude that the potential for fault rupture on site is very low.

UNCERTAINTIES AND LIMITATIONS

We have prepared this report for the owner and their consultants for use in design of this project only. This report should be provided in its entirety to prospective contractors for bidding and estimating purposes; however, the conclusions and interpretations presented in this report should not be construed as a warranty of the subsurface conditions. Experience has shown that soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations that may not be detected by a geotechnical study. If, during future site operations, subsurface conditions are encountered which vary appreciably from those described herein, GeoPacific should be notified for review of the recommendations of this report, and revision of such if necessary.

Sufficient geotechnical monitoring, testing and consultation should be provided during construction to confirm that the conditions encountered are consistent with those indicated by explorations. The checklist attached to this report outlines recommended geotechnical observations and testing for the project. Recommendations for design changes will be provided should conditions revealed during construction differ from those anticipated, and to verify that the geotechnical aspects of construction comply with the contract plans and specifications.

Within the limitations of scope, schedule and budget, GeoPacific attempted to execute these services in accordance with generally accepted professional principles and practices in the fields of geotechnical engineering and engineering geology at the time the report was prepared. No warranty, expressed or implied, is made. The scope of our work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous or toxic substances in the soil, surface water, or groundwater at this site.

We appreciate this opportunity to be of service.

Sincerely,

GEOPACIFIC ENGINEERING, INC.



Beth K. Rapp, C.E.G.
Senior Engineering Geologist



Benjamin G. Anderson, P.E.
Associate Engineer

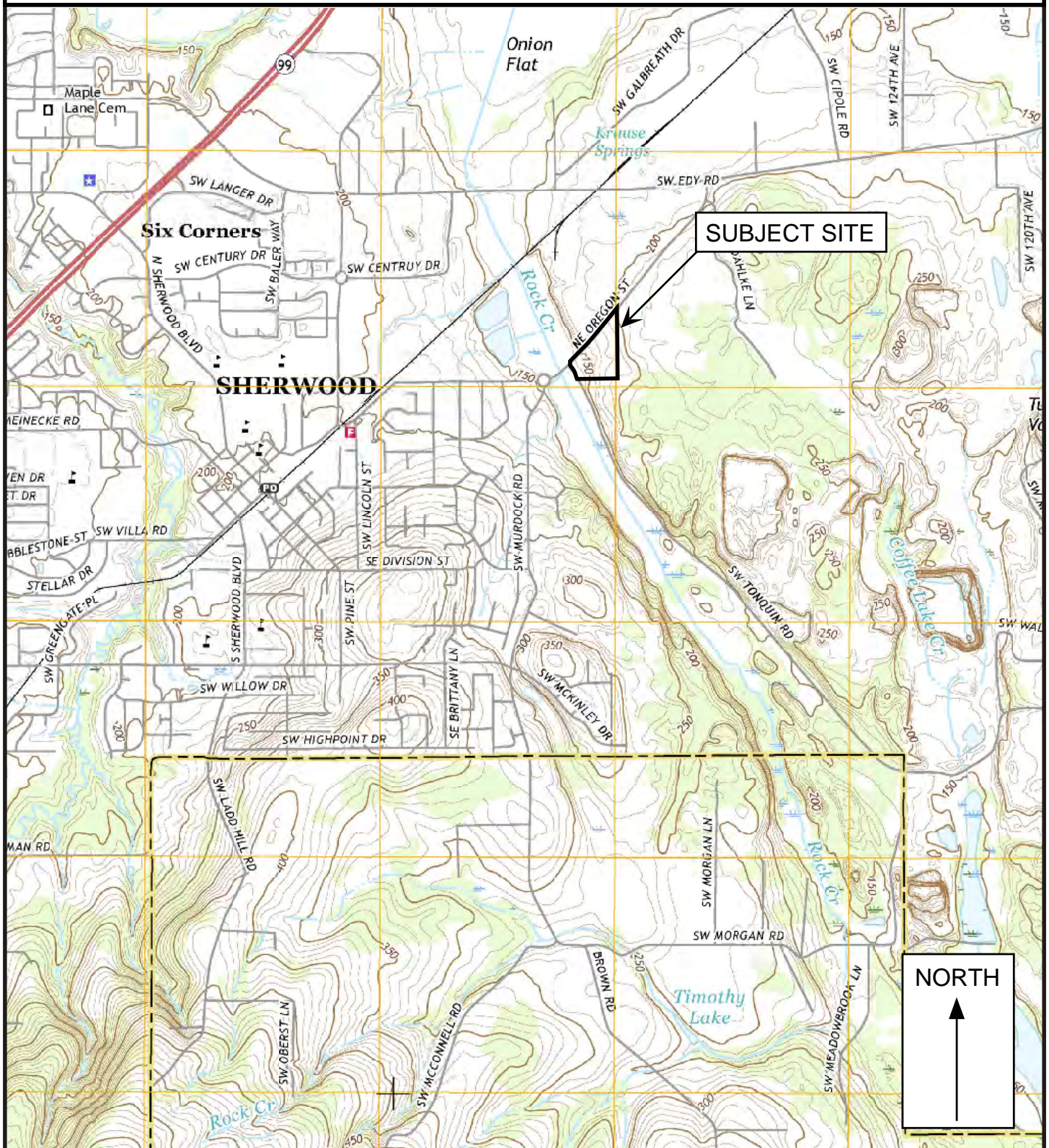
Attachments: References
 Figure 1 – Vicinity Map
 Figure 2 – Site Plan and Exploration Locations
 Test Pit Logs (TP-1 through TP-7)
 Hand Auger Log (HA-1 through HA-7)
 Results of Laboratory Testing – Organic Content of Soil

REFERENCES

- Applied Technology Council (ATC), 2020, Hazards by Location Online Tool, <https://hazards.atcouncil.org/#/seismic>
- Atwater, B.F., 1992, Geologic evidence for earthquakes during the past 2,000 years along the Copalis River, southern coastal Washington: *Journal of Geophysical Research*, v. 97, p. 1901-1919.
- Beeson, M.H., Tolan, T.L., and Madin, I.P., 1989, Geologic map of the Lake Oswego Quadrangle, Clackamas, Multnomah, and Washington Counties, Oregon: Oregon Department of Geology and Mineral Industries Geological Map Series GMS-59, scale 1:24,000.
- Carver, G.A., 1992, Late Cenozoic tectonics of coastal northern California: American Association of Petroleum Geologists-SEPM Field Trip Guidebook, May, 1992.
- Gannett, M.W. and Caldwell, R.R., 1998, Geologic framework of the Willamette Lowland aquifer system, Oregon and Washington: U.S. Geological Survey Professional Paper 1424-A, 32 pages text, 8 plates.
- Geomatrix Consultants, 1995, Seismic Design Mapping, State of Oregon: unpublished report prepared for Oregon Department of Transportation, Personal Services Contract 11688, January 1995.
- Goldfinger, C., Kulm, L.D., Yeats, R.S., Appelgate, B., MacKay, M.E., and Cochrane, G.R., 1996, Active strike-slip faulting and folding of the Cascadia Subduction-Zone plate boundary and forearc in central and northern Oregon: in *Assessing earthquake hazards and reducing risk in the Pacific Northwest*, v. 1: U.S. Geological Survey Professional Paper 1560, P. 223-256.
- Madin, I.P., 1990, Earthquake hazard geology maps of the Portland metropolitan area, Oregon: Oregon Department of Geology and Mineral Industries Open-File Report 0-90-2, scale 1:24,000, 22 p.
- Oregon Department of Geology and Mineral Industries, 2020, Oregon Hazvu: Statewide Geohazards Viewer: <https://gis.dogami.oregon.gov/hazvu/>
- Peterson, C.D., Darioenzo, M.E., Burns, S.F., and Burris, W.K., 1993, Field trip guide to Cascadia paleoseismic evidence along the northern California coast: evidence of subduction zone seismicity in the central Cascadia margin: *Oregon Geology*, v. 55, p. 99-144.
- Schlicker, H.G. and R.J. Deacon, 1967, Engineering Geology of the Tualatin Valley Region; Oregon Department of Geology and Mineral Industries, Bulletin 60, 103 p., 4 plates, scale 1:48,000.
- Unruh, J.R., Wong, I.G., Bott, J.D., Silva, W.J., and Lettis, W.R., 1994, Seismotectonic evaluation: Scoggins Dam, Tualatin Project, Northwest Oregon: unpublished report by William Lettis and Associates and Woodward Clyde Federal Services, Oakland, CA, for U. S. Bureau of Reclamation, Denver CO (in Geomatrix Consultants, 1995).
- Werner, K.S., Nabelek, J., Yeats, R.S., Malone, S., 1992, The Mount Angel fault: implications of seismic-reflection data and the Woodburn, Oregon, earthquake sequence of August, 1990: *Oregon Geology*, v. 54, p. 112-117.
- Wong, I. Silva, W., Bott, J., Wright, D., Thomas, P., Gregor, N., Li, S., Mabey, M., Sojourner, A., and Wang, Y., 2000, Earthquake Scenario and Probabilistic Ground Shaking Maps for the Portland, Oregon, Metropolitan Area; State of Oregon Department of Geology and Mineral Industries; Interpretative Map Series IMS-16.
- Yeats, R.S., Graven, E.P., Werner, K.S., Goldfinger, C., and Popowski, T., 1996, Tectonics of the Willamette Valley, Oregon: in *Assessing earthquake hazards and reducing risk in the Pacific Northwest*, v. 1: U.S. Geological Survey Professional Paper 1560, P. 183-222, 5 plates, scale 1:100,000.
- Yelin, T.S., 1992, An earthquake swarm in the north Portland Hills (Oregon): More speculations on the seismotectonics of the Portland Basin: *Geological Society of America, Programs with Abstracts*, v. 24, no. 5, p. 92

CHECKLIST OF RECOMMENDED GEOTECHNICAL TESTING AND OBSERVATION

Item No.	Procedure	Timing	By Whom	Done
1	Preconstruction meeting	Prior to beginning site work	Contractor, Developer, Civil and Geotechnical Engineers	
2	Fill removal from site or sorting and stockpiling	Prior to mass stripping	Soil Technician/ Geotechnical Engineer	
3	Stripping, aeration, and root-picking operations	During stripping	Soil Technician	
4	Compaction testing of engineered fill (95% of Standard Proctor)	During filling, tested every 2 vertical feet	Soil Technician	
5	Compaction testing of trench backfill (95% of Modified Proctor)	During backfilling, tested every 4 vertical feet for every 200 lineal feet	Soil Technician	
6	Pavement Subgrade Compaction (95% of Standard Proctor)	Prior to placing base course	Soil Technician	
7	Base course compaction (95% of Modified Proctor)	Prior to paving, tested every 200 lineal feet	Soil Technician	
8	AC Compaction (92% of Rice)	During paving, tested every 200 lineal feet	Soil Technician	
9	Final Geotechnical Engineer's Report	Completion of project	Geotechnical Engineer	



Legend

Approximate Scale 1 in = 2,000 feet

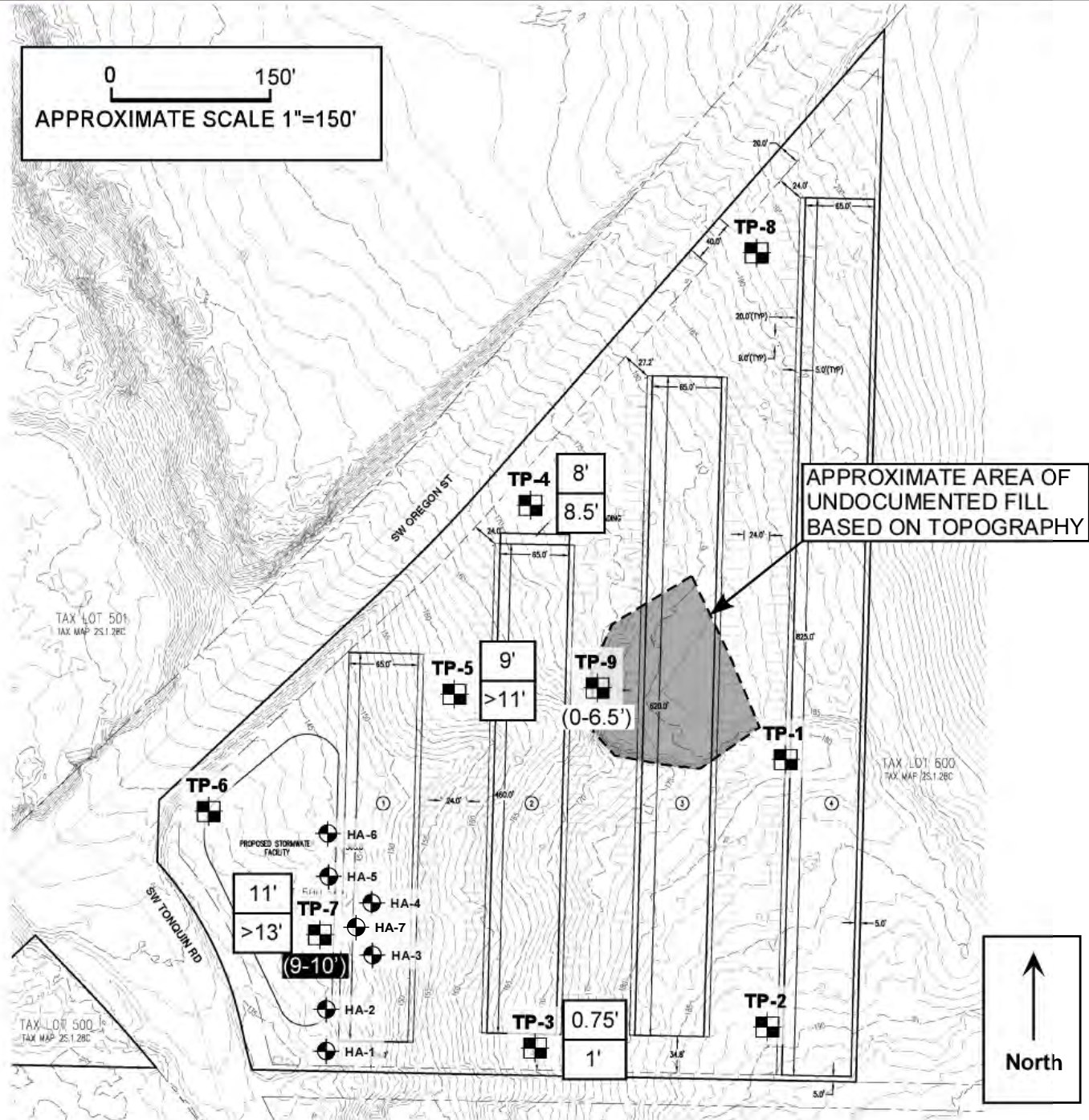
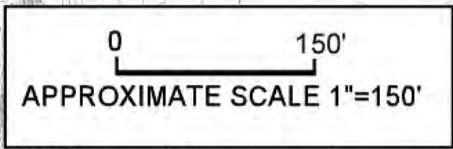
Date: 6/22/2020
Drawn by: EKR

Base map: U.S. Geological Survey 7.5 minute Topographic Map Series, Sherwood, Oregon Quadrangle, 2017.

Project: Polley Industrial
Sherwood, Oregon

Project No. 20-5500

FIGURE 1



Legend

Date: 6/22/2020
 Drawn by: EKR

- TP-1 Test Pit Designation and Approximate Location
- HA-1 Hand Auger Boring Designation and Approximate Location

- 8' 8' = Depth at Which Rock is First Encountered
- 8.5' 8.5' = Depth of Practical Refusal on Rock
- >11' = Depth is Beyond Maximum Exploration Depth
- (0-6.5') Depth of Fill Encountered
- (9-10') Depth of Peat Soils Encountered









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TEST PIT LOG

Project: Polley Industrial Sherwood, Oregon	Project No. 20-5500	Test Pit No. TP-1
------------------------------------------------	---------------------	--------------------------

Depth (ft)	Pocket Penetrometer (tons/ft ²)	Sample Type	In-Situ Dry Density (lb/ft ³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	3.0					Moderately organic SILT (OL-ML), light brown, roots throughout, soft, moist (Topsoil Horizon)
2	3.5					Stiff to very stiff, clayey SILT (ML), light brown, micaceous, subtle orange and gray mottling, moist (Fine Grained Catastrophic Flood Deposits)
3						
4						Dense, silty GRAVEL, COBBLES, and BOULDERS (GM), gray to brown, subrounded to subangular, boulders are up to 24 inches in diameter, trace roots to 6 feet, moist (Coarse Grained Catastrophic Flood Deposits)
5						
6						
7						
8						
9						
10						Stiff, SILT (ML), light brown, micaceous, strong orange and gray mottling, moist (Fine Grained Catastrophic Flood Deposits)
11						Test Pit Terminated at 11 Feet.
12						Note: No seepage or groundwater encountered.
13						
14						
15						

LEGEND

 Bag Sample	 5 Gal. Bucket	 Shelby Tube Sample	 Seepage	 Water Bearing Zone	 Water Level at Abandonment
------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------

Date Excavated: 5/14/2020
 Logged By: B. Rapp
 Surface Elevation:









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TEST PIT LOG

Project: Polley Industrial Sherwood, Oregon	Project No. 20-5500	Test Pit No. TP-2
------------------------------------------------	---------------------	--------------------------

Depth (ft)	Pocket Penetrometer (tons/ft ²)	Sample Type	In-Situ Dry Density (lb/ft ³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	2.0					Moderately organic SILT (OL-ML), light brown, roots throughout, soft, moist (Topsoil Horizon)
2	3.0					Stiff to very stiff, clayey SILT (ML), light brown, micaceous, subtle orange and gray mottling, trace fine roots, moist (Fine Grained Catastrophic Flood Deposits)
3	3.5					
4						
5						
6						Dense, silty GRAVEL, COBBLES, and BOULDERS (GM), gray to brown, subrounded to subangular, boulders are up to 30 inches in diameter, moist (Coarse Grained Catastrophic Flood Deposits)
7						
8						
9						
10						Stiff, SILT (ML), light brown, micaceous, strong orange and gray mottling, moist (Fine Grained Catastrophic Flood Deposits)
11						
12						Test Pit Terminated at 12 Feet. Note: No seepage or groundwater encountered.
13						
14						
15						

LEGEND

 Bag Sample	 Bucket Sample	 Shelby Tube Sample	 Seepage	 Water Bearing Zone	 Water Level at Abandonment
------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------

Date Excavated: 5/14/2020
 Logged By: B. Rapp
 Surface Elevation:









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TEST PIT LOG

Project: Polley Industrial Sherwood, Oregon	Project No. 20-5500	Test Pit No. TP-3
------------------------------------------------	---------------------	--------------------------

Depth (ft)	Pocket Penetrometer (tons/ft ²)	Sample Type	In-Situ Dry Density (lb/ft ³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Moderately organic SILT (OL-ML), light brown, roots throughout, soft, moist (Topsoil Horizon)
1						Medium hard (R3) to hard (R4) BASALT, gray, trace black staining, fractured, moist (Columbia River Basalt)
2						<p>Practical Refusal on Hard (R4) Basalt at 1 Foot.</p> <p>Note: No seepage or groundwater encountered.</p>
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						

LEGEND

 Bag Sample	 Bucket Sample	 Shelby Tube Sample	 Seepage	 Water Bearing Zone	 Water Level at Abandonment
---------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------


Date Excavated: 5/14/2020
 Logged By: B. Rapp
 Surface Elevation:









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TEST PIT LOG

Project: Polley Industrial Sherwood, Oregon	Project No. 20-5500	Test Pit No. TP-4
------------------------------------------------	---------------------	--------------------------

Depth (ft)	Pocket Penetrometer (tons/ft ²)	Sample Type	In-Situ Dry Density (lb/ft ³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	2.0					Moderately organic SILT (OL-ML), trace gravel fill, light brown, roots throughout, soft, moist (Topsoil Horizon)
2	2.0					Stiff to very stiff, clayey SILT (ML), light brown, micaceous, strong orange and gray mottling, moist (Fine Grained Catastrophic Flood Deposits)
3	3.0					
4						
5						
6						Dense to very dense, silty GRAVEL, COBBLES, and BOULDERS (GM), gray to brown, subrounded to subangular, boulders are up to 12 inches in diameter, moist (Coarse Grained Catastrophic Flood Deposits)
7						
8						
9						Medium hard (R3) to hard (R4) BASALT, gray, trace black staining, vesicular, moist (Columbia River Basalt)
10						Practical Refusal on Hard (R4) Basalt at 8.5 Feet.
11						Note: Groundwater seepage encountered at 7.5 feet. Discharge visually estimated at <1/4 gallon per minute.
12						
13						
14						
15						

LEGEND  Bag Sample  5 Gal. Bucket  Shelby Tube Sample  Seepage  Water Bearing Zone  Water Level at Abandonment						Date Excavated: 5/14/2020 Logged By: B. Rapp Surface Elevation:
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TEST PIT LOG

Project: Polley Industrial Sherwood, Oregon	Project No. 20-5500	Test Pit No. TP-5
------------------------------------------------	---------------------	--------------------------

Depth (ft)	Pocket Penetrometer (tons/ft ²)	Sample Type	In-Situ Dry Density (lb/ft ³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	3.0					Moderately organic SILT (OL-ML), brown, roots throughout, soft, moist (Topsoil Horizon)
2	3.5					Stiff to very stiff, clayey SILT (ML), light brown, micaceous, strong orange and gray mottling, trace large roots to 3.5 feet, moist (Fine Grained Catastrophic Flood Deposits)
3	2.5					
4	3.5					
5						Dense, silty GRAVEL, COBBLES, and BOULDERS (GM), gray to brown, subrounded to subangular, boulders are up to 12 inches in diameter, moist (Coarse Grained Catastrophic Flood Deposits)
6						
7						
8						
9						Soft (R2) BASALT, gray, fractured, trace black staining, vesicular, trace yellow secondary mineralization, moist (Columbia River Basalt)
10						
11						
12						Test Pit Terminated at 11 Feet. Note: No seepage or groundwater encountered.
13						
14						
15						

LEGEND

 Bag Sample	 Bucket Sample	 Shelby Tube Sample	 Seepage	 Water Bearing Zone	 Water Level at Abandonment
---------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------


Date Excavated: 5/14/2020
 Logged By: B. Rapp
 Surface Elevation:









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TEST PIT LOG

Project: Polley Industrial Sherwood, Oregon	Project No. 20-5500	Test Pit No. TP-6
------------------------------------------------	---------------------	--------------------------

Depth (ft)	Pocket Penetrometer (tons/ft ²)	Sample Type	In-Situ Dry Density (lb/ft ³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	3.5					Moderately to highly organic SILT (OL-ML), brown, fine roots throughout, soft, moist (Topsoil Horizon)
2	4.5					Stiff to very stiff, SILT (ML), trace clay, light brown to gray, micaceous, strong gray mottling, moist (Fine Grained Catastrophic Flood Deposits)
3	3.0					
4	3.5					
5						
6						
7						
8						Dense to very dense, silty GRAVEL, COBBLES, and BOULDERS (GM), gray to brown, subrounded to subangular, boulders are up to 30 inches in diameter, trace black staining, moist (Coarse Grained Catastrophic Flood Deposits)
9						
10						
11						Practical Refusal on dense to very dense GRAVEL, COBBLES, and BOULDERS at 10 Feet.
12						Note: Groundwater seepage encountered at 9 feet. Discharge visually estimated at 1/2 gallon per minute.
13						
14						
15						

LEGEND					
					
Bag Sample	Bucket Sample	Shelby Tube Sample	Seepage	Water Bearing Zone	Water Level at Abandonment



Date Excavated: 5/14/2020
 Logged By: B. Rapp
 Surface Elevation:









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TEST PIT LOG

Project: Polley Industrial Sherwood, Oregon	Project No. 20-5500	Test Pit No. TP-7
------------------------------------------------	---------------------	--------------------------

Depth (ft)	Pocket Penetrometer (tons/ft ²)	Sample Type	In-Situ Dry Density (lb/ft ³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	2.0					Moderately to highly organic SILT (OL-ML), light brown, roots throughout, soft, moist (Topsoil Horizon)
2	1.5					
3	2.5					
4	2.0					Stiff to very stiff, clayey SILT (ML), light brown, micaceous, subtle orange and gray mottling, trace fine roots, moist (Fine Grained Catastrophic Flood Deposits)
5						
6						
7						
8						
9						
10						Medium stiff, PEAT (PT), with silt, brown, spongy texture, moist (Peat Deposit) [Organic content = 14.25% - high organic content]
11						Dense, silty GRAVEL, COBBLES, and BOULDERS (GM), gray, boulders are up to 12" in diameter, moist to wet (Coarse Grained Catastrophic Flood Deposits)
12						Very soft (R1) BASALT, gray, fractured, trace black staining, vesicular, trace yellow secondary mineralization, moist (Columbia River Basalt)
13						Test Pit Terminated at 13 Feet.
14						Note: Groundwater seepage encountered at 1.5 and 10 feet. Discharge visually estimated at 1/2 gallon per minute.
15						

LEGEND

 Bag Sample	 Bucket Sample	 Shelby Tube Sample	 Seepage	 Water Bearing Zone	 Water Level at Abandonment
------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------

Date Excavated: 5/14/2020
 Logged By: B. Rapp
 Surface Elevation:









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TEST PIT LOG

Project: Polley Industrial Sherwood, Oregon	Project No. 20-5500	Test Pit No. TP-8
------------------------------------------------	---------------------	--------------------------

Depth (ft)	Pocket Penetrometer (tons/ft ²)	Sample Type	In-Situ Dry Density (lb/ft ³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.0					Moderately to highly organic SILT (OL-ML), brown, fine roots throughout, soft, moist (Topsoil Horizon)
2	2.0					Stiff to very stiff, SILT (ML), trace clay, light brown to gray, micaceous, strong gray mottling, moist (Fine Grained Catastrophic Flood Deposits)
3	3.0					
4	4.5					
5						Dense to very dense, silty GRAVEL, COBBLES, and BOULDERS (GM), gray to brown, subrounded to subangular, boulders are up to 30 inches in diameter, trace black staining, moist (Coarse Grained Catastrophic Flood Deposits)
6						
7						
8						
9						
10						
11						Practical Refusal on dense to very dense GRAVEL, COBBLES, and BOULDERS at 10 Feet.
12						Note: No seepage or groundwater encountered.
13						
14						
15						

LEGEND

 Bag Sample	 Bucket Sample	 Shelby Tube Sample	 Seepage	 Water Bearing Zone	 Water Level at Abandonment
---------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------

Date Excavated: 5/14/2020
 Logged By: B. Rapp
 Surface Elevation:









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TEST PIT LOG

Project: Polley Industrial Sherwood, Oregon	Project No. 20-5500	Test Pit No. TP-9
------------------------------------------------	---------------------	--------------------------

Depth (ft)	Pocket Penetrometer (tons/ft ²)	Sample Type	In-Situ Dry Density (lb/ft ³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						Loose to medium dense, silty GRAVEL (GM) with abundant inorganic debris consisting of concrete slabs, metal, bricks, and fabric, brown to gray, trace organic debris, significant sidewall caving, moist (Undocumented Fill)
2						
3						
4						
5						
6						
7						Stiff to very stiff, clayey SILT (ML), light brown, micaceous, strong orange and gray mottling, moist (Fine Grained Catastrophic Flood Deposits)
8						
9						Test Pit Terminated at 9 Feet.
10						Note: No seepage or groundwater encountered.
11						
12						
13						
14						
15						

LEGEND

 Bag Sample	 Bucket Sample	 Shelby Tube Sample	 Seepage	 Water Bearing Zone	 Water Level at Abandonment
---------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------

Date Excavated: 5/14/2020
 Logged By: B. Rapp
 Surface Elevation:




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HAND AUGER LOG

Project: Polley Industrial
 Sherwood, Oregon

Project No. 20-5500

HA - 1

Depth (ft)	Sample Type	N-Value	Moisture Content (%)	Water Bearing Zone	Material Description
1					Moderately to highly organic SILT (OL-ML), light brown, roots throughout, soft, moist (Topsoil Horizon)
2					Stiff to very stiff, clayey SILT (ML), light brown, micaceous, subtle orange and gray mottling, trace fine roots, moist (Fine Grained Catastrophic Flood Deposits)
3					
4					Hand auger terminated at ~4' due practical refusal on gravel (Coarse Grained Catastrophic Flood Deposits) Groundwater seepage observed at ~3' bgs.
5					
6					
7					
8					
9					

LEGEND



100 to 1,000 g



Split-Spoon



Shelby Tube Sample



Seepage



Static Water Table



Water Bearing Zone

Date Drilled: 05/26/20

Logged By: LDG

Surface Elevation: 141 ft




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HAND AUGER LOG

Project: Polley Industrial
 Sherwood, Oregon

Project No. 20-5500

HA - 2

Depth (ft)	Sample Type	N-Value	Moisture Content (%)	Water Bearing Zone	Material Description
1					Moderately to highly organic SILT (OL-ML), light brown, roots throughout, soft, moist (Topsoil Horizon)
2					Stiff to very stiff, clayey SILT (ML), light brown, micaceous, subtle orange and gray mottling, trace fine roots, moist (Fine Grained Catastrophic Flood Deposits)
3					
4					
5					Hand auger terminated at ~5' due practical refusal on gravel (Coarse Grained Catastrophic Flood Deposits) Groundwater seepage observed at ~2' bgs.
6					
7					
8					
9					

LEGEND



100 to 1,000 g



Split-Spoon



Shelby Tube Sample



Seepage



Static Water Table



Water Bearing Zone

Date Drilled: 05/26/20

Logged By: LDG

Surface Elevation: 141 ft



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HAND AUGER LOG

Project: Polley Industrial
 Sherwood, Oregon

Project No. 20-5500

HA - 3

Depth (ft)	Sample Type	N-Value	Moisture Content (%)	Water Bearing Zone	Material Description
1					Moderately to highly organic SILT (OL-ML), light brown, roots throughout, soft, moist (Topsoil Horizon). ----- Stiff to very stiff, clayey SILT (ML), light brown, micaceous, subtle orange and gray mottling, trace fine roots, damp to moist (Fine Grained Catastrophic Flood Deposits).
2					
3					Hand auger terminated at ~2.5' due practical refusal on gravel (Coarse Grained Catastrophic Flood Deposits) No groundwater observed.
4					
5					
6					
7					
8					
9					

LEGEND



100 to 1,000 g
 Bag Sample



Split-Spoon



Shelby Tube Sample



Seepage



Static Water Table



Water Bearing Zone

Date Drilled: 05/26/20

Logged By: LDG

Surface Elevation: 147 ft



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HAND AUGER LOG

Project: Polley Industrial
 Sherwood, Oregon

Project No. 20-5500

HA - 4

Depth (ft)	Sample Type	N-Value	Moisture Content (%)	Water Bearing Zone	Material Description
1					Surface Boulders Observed. Moderately to highly organic SILT (OL-ML), light brown, roots throughout, soft, damp to moist (Topsoil Horizon)
2					Hand auger terminated at ~1.5' due practical refusal on weathered basalt (Columbia River Basalt Formation) No groundwater observed.
3					
4					
5					
6					
7					
8					
9					

LEGEND



100 to 1,000 g
Bag Sample



Split-Spoon



Shelby Tube Sample



Seepage



Static Water Table



Water Bearing Zone

Date Drilled: 05/26/20

Logged By: LDG

Surface Elevation: 147 ft



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HAND AUGER LOG

Project: Polley Industrial
 Sherwood, Oregon

Project No. 20-5500

HA - 5

Depth (ft)	Sample Type	N-Value	Moisture Content (%)	Water Bearing Zone	Material Description
1					Surface Boulders Observed. Moderately to highly organic SILT (OL-ML), light brown, roots throughout, soft, moist (Topsoil Horizon) ----- Stiff to very stiff, clayey SILT (ML), light brown, micaceous, subtle orange and gray mottling, trace fine roots, damp to moist (Fine Grained Catastrophic Flood Deposits)
2					Hand auger terminated at ~1.5' due practical refusal on gravel (Coarse Grained Catastrophic Flood Deposits) No groundwater observed.
3					
4					
5					
6					
7					
8					
9					

LEGEND



100 to 1,000 g



Split-Spoon



Shelby Tube Sample



Seepage



Static Water Table



Water Bearing Zone

Date Drilled: 05/26/20

Logged By: LDG

Surface Elevation: 143 ft



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HAND AUGER LOG

Project: Polley Industrial
 Sherwood, Oregon

Project No. 20-5500

HA - 6

Depth (ft)	Sample Type	N-Value	Moisture Content (%)	Water Bearing Zone	Material Description
1					Moderately to highly organic SILT (OL-ML), light brown, roots throughout, soft, moist (Topsoil Horizon)
2					Hand auger terminated at ~1' due practical refusal on weathered basalt (Columbia River Basalt Formation) No groundwater observed.
3					
4					
5					
6					
7					
8					
9					

LEGEND



100 to 1,000 g
Bag Sample



Split-Spoon



Shelby Tube Sample



Seepage



Static Water Table



Water Bearing Zone

Date Drilled: 05/26/20

Logged By: LDG

Surface Elevation: 143 ft




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HAND AUGER LOG

Project: Polley Industrial
 Sherwood, Oregon

Project No. 20-5500

HA - 7

Depth (ft)	Sample Type	N-Value	Moisture Content (%)	Water Bearing Zone	Material Description
1					Moderately to highly organic SILT (OL-ML), light brown, roots throughout, soft, moist (Topsoil Horizon)
2					Stiff to very stiff, clayey SILT (ML), light brown, micaceous, subtle orange and gray mottling, trace fine roots, moist (Fine Grained Catastrophic Flood Deposits)
3					
4					
5					Hand auger terminated at ~5' due practical refusal on gravel (Coarse Grained Catastrophic Flood Deposits) Groundwater seepage observed at ~2' bgs.
6					
7					
8					
9					

LEGEND



100 to 1,000 g



Split-Spoon



Shelby Tube Sample



Seepage



Static Water Table



Water Bearing Zone

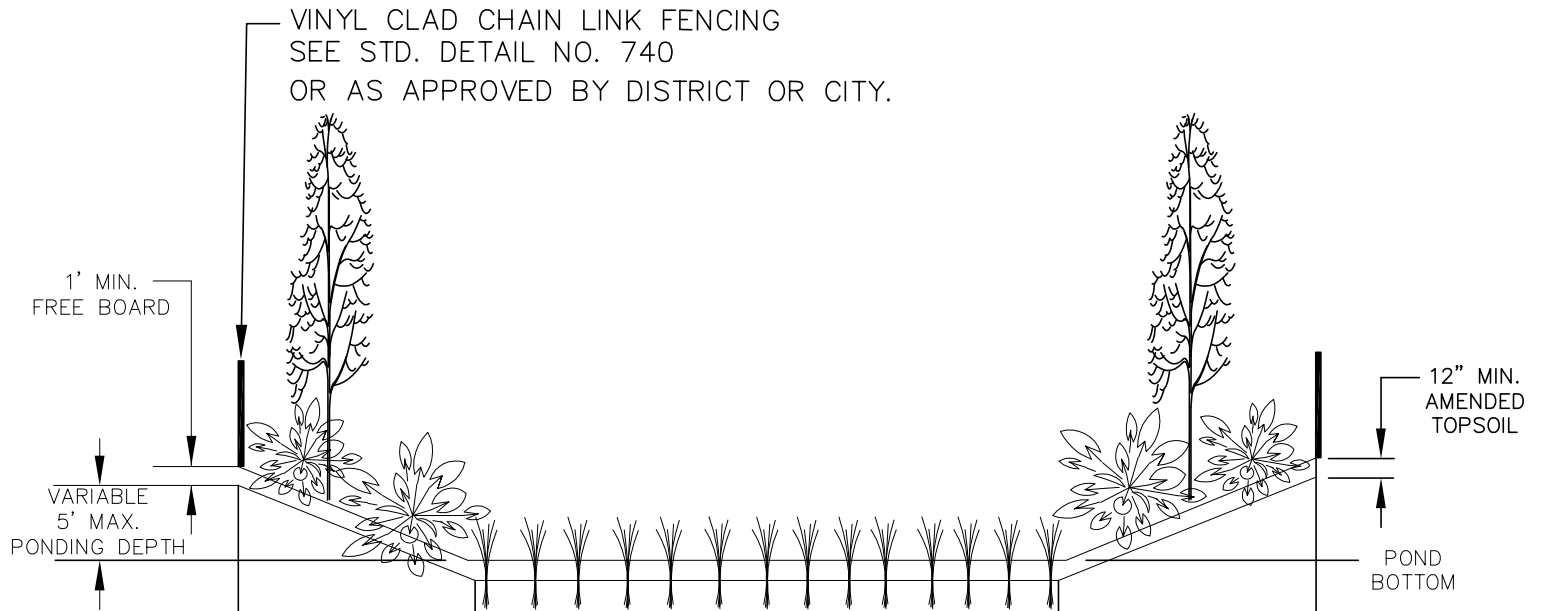
Date Drilled: 05/26/20

Logged By: LDG

Surface Elevation: 145 ft

Appendix F: References and Code

DETENTION POND



	SIDE SLOPE AREA	DETENTION AREA 6' MINIMUM WIDTH	SIDE SLOPE AREA
EC MATTING	ECONOJUTE*	COCONUT FIBER OR GEOJUTE PLUS*	ECONOJUTE*
SEED MIX	LOW GROW MIX SEE NOTE #5	NONE	LOW GROW MIX SEE NOTE #5
MAX. SLOPE	3H:1V TYP	FLAT BOTTOM	3H:1V TYP

* OR AS APPROVED

NOTES:

1. REFER TO CHAPTER 4, CWS DESIGN & CONSTRUCTION STANDARDS, FOR LANDSCAPING REQUIREMENTS INCLUDING TREE PLACEMENT, TOPSOIL AND PLANTING SPECIFICATIONS.
2. PROVIDE IRRIGATION AS APPROVED BY CWS.
3. JUTE MATTING- GEOJUTE PLUS IN DETENTION AREA, ECONOJUTE FOR ALL OTHER AREAS, OR SIMILIAR FABRICS. COCONUT FIBER IS ALSO ACCEPTABLE.
4. 12 INCHES OF AMENDED TOPSOIL SHALL BE PLACED THROUGHOUT THE WATER QUANTITY FACILITY.
5. SIDE SLOPE AREA SEED MIX, DWARF TALL FESCUE 40%, DWARF PERENNIAL RYE 30%, CREEPING RED FESCUE 25%, COLONIAL BENT GRASS 5%. APPLY AT A RATE OF 120# / ACRE.

CONSTRUCTION

1. Detention Pond shall be over-excavated and filled to final grade with 12-inch amended topsoil. Topsoil amendments shall be garden compost, not conventional fertilizer amendments.
2. A biodegradable Erosion Control Matting shall be placed over the topsoil throughout the Detention Pond cross section, fabric shall be held in place in accordance with the manufacturer's installation requirements. Anchor spacing shall be based on 3 fps flow over the fabric.
 - a. Pond bottom - high-density jute matting (Geojute Plus or other approved equal)
 - b. All other areas - low-density jute matting (EconoJute or other approved equal)
3. Plant materials shall be placed in accordance with the plan and plant table as shown on approved plans.
4. The facility shall be deemed acceptable to begin the maintenance period when plant growth and density matches the Engineer's design as shown on the approved plans and all other requirements have been met. The Engineer must certify the facility to be functional, in accordance with the approved plan design to begin the two-year maintenance period..

MAINTENANCE

1. The permittee is responsible for the maintenance of this facility for a minimum of two years following construction and acceptance of this facility per Chapter 2.
2. Irrigation is to be provided per separate irrigation plan as approved.

Note: Irrigation needs are to be met using a temporary irrigation system with a timer during the dry season. Systems should be winterized during the wet season to assure longevity and guard against damage from freezing temperatures. Water source shall be as shown on the approved plans.
3. Engineer or Owner's Representative is required to perform Monitoring and Maintenance of the Site and provide Documentation as required in Appendix A, 2.5 of the Design and Construction Standards. The Approved Plans shall include a Maintenance Schedule per Appendix A, 2.6.e of the Design and Construction Standards.
4. The Facility shall be re-excavated and planted if siltation greater than 3 inches in depth occurs within the two-year maintenance period.

Appendix A

PLANTING REQUIREMENTS

1.0 INTRODUCTION

1.1 General

The District recognizes the importance of Water Quality Sensitive Areas, Vegetated Corridors, and Stormwater Facilities that, along with the Tualatin River, are under its jurisdiction. To improve water quality and preserve aquatic species, and meet the intent of both the federal Clean Water and the Endangered Species Acts, the District developed requirements for planting of Vegetated Corridors, Sensitive Areas, and Stormwater Facilities.

Successful revegetation is critical to the proper function of Sensitive Areas, Vegetated Corridors, and Stormwater Facilities for the benefit of water quality and quantity management, and aquatic species preservation. This Appendix aids professionals, the development community, and field crews in planning, designing and implementing successful revegetation projects in these areas. This document guides design decisions to promote successful planting efforts, while allowing flexibility to address opportunities and constraints at each site.

1.2 Jurisdiction

Most Sensitive Areas are regulated by the Division of State Lands (DSL) and/or the U.S. Army Corps of Engineers (Corps). Where the Corps and/or DSL permit mitigation, planting plans for these areas shall follow DSL and Corps guidelines and approved plans. Vegetated Corridors and Stormwater Facilities are regulated by the District and the plans and management strategies for these areas shall follow the steps outlined in this document. Alternative plans and management strategies may be approved by the District.

1.3 Professional Assistance

Revegetation in Sensitive Areas, Vegetated Corridors and Stormwater Facilities should facilitate succession toward low-maintenance plant communities. Consultation with a professional landscape architect, ecologist, or horticulturist knowledgeable in native plants is highly recommended when preparing plans. Satisfying the landscaping requirements may require the services of a registered landscape architect. See ORS 671.310 through 671.459.

Non-native, invasive plant management and wildlife damage management strategies are provided in Clean Water Services *Integrated Pest Management (IPM) Plan*. Especially challenging management situations may require assistance from a landscape maintenance contractor or a wildlife biologist.

2.0 PLANTING PLAN METHODS

Planting plans shall be required for development projects with Vegetated Corridors or Stormwater Facilities. When a planting plan is required, four major components shall be addressed: hydrology, soils, plant materials, and maintenance. When developing planting plans, the following steps should be used:

2.1 Step 1: Assess Hydrologic and Hydraulic Conditions

- a. Determine the frequency and duration of water inundation, including appropriate elevations of the revegetation area. Watershed hydrology and hydraulic models for major streams are available from the District. In some cases, current site conditions (i.e. wetland presence) will suffice. For Stormwater Facilities, the models used to design and size the facility shall be used to determine frequency, duration and surface water elevations within the facility.
- b. Assign appropriate hydrologic zones to the revegetation area and apply them to the plan. Most project sites include one or more of the following planting zones with respect to hydrology during the growing season:
 1. Wet - standing or flowing water/nearly constant saturation; anaerobic soils
 2. Moist - periodically saturated; anaerobic and/or aerobic soils
 3. Dry - infrequent inundation/saturation, if any; aerobic soils

2.2 Step 2: Assess Soil Conditions and Assign Appropriate Preparation Specifications to Plans

- a. Determine the organic content and non-native, invasive seed bank likely in the soil. For most Stormwater Facilities, the soil is often high in clay, gravel, or minerals devoid of topsoil and organic material, and/or high in non-native, invasive weed content. The conditions in Sensitive Areas and Vegetated Corridors vary greatly.
- b. For upland sites with at least one foot of native topsoil, but containing a non-native, invasive seed bank or plants, add notes to the plan to remove the undesirable plants, roots, and seeds (*see IPM Plan*) prior to planting.
- c. For upland sites with either disturbed and compacted soils or less than one foot of topsoil and invasive, non-native seed bank or plants that have become established, the following notes shall be added to the plan:
 1. Remove the undesirable plants, roots, and seeds (*see IPM Plan*) prior to adding topsoil.

2. Till the sub-grade in these areas to a depth of at least four inches and add at least 12 inches of clean compost-amended topsoil. The compost-amended topsoil shall have the following characteristics to ensure a good growing medium:
 - A) Texture – material passes through one-inch screen
 - B) Fertility – 35% organic matter
3. In the event of floodplain grading, over-excavate the sub grade to ensure 12 inches of topsoil can be applied without impacting surface water elevations.
 - d. For wet areas in Sensitive Areas and Stormwater Facilities, the soil conditions shall be hydric or graded to hold sufficient water to promote hydric soil formation. The addition of organic muck soil will improve plant establishment for some bulbs and tubers.
 - e. Where appropriate and necessary for erosion control or to enhance organic matter, leaf compost may be placed uniformly on topsoil. (Refer to Chapter 6, Erosion Prevention and Sediment Control). Other amendments, conditioners, and bio-amendments may be added as needed to support the specified plants or adjust the soil pH. Traditional fertilization techniques (applying N-P-K) are not necessary for native plants.

2.3 Step 3: Identify Plants to be Preserved, Select Revegetation Plant Materials, Quantities, Placement, and Assign Planting Zones and Specifications to Plans

- a. Preservation: Every effort shall be made to protect a site’s existing native vegetation. Native vegetation along Sensitive Areas and Vegetated Corridors shall be retained to the maximum extent practicable.
- b. Selection: Plant selection shall be from a native species palette and shall consider site soil types, hydrologic conditions, and shade requirements. Containerized or bare root plants may be used. A list of common native plant community types appropriate for planting Sensitive Areas, Vegetated Corridors and Stormwater Facilities is provided in Table A-1. Upon approval from the District, limited use of non-invasive non-native plants may be permitted in highly urbanized and other unique settings such as regional town centers. Unless approved by District staff, planting restrictions are limited to the following:
 1. Deep rooting trees and shrubs (e.g. willow) shall not be planted on top of concrete pipes, or within 10 feet of retaining walls, inlet/outlet structures or other culverts; and

2. Large trees or shrubs shall not be planted on berms over four feet tall that impound water. Small trees or shrubs with fibrous root systems may be installed on berms that impound water and are less than four feet tall.

c. Quantities:

1. Vegetated Corridors and Sensitive Areas

Trees and shrubs shall be planted using the following equations to achieve the specified densities on a per acre basis.

- A) Total number of trees per acre = area in square feet x 0.01
- B) Total number of shrubs per acre = area in square feet x 0.05
- C) Groundcover = plant and seed to achieve 100% areal coverage

2. Stormwater Facilities

- A) Stormwater Facilities in tracts or easements less than 30 feet wide shall be planted using the following equations to achieve the specified densities on a per acre basis:

- i. Total number of shrubs per acre = area in square feet x 0.05
- ii. Groundcover = plant and seed to achieve 100% areal coverage

- B) Stormwater Facilities in tracts or easements 30 feet wide or more shall be planted using the following equations to achieve the specified densities on a per acre basis:

- i. Total number of trees per acre = area in square feet x 0.01
- ii. Total number of shrubs per acre = area in square feet x 0.05
- iii. Groundcover = plant and seed to achieve 100% areal coverage

- d. Size: Potted plants shall follow size requirements outlined in Table A-1. Bare root plants shall be 12 to 16 inches long.

- e. Placement: Plant placement shall be consistent with naturally occurring plant communities. Trees and shrubs shall be placed in singles or clusters of the same species to provide a natural planting scheme. This arrangement may follow curved rows to facilitate maintenance. Distribution and relative abundance shall be dependant on the plant species and on the size of the revegetation area. The Vegetated Corridor revegetation area shall be overseeded with native seed mixes appropriate to the plant community and hydrologic zone of the site (see Table A-1: Plant Communities for Revegetation). Plant placement and seeding shall promote maximum vegetative cover to minimize weed establishment.

- 2.4 Step 4: Determine Plant Installation Requirements and Assign Specifications to Plans
- a. Timing
Containerized stock shall be installed only from February 1 through May 1 and October 1 through November 15. Bare root stock shall be installed only from December 15 through April 15. Plantings outside these times may require additional measures to ensure survival which shall be specified on the plans.
 - b. Erosion Control
Grading, soil preparation, and seeding shall be performed during optimal weather conditions and at low flow levels to minimize sediment impacts. Site disturbance shall be minimized and desirable vegetation retained, where possible. Slopes shall be graded to support the establishment of vegetation. Where seeding is used for erosion control, an appropriate native grass, Regreen (or its equivalent), or sterile wheat shall be used to stabilize slopes until permanent vegetation is established. Biodegradable fabrics (coir, coconut or approved jute matting (minimum 1/4" square holes) may be used to stabilize slopes and channels. Fabrics such as burlap may be used to secure plant plugs in place and to discourage floating upon inundation. No plastic mesh that can entangle wildlife is permitted. Consult Chapter 6 - Erosion Prevention and Sediment Control for additional information.
 - c. Mulching
Trees, shrubs, and groundcovers planted in upland areas shall be mulched a minimum of three inches in depth and 18 inches in diameter, to retain moisture and discourage weed growth around newly installed plant material. Appropriate mulches are made from composted bark or leaves that have not been chemically treated. The use of mulch in frequently inundated areas shall be limited, to avoid any possible water quality impacts including the leaching of tannins and nutrients, and the migration of mulch into waterways.
 - d. Plant Protection from Wildlife
Depending on site conditions, appropriate measures shall be taken to limit wildlife-related damage (*see IPM Plan*).
 - e. Irrigation
Appropriate plant selection, along with adequate site preparation and maintenance, reduces the need for irrigation. However, unless site hydrology is currently adequate, a District/City approved irrigation system or equivalent (i.e., polymer, plus watering) shall be used during the two-year plant establishment period. Watering shall be at a minimum rate of at least one inch per week from June 15 through October 15. Other irrigation techniques, such as deep watering, may be allowed with prior approval by District staff.

- f. Access
Maintenance access for plant maintenance shall be provided for Sensitive Areas and Vegetated Corridors via a five-foot easement or shared boundary with Stormwater Facilities. Stormwater Facilities access requirements are provided in Chapter 4.

2.5 Step 5: Determine Plant Monitoring and Maintenance Requirements

- a. Monitoring
Site visits are necessary throughout the growing season to assess the status of the plantings, irrigation, mulching, etc. and ensure successful revegetation.
- b. Weed Control
The removal of non-native, invasive weeds shall be necessary throughout the maintenance period, or until a healthy stand of desirable vegetation is established (*see IPM Plan*).
- c. Plant Replacement and Preservation
Installed plants that fail to meet the acceptance criteria (see Chapter 2) shall be replaced during the maintenance period. Prior to replacement, the cause of loss (wildlife damage, poor plant stock, etc.) shall be documented with a description of the corrective actions taken.

2.6 Step 6: Prepare Construction Documents and Specifications

The construction documents and specifications shall include:

- a. Sensitive Area and Vegetated Corridor boundaries as shown on the Service Provider Letter, including limits of approved, temporary construction encroachment. Orange construction fencing shall be noted at Vegetated Corridor boundaries as well as at encroachment limits during construction. Note permanent type fencing and signage between the development and the Vegetated Corridor for project completion is required.
- b. Site Preparation plan and specifications, including limits of clearing, existing plants and trees to be preserved, and methods for removal and control of invasive, non-native species, and location and depth of topsoil and or compost to be added to revegetation area.
- c. Planting plan and specifications, including all of the following:
 - 1. Planting table that documents the common name, scientific name, distribution (zone and spacing), condition and size of plantings
 - 2. Installation methods for plant materials
 - 3. Mulching
 - 4. Plant tagging for identification
 - 5. Plant protection
 - 6. Seeding mix, methods, rates, and areas

- d. Irrigation plan and specifications, including identification of water source, watering timing and frequency, and maintenance of the system.
- e. Maintenance schedule; including responsible party and contact information, dates of inspection (minimum three per growing season and one prior to onset of growing season) and estimated maintenance schedule (as necessary) over the two-year monitoring period.
- f. Easement descriptions for all Vegetated Corridor and Sensitive Areas that are required as part of the development.
- g. Good rated corridor notes i.e. invasive species removal resulting in cleared areas exceeding 25 square feet shall be replanted with native vegetation.
- h. Access points for installation and maintenance including vehicle access if available.
- i. Standard drawing details (north arrow, scale bar, property boundaries, project name, drawing date, name of designer and Property Owner).

TABLE A-1
SUGGESTED PLANT COMMUNITIES FOR REVEGETATION

Plant Communities	Minimum Species Composition	Plant Category	Water Requirements	Light Requirements	Minimum Rooting Size	Minimum Plant Height	Spacing Format
Riparian Forest (RF)							
Red alder (<i>Alnus rubra</i>)	X	Tree	Moist	Sun	1 gal	3'	Single
Western red cedar (<i>Thuja plicata</i>)	X	Tree	Moist	Shade	2 gal	2'	Single
Red elderberry (<i>Sambucus racemosa</i>)	X	Shrub	Moist	Part	1 gal	1.5'	Single
Black twinberry (<i>Lonicera involucrata</i>)		Shrub	Moist	Part	1 gal	1.5'	Single
Red-osier dogwood (<i>Cornus stoniferia</i>)	X	Shrub	Wet	Part	1 gal	2'	Cluster
Indian plum (<i>Oemleris cerasiformis</i>)	X	Shrub	Moist	Shade	2 gal	2'	Cluster
Swamp rose (<i>Rosa pisocarpa</i>)		Shrub	Moist	Part	1 gal	1.5'	Cluster
Pacific ninebark (<i>Pysocarpus capitatus</i>)		Shrub	Moist	Shade	1 gal	2'	Single
Snowberry (<i>Symphoricarpos albus</i>)	X	Shrub	Dry	Part	1 gal	1.5'	Cluster
Salmonberry (<i>Rubus spectabilis</i>)	X	Shrub	Moist	Shade	1 gal	1.5'	Cluster
Maidenhair fern (<i>Adiatum aleuticum</i>)		Herb	Moist	Shade	4"	na	Cluster
Lady fern (<i>Athyrium filix-femina</i>)		Herb	Moist	Shade	1 gal	na	Cluster
Skunk cabbage (<i>Lysichiton americanum</i>)		Herb	Wet	Shade	bulbs	na	Cluster
False lily-of-the-valley (<i>Maianthemum dilatatum</i>)		Herb	Moist	Shade	bulbs, 4"	na	Cluster
Candy flower (<i>Claytonia sibirica</i>)		Herb	Moist	Shade	4"	na	Cluster
Miners lettuce (<i>Montia perfoliata</i>)		Herb	Moist	Shade	4"	na	Cluster
Stream violet (<i>Viola glabella</i>)		Herb	Moist	Shade	4"	na	Cluster
Youth-on-age (<i>Tolmiea menziesii</i>)		Herb	Moist	Shade	4"	na	Cluster
Insideout flower (<i>Vancouveria hexandra</i>)		Herb	Moist	Shade	4"	na	Cluster
Dewey's sedge (<i>Carex deweyana</i>)		Herb	Dry	Shade	plugs, 4"	4"	Mass
Hair bentgrass (<i>Agrostis scabra</i>)		Grass	Moist	Part	seed	na	Mass
Spike bentgrass (<i>Agrostis exarata</i>)	X	Grass	Moist	Part	seed	na	Mass
Tall manna-grass (<i>Glyceria elata</i>)	X	Grass	Moist	Part	seed	na	Mass

Plant Communities	Minimum Species Composition	Plant Category	Water Requirements	Light Requirements	Minimum Rooting Size	Minimum Plant Height	Spacing Format
Upland Forest (UF)							
	X	Tree	Moist	Sun	1 gal	3'	Single
	X	Tree	Dry	Sun	2gal	3'	Single
	X	Tree	Dry	Sun	2gal	3'	Single
	X	Tree	Dry	Sun	2 gal	2'	Single
		Tree	Moist	Shade	2 gal	2'	Single
		Tree	Dry	Part	2 gal	2'	Single
		Tree	Moist	Shade	1 gal	2'	Single
		Tree	Moist	Part	2 gal	2'	Single
	X	Tree	Moist	Part	2 gal	2'	Single
	X	Shrub	Dry	Sun	1 gal	1.5'	Single
	X	Shrub	Moist	Part	1 gal	1.5'	Single
	X	Shrub	Dry	Sun	1 gal	1.5'	Cluster
		Shrub	Moist	Part	1 gal	4"	Cluster
		Shrub	Dry	Sun	1 gal	6"	Single
		Shrub	Moist	Shade	1 gal	1.5'	Cluster
		Shrub	Moist	Shade	1 gal	1.5'	Cluster
	X	Shrub	Dry	Part	1 gal	1.5'	Cluster
	X	Shrub	Dry	Part	1 gal	1.5'	Cluster
		Shrub	Dry	Part	2 gal	2'	Single
		Shrub	Moist	Shade	2 gal	na	Cluster
		Herb	Moist	Shade	1 gal	na	Cluster
		Herb	Moist	Shade	2 gal	na	Single
		Herb	Moist	Part	1 gal	4"	Cluster
		Herb	Moist	Shade	4"	na	Cluster
		Herb	Moist	Shade	4"	na	Cluster
		Herb	Moist	Shade	1 gal	na	Cluster
		Herb	Dry	Part	4"	na	Cluster
		Herb	Moist	Shade	4"	na	Cluster
	X	Grass	Dry	Sun	seed	na	Mass
	X	Grass	Dry	Part	seed	na	Mass

Plant Communities	Minimum Species Composition	Plant Category	Water Requirements	Light Requirements	Minimum Rooting Size	Minimum Plant Height	Spacing Format
Oak Woodland / Savanna (OW)							
Oregon white oak (<i>Quercus garryana</i>)	X	Tree	Dry	Sun	2 gal	2'	Single
Snowberry (<i>Symphoricarpos albus</i>)	X	Shrub	Dry	Part	1 gal	1.5'	Cluster
Serviceberry (<i>Almelanchier alnifolia</i>)	X	Shrub	Dry	Part	1 gal	2'	Single
Oceanspray (<i>Holodiscus discolor</i>)	X	Shrub	Dry	Sun	1 gal	1.5'	Cluster
Training blackberry (<i>Rubus ursinus</i>)		Shrub	Dry	Sun	1 gal	1.5'	Cluster
Cascade Oregon grape (<i>Mahonia nervosa</i>)		Herb	Moist	Part	1 gal	4"	Cluster
Blue wild-rye (<i>Elymus glaucus</i>)	X	Grass	Dry	Part	seed	na	Mass
Native California brome (<i>Bromus carinatus</i>)	X	Grass	Dry	Sun	seed	na	Mass
Ash Forested Wetland (FW)							
Oregon Ash (<i>Fraxinus latifolia</i>)	X	Tree	Moist	Part	2 gal	3'	Single
Pacific Ninebark (<i>Physocarpus capitatus</i>)	X	Shrub	Moist	Shade	2 gal	2'	Single
Red-osier dogwood (<i>Cornus sericea</i>)	X	Shrub	Wet	Part	1 gal	2'	Cluster
Snowberry (<i>Symphoricarpus albus</i>)	X	Shrub	Dry	Part	1gal	1.5'	Cluster
Slough sedge (<i>Carex obnupta</i>)	X	Herb	Moist	Part	plugs	6"	Mass
Candy flower (<i>Claytonia sibirica</i>)		Herb	Moist	Shade	4"	na	Cluster
Streambank springbeauty (<i>Montia parvifolia</i>)		Herb	Moist	Shade	4"	na	Cluster
Dewey's sedge (<i>Carex deweyana</i>)		Herb	Dry	Shade	plugs	4"	Mass
Small fruited bulrush (<i>Scirpus microcarpus</i>)		Herb	Wet	Sun	plugs	4"	Mass
Tall mannagrass (<i>Glyceria elata</i>)	X	Grass	Moist	Shade	seed	na	Mass

Plant Communities	Minimum Species Composition	Plant Category	Water Requirements	Light Requirements	Minimum Rooting Size	Minimum Plant Height	Spacing Format
Shrub / Scrub Wetland (SS)							
Pacific willow (<i>Salix lasiandra</i>)	X	Tree	Wet	Sun	1 gal	3'	Single
Sitka willow (<i>Salix sitchensis</i>)		Tree	Moist	Sun	1 gal	3'	Cluster
Douglas hawthorne (<i>Crataegus douglasii</i>)		Tree	Moist	Part	2 gal	2'	Cluster
Pacific Crabapple (<i>Malus fusca</i>)	X	Tree	Moist	Part	2 gal	2'	Cluster
Scouler willow (<i>Salix scouleriana</i>)	X	Shrub	Moist	Sun	1 gal	3'	Cluster
Red-osier dogwood (<i>Cornus sericea</i>)	X	Shrub	Wet	Part	1 gal	2'	Cluster
Clustered rose (<i>Rosa pisocarpa</i>)		Shrub	Wet	Part	1 gal	1.5'	Cluster
Douglas's spiraea (<i>Spiraea douglasii</i>)	X	Shrub	Wet	Sun	1 gal	1.5'	Cluster
Nodding beggartick (<i>Bidens cernua</i>)		Herb	Wet	Sun	1 gal	1.5'	Cluster
Spreading rush (<i>Juncus patens</i>)		Herb	Moist	Part	plugs	6"	Mass
Western manna-grass (<i>Glyceria occidentalis</i>)	X	Grass	Wet	Sun	seed	na	Mass
Emergent Marsh (EM)							
Nodding beggarstick (<i>Bidens cernua</i>)	X	Herb	Moist	Sun	1 gal	1.5'	Cluster
Hardstem bulrush (<i>Scirpus acutus</i>)		Herb	Wet	Sun	plugs	1.5'	Cluster
Small-fruited bulrush (<i>Scirpus microcarpus</i>)	X	Herb	Wet	Sun	plugs	6"	Mass
Creeping spike rush (<i>Eleocharis palustris</i>)	8	Herb	Wet	Sun	seed, plugs	4"	Mass
Wapato (<i>Sagittaria latifolia</i>)		Herb	Wet	Sun	bulbs	na	Cluster
American water plantain (<i>Alisma plantago-aquatica</i>)		Herb	Wet	Sun	bulbs	na	Cluster
Soft stemmed bulrush (<i>Scirpus tabernaemontani</i>)		Herb	Wet	Sun	plugs	1.5'	Cluster
American brooklime (<i>Veronica americana</i>)		Herb	Wet	Sun	plugs	na	Cluster
Marsh speedwell (<i>Veronica scutellata</i>)		Herb	Wet	Sun	plugs	na	Cluster
American sloughgrass (<i>Beckmannia syzigachne</i>)	X	Grass	Wet	Sun	seed, plugs	na	Mass
Western manna-grass (<i>Glyceria occidentalis</i>)	X	Grass	Wet	Sun	seed	na	Mass




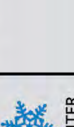
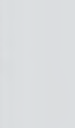
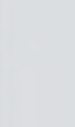
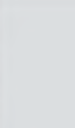



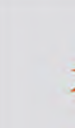




Plant Communities	Minimum Species Composition	Plant Category	Water Requirements	Light Requirements	Minimum Rooting Size	Minimum Plant Height	Spacing Format
Storm Water Facility (SWF)							
		Tree	Moist	Part	2 gal	3'	Single
	X	Tree	Moist	Part	2 gal	2'	Single
		Tree	Moist/Dry	Part	1 gal	2'	Single
		Tree	Moist	Part	2 gal	2'	Single
		Shrub	Wet/dry	Part	1 gal	2'	Cluster
	X	Shrub	Wet	Part	1 gal	2'	Cluster
		Shrub	Moist	Shade	1 gal	2'	Single
	X	Shrub	Dry	Sun	1 gal	1.5'	Single
	X	Shrub	Dry	Part	1 gal	2'	Single
		Shrub	Moist	Sun	1 gal	1.5'	Cluster
	X	Shrub	Dry	Part	1gal	1.5'	Cluster
	X	Shrub	Wet	Sun	1 gal	1.5'	Cluster
	X	Shrub	Dry	Sun	1 gal	1.5'	Cluster
		Herb	Wet	Sun	1 gal	1.5'	Cluster
		Herb	Moist	Part	plugs	6"	Mass
		Herb	Wet	Sun	plugs	6"	Mass
	X	Herb	Moist	Part	plugs	6"	Mass
		Herb	Dry	Sun	seed, plugs	4"	Mass
		Herb	Moist	Sun	plugs	4"	Mass
		Herb	Mix	Sun	seed	na	Mass
	X	Grass	Dry	Sun	seed	na	Mass
		Grass	Dry	Sun	seed	na	Mass
		Grass	Wet	Sun	seed	na	Mass

* - Grows 5-30 cm tall

Appendix G: Operations and Maintenance Plan




Extended Dry Basin Operation and Maintenance Plan

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	Task Complete Comments
Trash and Debris	Visual evidence of trash, debris or dumping	Remove trash and debris from facility. Dispose of properly	 SPRING  SUMMER  FALL  WINTER	
Contamination and Pollution	Evidence of oil, gasoline, contaminants, or other pollutants. Look for sheens, odor or signs of contamination	Locate source of contamination and correct. Remove oil using oil-absorbent pads or vacor truck. If low levels of oil persist plant wetland plants that can uptake small concentrations of oil such as Juncus effuses. (soft rush) If high levels of contaminants or pollutants are present, coordinate removal/cleanup with local jurisdiction	 SPRING  SUMMER  FALL  WINTER	
Invasive vegetation as outlined in Appendix A.	Invasive vegetation found in facility. Examples include: Himalayan Blackberry, Reed Canary Grass, Teasel, English Ivy, Nightshade, Clematis, Cattail, Thistle, Scotch Broom	Remove excessive weeds and all invasive plants. Attempt to control even if complete eradication is not feasible; refer to Clean Water Services Integrated Pest Management Plan for appropriate control methods, including proper use of chemical treatment	 SPRING  SUMMER  FALL	
Obstructed Inlet/Outlet	Material such as vegetation, trash, sediment is blocking more than 10% of inlet/outlet pipe or basin opening	Remove blockages from facility	 SPRING  WINTER Inspect after major storm (1-inch in 24 hours)	
Poor Vegetation Cover	80% survival of approved vegetation and no bare areas large enough to affect function of facility.	Determine cause of poor growth and correct the condition. Replant with plugs or containerized plants per the approved planting plan and applicable standards at time of construction. Remove excessive weeds and all invasive plants.	 SPRING  FALL Ideal time to plant is spring and fall seasons	





Extended Dry Basin Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	Task Complete Comments
Vector Control	Evidence of rodents or water piping through facility via rodent holes. Harmful insects present such as wasps and hornets that interfere with maintenance/ inspection activities	Repair facility if damaged. Remove harmful insects, use professional if needed. Refer to Clean Water Services Integrated Pest Management Plan for management options	As Needed	
Tree/Shrub Growth	Tree/shrub growth shades out wetland/emergent grass in treatment area. Interferes with access for maintenance/ inspection	Prune trees and shrubs that block sun from reaching treatment area. Remove trees that block access points. Do not remove trees that are not interfering with access or maintenance without first contacting Clean Water Services or local City	 Ideal time for pruning is winter	
Hazard Trees	Observed dead, dying or diseased trees	Remove hazard trees. A certified Arborist may need to determine health of tree or removal requirements	As Needed	
Excessive Vegetation	Vegetation grows so tall that it competes with approved emergent wetland grass/shrubs, interferes with access or becomes a fire danger	Cut tall grass 4" to 6" and remove clippings. Prune emergent wetland grass/shrubs that have become overgrown.	 Ideal time to prune emergent wetland grass is spring. Cut grass in dry months	
Erosion	Erosion or channelization that impacts or effects the function of the facility or creates a safety concern	Repair eroded areas and stabilize using proper erosion control measures. Establish appropriate vegetation as needed		

Extended Dry Basin Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	Task Complete Comments
Settlement of Pond Dike/Berm	Look for any part of dike/berm that has settled 4 inches or more lower than the design elevation	Repair dike/berm to approved design specifications. A licensed civil engineer should be consulted to determine the source of the settlement	As Needed	✓
Blockage of Emergency Overflow/ Spillway	Blockage of overflow/ spillway by trees, vegetation or other material. Blockages may cause the berm to fail due to uncontrolled overtopping	Remove blockage. Small root system (base less than 4 inches) may be left in place; otherwise, roots are removed. A licensed civil engineer should be consulted for proper berm/spillway restoration.	 WINTER SPRING Inspect after major storm (1-inch in 24 hours)	
Erosion of Emergency Overflow/Spillway	Native soil is exposed at the spillway, or there is only one layer of rock in an area of 5 square feet or larger	Restore rock and pad depth to appropriate depth. Refer to design specifications	 WINTER SPRING Inspect after major storm (1-inch in 24 hours)	
Blockage of Overflow Structure/ Orifice Plate	Excessive standing water or water is not detained for required time.	Inspect and if needed clear orifice plate for proper drainage or re-install to ensure required detention.	 WINTER SPRING Inspect after major storm (1-inch in 24 hours)	
Sediment Accumulation in Pond Bottom	Sediment accumulation in pond bottom exceeds 6 inches or affects facility inlet/ outlet or plant growth in treatment area	Remove sediment from pond bottom. Re-establish designed pond shape and depth. Establish appropriate vegetation in treatment area	 SUMMER FALL Ideally in the dry season	

Extended Dry Basin Operation and Maintenance Plan (continued)

Annual inspections are required. It is recommended that the facility is inspected on a monthly basis to ensure proper function. The plan below describes inspection and maintenance activities, and may be used as an inspection log. Contact the design engineer, Clean Water Services or City representative for more information.

Identified Problem	Condition to Check for	Maintenance Activity	Maintenance Timing	Task Complete Comments
Grate Damaged, missing or not in place	Grate is missing or only partially in place, may have missing or broken grate members.	Grate must be in place and meet design standards. Replace or repair any open structure, replace grate if missing	As Needed	
Damage to Outlet Structure	Damage to Frame or Top Slab. Frame not sitting flush on top slab (more than 3/4 inch between frame and top slab); frame not securely attached	Ensure frame is firmly attached and sits flush on the riser rings or top slab	As Needed	
Damage to Outlet Structure	Fractures or Cracks in Walls or Bottom. Maintenance person determines the structure is unsound. Soil entering structure through cracks.	Structure replaced or repaired to design standards.	As Needed	
Damage to Outlet Structure	Settlement or Misalignment of Basin. Failure of basin has created a safety, function, or design problem	Structure replaced or repaired to design standards	As Needed	

Appendix H: SLOPES V Information Form

SLOPES for Stormwater, Transportation and Utilities

(NMFS# NWR-2013-10411)

Stormwater Information Form

If you are submitting a project that includes a stormwater plan for review under SLOPES for Stormwater, Transportation and Utilities please fill out the following cover sheet **to be included with** stormwater management plan, and any other supporting materials.

Also include a drawing of the stormwater treatment area including drainage areas, direction of flow, BMP locations and types, contributing areas, other drainage features, receiving water/location, etc.

Project Information																
	Corps of Engineers permit #															
	Name of Project:															
	Type of project (i.e., residential, commercial, industrial, or combination)															
	Nearest receiving water occupied by ESA-listed species or designated critical habitat															
	Lat/Long (DDD.dddd) of Project Location:															
	Have you contacted anyone at NMFS regarding this project?															
	Applicant/Consultant name:															
	Applicant/Consultant email:															
Stormwater Designer and/or Engineer Contact Information																
	Name:															
	Phone:															
	Email:															
Summary of Design Elements																
1.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">24-hour design storm:</td> <td style="width: 10%; text-align: center;">Inches</td> <td style="width: 40%;">50%* of 2-yr, 24-hr storm fully treated:</td> <td style="width: 10%; text-align: center;">Yes</td> <td style="width: 10%; text-align: center;">No</td> </tr> <tr> <td colspan="5" style="font-size: small;">If no, project may not meet the SLOPES programmatic criteria</td> </tr> <tr> <td colspan="5" style="font-size: x-small;">*May be greater than 50% - see PDC 36.e. for geographically based percentage</td> </tr> </table>	24-hour design storm:	Inches	50%* of 2-yr, 24-hr storm fully treated:	Yes	No	If no, project may not meet the SLOPES programmatic criteria					*May be greater than 50% - see PDC 36.e. for geographically based percentage				
24-hour design storm:	Inches	50%* of 2-yr, 24-hr storm fully treated:	Yes	No												
If no, project may not meet the SLOPES programmatic criteria																
*May be greater than 50% - see PDC 36.e. for geographically based percentage																
2.	2 year, 24 hour storm from NOAA Precipitation Atlas: Inches http://www.nws.noaa.gov/ohd/hdsc/noaaatlas2.htm															
3.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Total contributing impervious area including all contiguous surface (e.g. roads, driveways, parking lots, sidewalks, roofs, and similar surfaces)</td> <td style="text-align: right;">Acres</td> </tr> <tr> <td style="width: 10%;"></td> <td style="text-align: center;">Proposed new</td> <td style="text-align: right;">Acres</td> </tr> <tr> <td></td> <td style="text-align: center;">Existing</td> <td style="text-align: right;">Acres</td> </tr> <tr> <td></td> <td>Acres of total impervious area x design storm =</td> <td style="text-align: right;">ft³ to be treated</td> </tr> </table>	Total contributing impervious area including all contiguous surface (e.g. roads, driveways, parking lots, sidewalks, roofs, and similar surfaces)		Acres		Proposed new	Acres		Existing	Acres		Acres of total impervious area x design storm =	ft ³ to be treated			
Total contributing impervious area including all contiguous surface (e.g. roads, driveways, parking lots, sidewalks, roofs, and similar surfaces)		Acres														
	Proposed new	Acres														
	Existing	Acres														
	Acres of total impervious area x design storm =	ft ³ to be treated														
4.	Peak discharge of design storm: cfs															
5.	Total stormwater to be treated: ft³ cfs															
6.	Stormwater Design Manual Used and Year/Version: (example: City of Portland, Clean Water Services, King County, Western Washington) Describe which elements of your stormwater plan came from this manual:															

7.	<p>Have you treated all stormwater to the design storm within the contributing impervious area? Yes No If no, why not and how will you offset the effects from remaining stormwater?</p>	
Water Quality		
8.	<p>Low Impact Development methods incorporated? Yes No (e.g. site layout, vegetation and soil protection, reforestation, integrated management practices such as amended soils, bioretention, permeable pavement, rainwater collection, tree retention) Please describe:</p> <p>How much of total stormwater is treated using LID:</p>	
9.	<p>Treatment train, including pretreatment and bioretention methods used to treat water quality:</p> <p>Why this treatment train was chosen for the project site:</p> <p>Page in stormwater plan where more details can be found:</p>	
Water Quantity		
10.	<p>Does the project discharge directly into a major water body (see PDC 36.c.iii)? Yes No</p>	
11.	<p>Pre-development runoff rate (i.e., before human-induced changes to the unimproved property) 2-yr, 24-hour storm: 10-yr storm:</p>	<p>Post-development runoff rate (i.e., after proposed developments) 2-yr, 24-hour storm: 10-yr storm:</p>
Post-development runoff rate must be less than or equal to pre-development runoff rate		
12.	<p>Methods used to treat water quantity:</p> <p>Page in stormwater plan where more details can be found:</p>	

Maintenance and Inspection Plan

13. Have you included a stormwater maintenance plan with a description of the onsite stormwater system, inspection schedule and process, maintenance activities, legal and financial responsibility, and inspection and maintenance logs? Yes No*

*Projects cannot be submitted for review under SLOPES without a maintenance and inspection plan.

Page in stormwater plan where plan can be found:

14. Contact information for the party/parties that will be legally responsible for performing the inspections and maintenance or the stormwater facilities:

Name: _____
Phone number: _____
Email: _____

Name: _____
Phone number: _____
Email: _____

Name: _____
Phone number: _____
Email: _____

Page in stormwater plan where more details can be found:

Exhibit E: Wetland Assessment and Delineation



Oregon

Kate Brown, Governor

Department of State Lands

775 Summer Street NE, Suite 100

Salem, OR 97301-1279

(503) 986-5200

FAX (503) 378-4844

www.oregon.gov/dsl

State Land Board

July 14, 2021

Oregon Street Business Park, LLC

Attn: Bruce Polley

PO Box 1489

Sherwood, OR 97140

Kate Brown

Governor

Re: WD # 2021-0196 **Approved**

Wetland Delineation Report for The Oregon Street Business Park

Washington County; T2S R1W S28C TLs 500 and 501 (Portions)

APP # 24010, RGL # 1439

City of Sherwood Local Wetlands Inventory Wetland R-5

Shemia Fagan

Secretary of State

Tobias Read

State Treasurer

Dear Mr. Polley:

The Department of State Lands has reviewed the wetland delineation report prepared by AKS Engineering and Forestry for the site referenced above. Please note that the study areas include only a portion of the tax lots described above (see the attached maps). Based upon the information presented in the report, and additional information submitted upon request, we concur with the wetland and waterway boundaries as mapped in revised Figure 5 and 5A of the report. Please replace all copies of the preliminary wetland maps with these final Department-approved maps.

Within the study areas, 2 wetlands (Wetland A and B, totaling approximately 0.59 acres) were identified. The wetlands are subject to the permit requirements of the state Removal-Fill Law. Normally, a state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in wetlands or below the ordinary high-water line (OHWL) of the waterway (or the 2-year recurrence interval flood elevation if OHWL cannot be determined). However, Wetland B is within the active floodplain of Rock Creek, an essential salmonid stream and its southern portion is part of a compensatory wetland mitigation site (RGL # 1439); therefore, fill or removal of any amount of material within this wetland may require a state permit.

This concurrence is for purposes of the state Removal-Fill Law only. We recommend that you attach a copy of this concurrence letter to any subsequent state permit application to speed application review. Federal or local permit requirements may apply as well. The U.S. Army Corps of Engineers will determine jurisdiction under the Clean Water Act, which may require submittal of a complete Wetland Delineation Report.

Please be advised that state law establishes a preference for avoidance of wetland impacts. Since measures to avoid and minimize wetland impacts may include reconfiguring parcel layout and size or development design, we recommend that you

work with Department staff on appropriate site design before completing the city or county land use approval process.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter unless new information necessitates a revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity or complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. If you have any questions, please contact the Jurisdiction Coordinator for Washington County, Chris Stevenson, PWS, at (503) 986-5246.

Sincerely,

A handwritten signature in black ink, appearing to read "Peter Ryan".

Peter Ryan, SPWS
Aquatic Resource Specialist

Enclosures

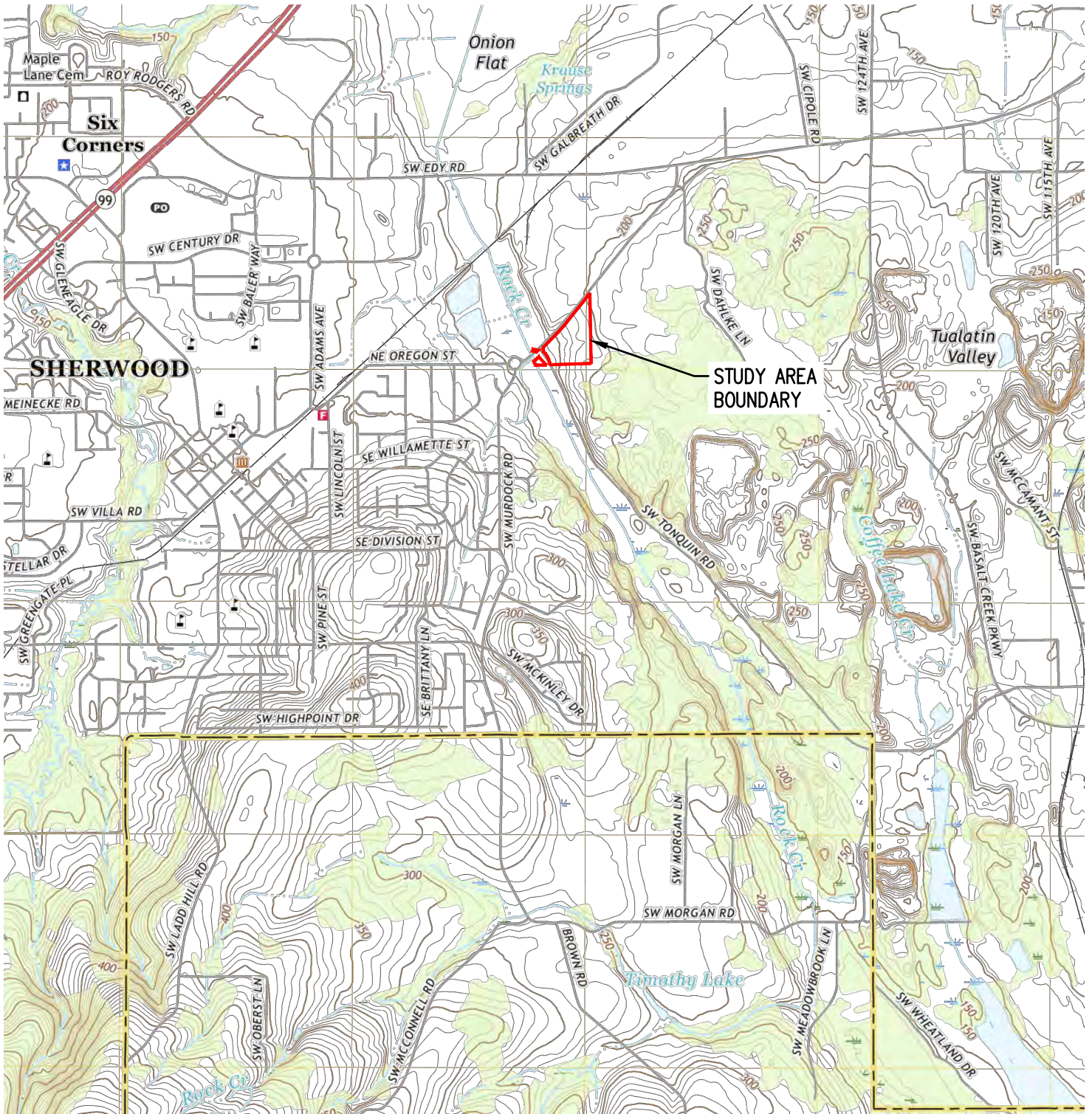
ec: Stacey Reed, PWS, AKS Engineering and Forestry
City of Sherwood Planning Department (Maps enclosed for updating LWI)
Danielle Erb, Corps of Engineers
Grey Wolf, DSL

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

Fully completed and signed report cover forms and applicable fees are required before report review timelines are initiated by the Department of State Lands. Make checks payable to the Oregon Department of State Lands. To pay fees by credit card, go online at: <https://apps.oregon.gov/DSL/EPS/program?key=4>.

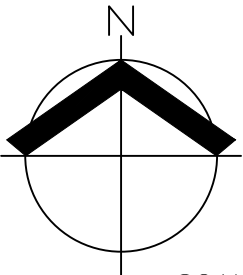
Attach this completed and signed form to the front of an unbound report or include a hard copy with a digital version (single PDF file of the report cover form and report, minimum 300 dpi resolution) and submit to: **Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279**. A single PDF of the completed cover form and report may be e-mailed to: **Wetland_Delineation@dsl.state.or.us**. For submittal of PDF files larger than 10 MB, e-mail DSL instructions on how to access the file from your ftp or other file sharing website.

Contact and Authorization Information	
<input checked="" type="checkbox"/> Applicant <input checked="" type="checkbox"/> Owner Name, Firm and Address: Oregon Street Business Park, LLC ATTN: Bruce Polley P.O. Box 1489 Sherwood, OR 97140	Business phone # Mobile phone # (optional) E-mail: bruce@airteknw.com
<input type="checkbox"/> Authorized Legal Agent, Name and Address (if different):	Business phone # Mobile phone # (optional) E-mail:
I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.	
Typed/Printed Name: <u>Bruce Polley</u> Signature: Date: _____ Special instructions regarding site access: _____	
Project and Site Information	
Project Name: Oregon Street Business Park	Latitude: 45.360684 Longitude: -122.823151 decimal degree - centroid of site or start & end points of linear project
Proposed Use: Employment Industrial	Tax Map # 2S 1 28C Tax Lot(s) 500 and Portion of 501
Project Street Address (or other descriptive location): 21720 SW Oregon Street	Tax Map # Tax Lot(s)
City: Sherwood County: Washington	Township 2S Range 1W Section 28 QQ SW Use separate sheet for additional tax and location information
	Waterway: N/A River Mile: N/A
Wetland Delineation Information	
Wetland Consultant Name, Firm and Address: Stacey Reed, PWS AKS Engineering & Forestry LLC 12965 SW Herman Rd, Ste 100 Tualatin, OR 97062	Phone # (503) 563-6151 Mobile phone # (if applicable) E-mail: staceyr@aks-eng.com
The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.	
Consultant Signature: Date: <u>04/12/2021</u>	
Primary Contact for report review and site access is <input checked="" type="checkbox"/> Consultant <input type="checkbox"/> Applicant/Owner <input type="checkbox"/> Authorized Agent	
Wetland/Waters Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Study Area size: 9.27 acres Total Wetland Acreage: 0.5900	
Check Applicable Boxes Below	
<input type="checkbox"/> R-F permit application submitted <input type="checkbox"/> Mitigation bank site <input type="checkbox"/> Industrial Land Certification Program Site <input type="checkbox"/> Wetland restoration/enhancement project (not mitigation) <input checked="" type="checkbox"/> Previous delineation/application on parcel If known, previous DSL # <u>2000-0488</u>	<input checked="" type="checkbox"/> Fee payment submitted \$ <u>475</u> <input type="checkbox"/> Fee (\$100) for resubmittal of rejected report <input type="checkbox"/> Request for Reissuance. See eligibility criteria. (no fee) DSL # _____ Expiration date _____ <input type="checkbox"/> LWI shows wetlands or waters on parcel Wetland ID code _____
For Office Use Only	
DSL Reviewer: <u>CS</u> Fee Paid Date: ____ / ____ / ____ DSL WD # <u>2021-0196</u>	
Date Delineation Received: <u>04 / 12 / 2021</u> Scanned: <input type="checkbox"/> Electronic: <input checked="" type="checkbox"/> DSL App.# _____	



STUDY AREA
BOUNDARY

USGS 7.5' TOPOGRAPHIC SERIES
QUADRANGLE: SHERWOOD, OR (2020)



SCALE: 1" = 2000 FEET



DATE: 04/08/2021

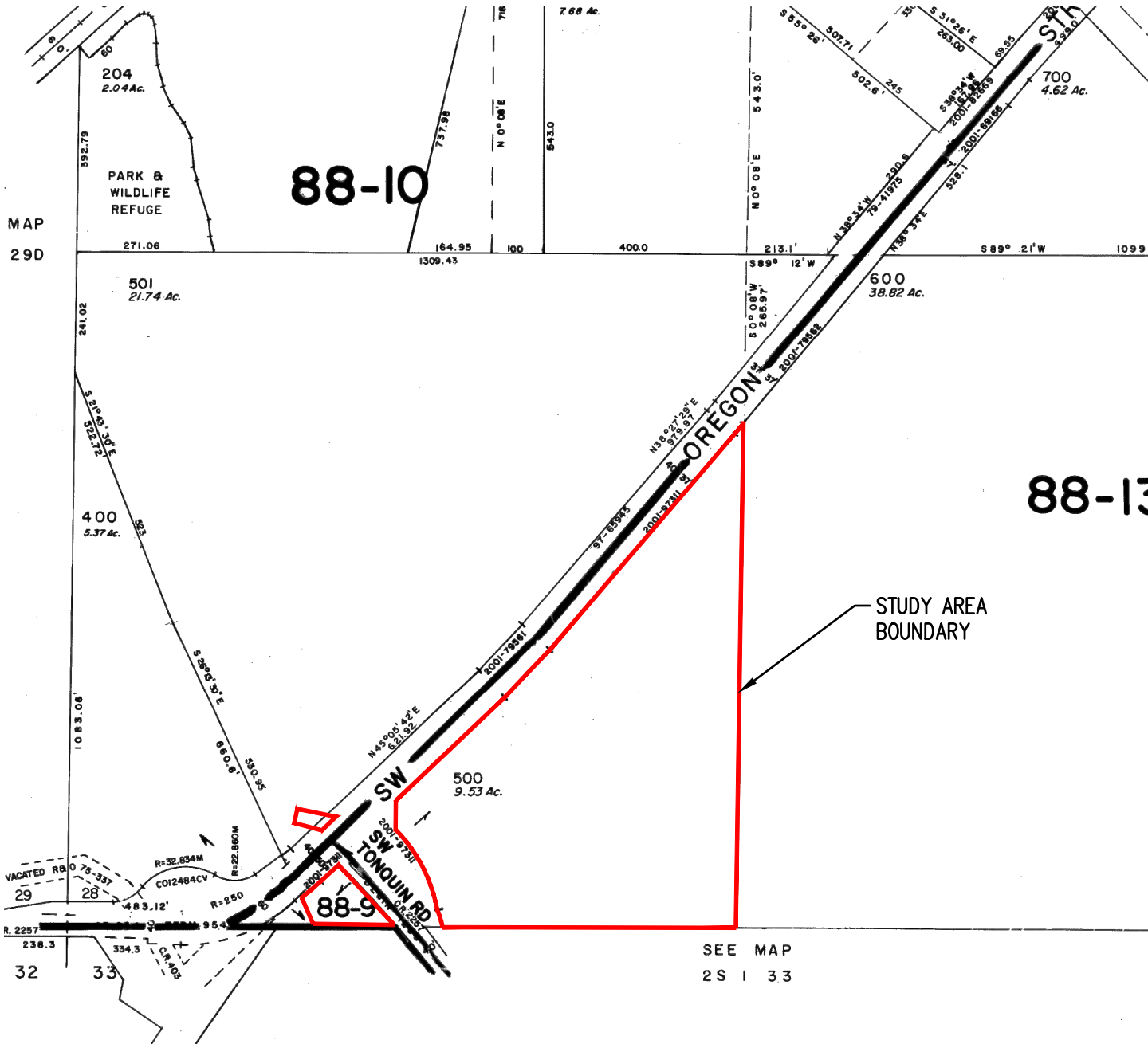
USGS VICINITY MAP
OREGON STREET BUSINESS PARK WETLAND DELINEATION REPORT

FIGURE
1

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM



DRWN: ANF
CHKD: SKT
AKS JOB:
7971



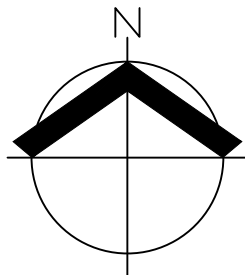
88-10

88-13

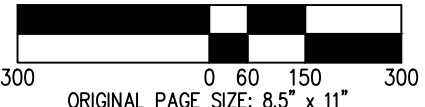
STUDY AREA BOUNDARY

SEE MAP
2S 1 33

WASHINGTON COUNTY
TAX LOT 500
AND PORTION OF TAX LOT 501
TAX MAP 2S 1 28C



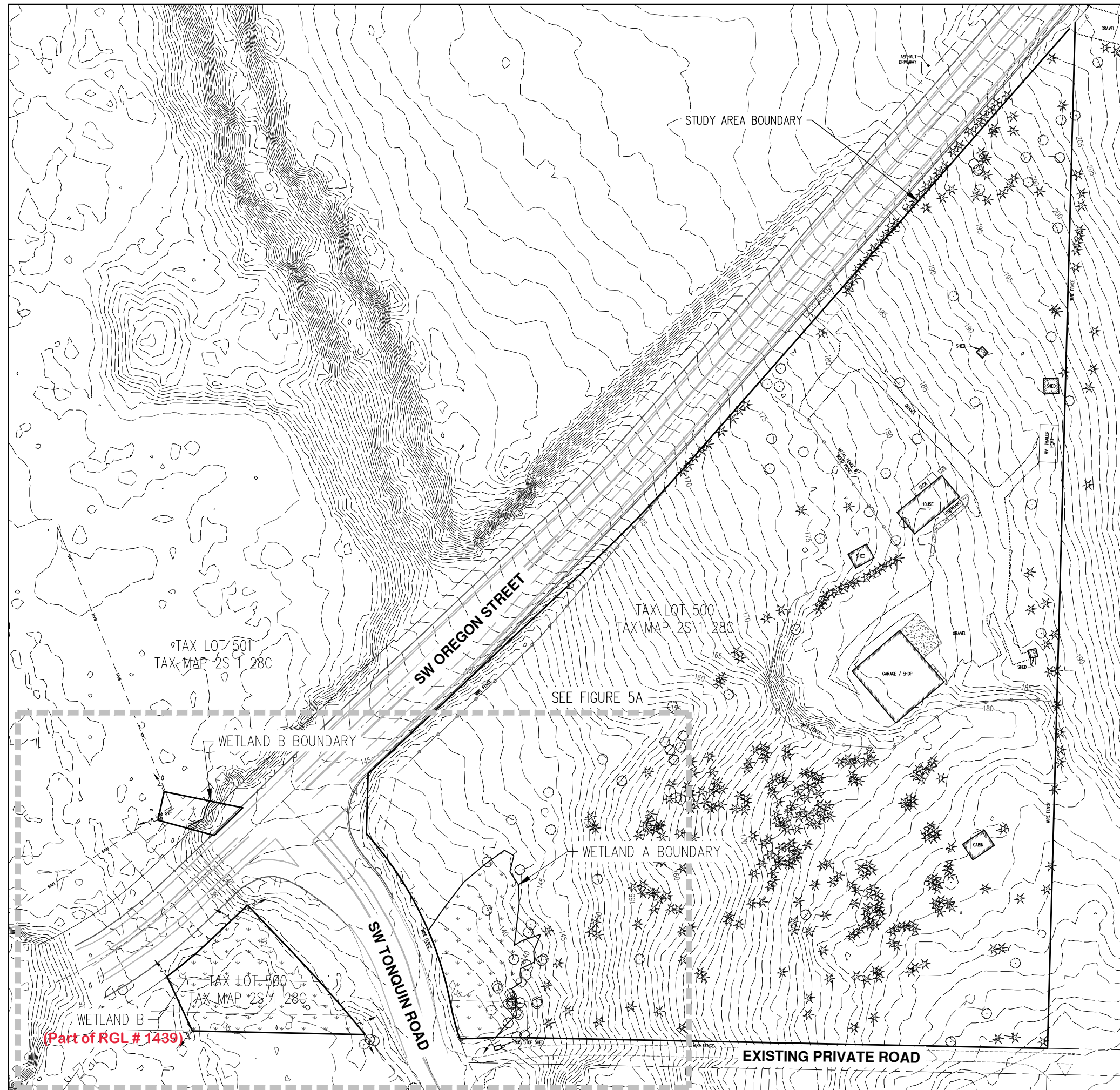
SCALE: 1" = 300 FEET



DATE: 04/08/2021

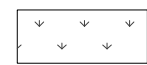

TAX MAP (MAP 2S 1 28C) OREGON STREET BUSINESS PARK WETLAND DELINEATION REPORT		FIGURE 2
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM		DRWN: ANF CHKD: SKT AKS JOB: 7971





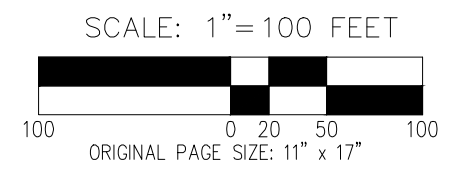
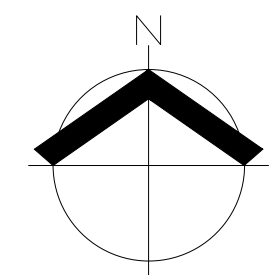
DSL WD # 2021-0196
 Approval Issued 7/14/2021
 Approval Expires 7/14/2026

LEGEND

-  TOTAL ON-SITE WETLAND: 25,759 SF± (0.59 ACRES±)
- PSS/PEM/SLOPE WETLAND A: 11,430 SF± (0.26 ACRES±)
- PEM/SLOPE/RIVERINE WETLAND B: 14,329 SF± (0.33 ACRES±)
-  PHOTO LOCATIONS & ORIENTATION

WETLAND BOUNDARIES SHOWN WERE DELINEATED BY AKS ENGINEERING & FORESTRY, LLC ON MARCH 8, 2021 AND WERE PROFESSIONALLY LAND SURVEYED BY AKS ON MARCH 10, 2021.

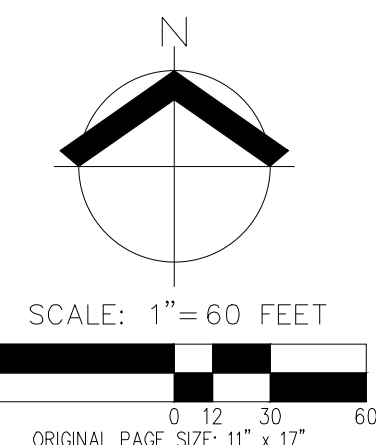
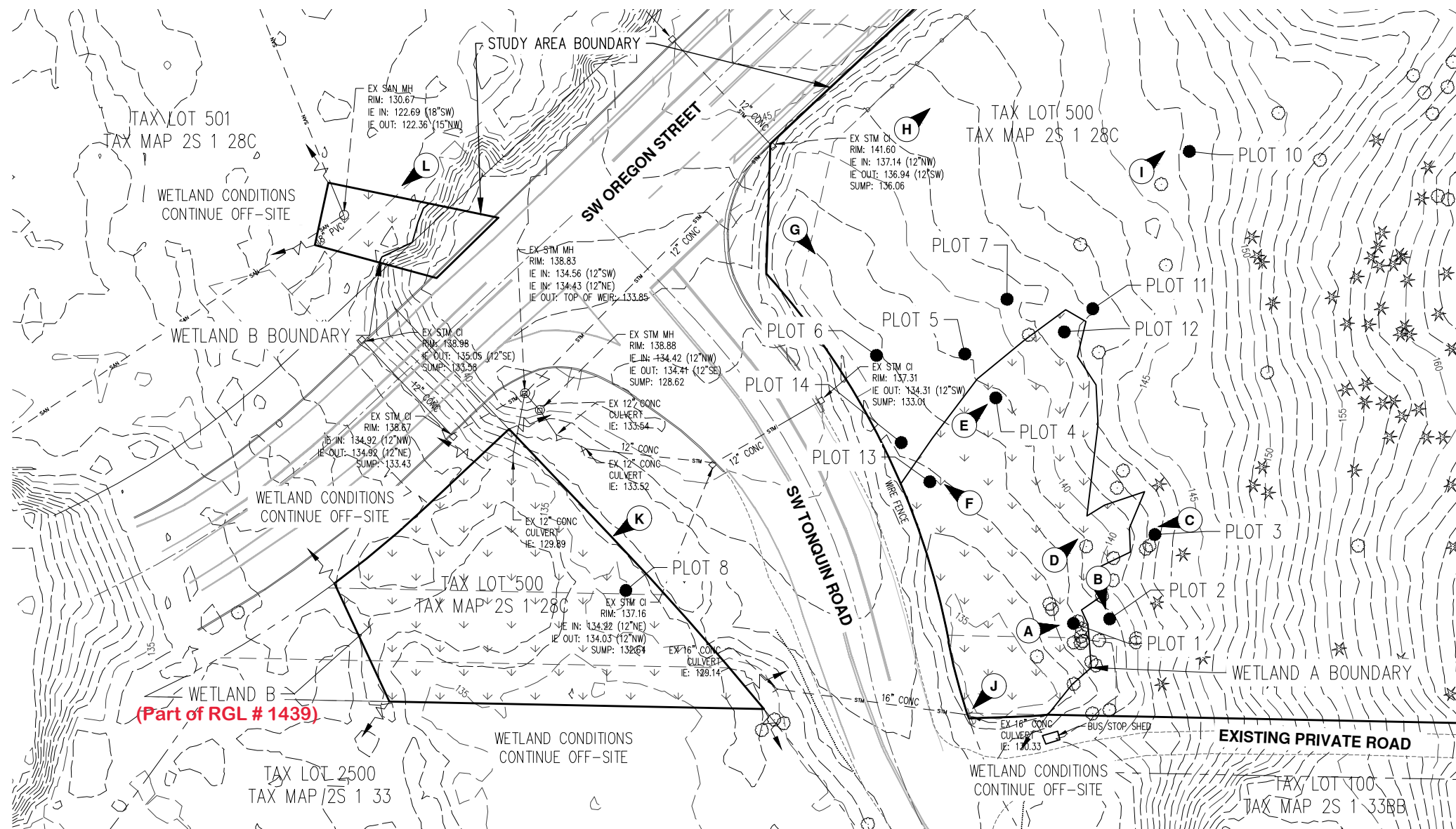
1-FOOT INTERVAL GROUND CONTOURS DERIVED FROM NOAA LIDAR. EXISTING CONDITIONS AND STUDY AREA ARE DERIVED FROM LAND SURVEY WITH SUB-METER ACCURACY.



DATE: 04/08/2021

WETLAND DELINEATION OVERVIEW	FIGURE
OREGON STREET BUSINESS PARK WETLAND DELINEATION REPORT	5
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: SKT CHKD: SAR AKS JOB: 7971





LEGEND

- TOTAL ON-SITE WETLAND: 25,759 SF± (0.59 ACRES±)
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DSL WD # 2021-0196
Approval Issued 7/14/2021
Approval Expires 7/14/2026

DATE: 04/08/2021

WETLAND DELINEATION		FIGURE
OREGON STREET BUSINESS PARK WETLAND DELINEATION REPORT		5A
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM		DRWN: SKT CHKD: SAR AKS JOB: 7971



Oregon Street Business Park Sherwood, Oregon Wetland Delineation Report

Date: April 2021

Prepared for: Oregon Street Business Park, LLC
P.O. Box 1489
Sherwood, Oregon 97140

Prepared by: AKS Engineering & Forestry, LLC
Sonya Templeton, Natural Resource Specialist
Stacey Reed, PWS, Senior Wetland Scientist
503-563-6151 | staceyr@aks-eng.com

Study Area: SW Oregon Street and SW Tonquin Road
Washington County Assessor's Map 2S 1 28C
Tax Lot 500 and Portion of Tax Lot 501
Sherwood, Oregon

AKS Job Number: 7971



12965 SW Herman Road, Suite 100
Tualatin, OR 97062
(503) 563-6151

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Appendices

Appendix A: Maps

Figure 1: Vicinity Map

Figure 2: County Assessor’s Map

Figure 3: NRCS Soils Map

Figure 4: Local Wetland Inventory (LWI) Map

Figures 5 and 5A: Wetland Delineation Map

Appendix B: Historical Aerial Photographs

Appendix C: Precipitation Data

Appendix D: Wetland Determination Data Forms

Appendix E: Photo Location Map and Site Photographs

Introduction

This report was prepared by AKS Engineering Forestry, LLC (AKS) in accordance with Oregon Administrative Rules (OAR) 141-090-0030 and OAR-141-090-0035 (1-17) and describes the results of a wetland delineation conducted on Tax Lot 500 and a portion of Tax Lot 501 of Washington County Assessor's Map 2S 1 28C, which is located at the intersection of SW Oregon Street and SW Tonquin Road in Sherwood, Washington County, Oregon (Figures 1 and 2, Appendix A). The study area for the wetland delineation was approximately 9.27 acres and is shown in Figures 1 to 5 in Appendix A.

The on-site boundaries of one palustrine scrub-shrub/emergent wetland (referred to as Wetland A) and portions of a large palustrine emergent wetland associated with the floodplain of Rock Creek (referred to as Wetland B) were delineated by AKS in the study area. Both wetlands are likely to be determined jurisdictional to the Oregon Department of State Lands (DSL) and Wetland B is likely to be determined jurisdictional to the US Army Corps of Engineers (USACE) due to its adjacency to Rock Creek, a natural perennial stream.

David Evans & Associates, Inc. (DEA) conducted a wetland delineation that covered the study area in 2000 for Washington County's Oregon Street/Murdock Road to Tualatin/Sherwood Road Widening Project. The delineation determined palustrine emergent wetland was present in the vicinity of Wetland A mapped under our study. The DEA delineation was concurred by DSL under WD2000-0488. Washington County received a removal-fill permit from DSL (DSL permit #RF-24010) to impact a portion of Wetland A for the widening and raising of SW Oregon Street and intersection improvements with SW Tonquin Road. Permanent wetland impacts were mitigated through on-site wetland enhancement, which included enhancement within Wetland B delineated under this study.

A. Landscape Setting and Land Use

The study area east of SW Tonquin Road and south of SW Oregon Street contains three buildings and gravel parking located in the northern portion of the site, with remaining portions consisting of a forested area and an open field. The forested area is dominated by Douglas-fir (*Pseudotsuga menziesii*, FACU), big-leaf maple (*Acer macrophyllum*, FACU), English holly (*Ilex aquifolium*, FACU), oso-berry (*Oemleria cerasiformis*, FACU), Himalayan blackberry (*Rubus armeniacus*, FAC), common snowberry (*Symphoricarpos albus*, FACU), pineland sword fern (*Polystichum munitum*, FACU), and California dewberry (*Rubus ursinus*, FACU). The open field is dominated by mowed bentgrass (*Agrostis* species, FAC), bluegrass (*Poa* species, FAC), common dandelion (*Taraxacum officinale*, FACU), white clover (*Trifolium repens*, FAC), and English plantain (*Plantago lanceolata*, FACU).

The study area southwest of SW Tonquin Road is undeveloped and is entirely wetland (referred to as Wetland B) dominated by reed canary grass (*Phalaris arundinacea*, FACW). Wetland B extends north of SW Oregon Street, also dominated by reed canary grass, with scattered thickets of Douglas' meadowsweet (*Spiraea douglasii*, FACW), and Oregon ash (*Fraxinus latifolia*, FACW).

Topography within the study area east of SW Tonquin Road slopes to the west towards Wetland A. Elevation varies at 180 feet in the eastern portion of the site with the lowest elevation at 135 feet within Wetland A in the western portion of the site. The remaining study areas are relatively flat (less than 3 percent overall slope) and slopes subtly towards Rock Creek.

The land use to the north and east generally consists of industrial land uses with high-density residential to the west. The study area is currently zoned as Employment Industrial within the City of Sherwood's Tonquin Employment Area.

The following soil units are mapped within the study area, according to the Natural Resources Conservation Service (NRCS) Washington County Area Soil Survey Map (Figure 3, Appendix A):

- Briedwell stony silt loam (Unit 5B), 0 to 7 percent slopes; Non-hydric
- Cove silty clay loam (Unit 13); Hydric
- Laurelwood silt loam (Unit 28B), 3 to 7 percent slopes; Non-hydric

B. Site Alterations

Historical aerial photos, dating from 1994 to 2019, were obtained from Google Earth and are included in Appendix B. The portion of the study area east of SW Tonquin Road was mostly forested from as early as 1994, until it was logged sometime between 1994 and 2000.

Sometime between 2001 and 2002, grading was done for the Oregon Street/Tonquin Road intersection improvements, which were completed in 2003. The road improvement project resulted in a partial fill of the wetlands delineated under this study.

Sometime in 2004, enhancement of Wetland B occurred which appears to have included excavation of a depression. The excavation appears to have been associated with the wetland mitigation enhancement under DSL permit #RF-24010.

The study area appears to be relatively unchanged since the 2014 aerial image and no other site alterations appear to have taken place that would have direct or indirect hydrological impacts to wetlands delineated on the site.

C. Precipitation Data and Analysis

The closest WETS (Climate Analysis for Wetlands Tables) station to the project site is the Hillsboro station. According to the Hillsboro WETS data, the growing season is between March 15 and November 10. The site visit was conducted on March 8, 2021; however, evidence of the onset of the growing season was observed, including woody bud burst and the emergence of herbaceous vegetation from the ground, confirming the site visit was conducted during the growing season. Raw precipitation data is included in Appendix C.

According to the National Weather Service (NWS) Hillsboro station, 0.01 inches of rain were received on the day of the March 8, 2021 site visit with 1.02 inches recorded in the two weeks prior. Observed water year-to-date (Starting October 1, 2020) was 24 inches, which was 3.74 inches below normal. As depicted by Table 1, normal rainfall levels were observed during the three months prior to the March 8, 2021 site visit.

Table 1: Precipitation Data Prior to the March 8, 2021 Site Visit

Prior Months	Observed Precipitation (Inches)	Average WETS Precipitation (Inches)	30% Chance Will Have		Condition Dry, Wet, Normal	Condition Value (1=dry, 2=normal, 3=wet)	Month Weight	Multiply Previous Two Columns
			Less Than	More Than				
February 2021	3.91	3.63	2.25	4.39	Normal	2	3	6
January 2021	7.86	5.28	3.69	6.27	Wet	3	2	6
December 2020	5.27	5.98	4.06	7.14	Normal	2	1	2
Sum								14
Rainfall of prior period was: drier than normal (sum is 6-9), normal (sum is 10-14), wetter than normal (sum is 15-18)								

D. Methods

The methodology used to determine the presence of wetlands followed the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Wakeley et al., 2010). The *National Wetland Plant List 2018* (USACE, 2018) was used to assign wetland indicator status for the appropriate region.

Field work was conducted on March 8, 2021 by AKS Stacey Reed, PWS, Senior Wetland Scientist and Sonya Templeton, Natural Resource Specialist. Soils, vegetation, and indicators of hydrology were recorded at 14 sample plot locations (there is no sample plot 9) on standardized wetland determination data forms (Appendix D) to document site conditions.

Representative ground level site photographs are included in Appendix E. References cited and literature used are listed at the end of this report.

F. Description of All Wetlands and Other Non-Wetland Waters

Wetlands

Wetland A

Wetland A is a palustrine scrub-shrub/emergent wetland (PSS/PEM) located east of SW Tonquin Road. The main hydrology sources for Wetland A are hillside seeps, including a seasonal spring and direct precipitation. Wetland A is situated on a toeslope where water flows through the wetland in one direction, exiting the site through a culvert located under SW Tonquin Road. During the March 2021 site visit, the culvert was dry and approximately 2 inches of scatted surface water ponding was observed in the lower elevation portions of the wetland, upslope of the culvert. Wetland A belongs to the Slopes hydrogeomorphic (HGM) classification. Wetland conditions only extend slightly off-site to the south.

The PSS portion of Wetland A is dominated by Nootka rose (*Rosa nutkana*, FAC), red alder sapling (*Alnus rubra*, FAC), Oregon ash saplings, Himalayan blackberry (FAC), and creeping buttercup (*Ranunculus repens*, FAC). The PEM portion of Wetland A is dominated by field meadow-foxtail (*Alopecurus pratensis*, FAC), creeping buttercup, with scattered patches of slough sedge (*Carex obnupta*, OBL).

Soils in the wetland are low chroma (chroma 2 or less) displaying common distinct and prominent redoximorphic features, meeting hydric soil indicator F6 Redox Dark Surface. A depleted matrix (hydric indicators F3 or A11) was also observed at most wetland plots.

A groundwater table was observed within the surface 12 inches at all wetland plots during the March 2021 site visit.

The wetland boundary is well defined based on changes in the vegetation community from FAC-dominated in wetland (Nootka rose, red alder, creeping buttercup) to a non-hydrophytic community in upland (Douglas-fir, English holly, oso-berry, fringe-cup (*Tellima grandiflora*, FACU). The change in the vegetation community coincides with a subtle change in the local relief from concave, low elevation in the wetland to a higher elevation, convex local relief in upland. The adjacent upland was documented at paired upland Plots 2, 3, 11, and 14, which lacked hydric soil indicators.

Wetland B

Wetland B is a palustrine emergent (PEM) wetland located within the portion of Tax Lot 500 west of SW Tonquin Road, and within a portion of Tax Lot 501 north of SW Oregon Street. Wetland B continues off-site as it is part of a large floodplain wetland associated with Rock Creek. The main hydrology sources for Wetland B within the study area are a seasonally-high groundwater table, subsurface flow from upslope hillsides, and occasional overbank flooding from Rock Creek. Wetland B belongs to the Slope/Riverine Impounding HGM subclass.

Within the study area Wetland B is mainly dominated by reed canary grass (FACW), with scattered patches of Oregon ash saplings (FACW) and Douglas' meadowsweet (FACW). Soils in the wetland are low chroma (chroma 2 or less) displaying common distinct and prominent redoximorphic features, meeting hydric soil indicator F6 Redox Dark Surface. A high ground water table and saturation was observed at wetland Plot 8 during the March 2021 site visit.

No data was collected for the portion of Wetland B north of Oregon Street, as the entire study area contained approximately 6-8 inches deep of inundation and was dominated by a FACW vegetation community (reed canary grass and Douglas' meadowsweet). The wetland boundary for the portion on tax lot 501 was defined by the fill slope associated with Oregon Street which was dominated by beaked hazelnut (*Corylus cornuta*; FACU) and pineland sword fern (FACU). The wetland boundary was therefore determined by the change in vegetation community from FACW in wetland to FACU in upland which coincided by a distinct change in landform, from concave floodplain wetland to convex hillslope in the upland.

Upland

Plots 5 and 6 were established in the northwestern corner of the study area south of Oregon Street, in the vicinity of wetland plots 3 and 5 delineated under WD2000-0488. This area was dominated by mowed bluegrass (FAC), bentgrass (FAC), and field meadow-foxtail, with common dandelion (FACU) and white clover (FAC).

While soils at Plots 5 and 6 met hydric soil indicators, a ground water table was not observed during the March 2021 site visit, which was during a period of normal rainfall. There was no evidence of secondary wetland hydrology indicators. Plots were left open for approximately 1 hour to allow adequate time for the groundwater table to equilibrate. According the WD2000-0488 delineation data, wetland Plots 3 and 5 did not display indicators of wetland hydrology during their site visit and were determined wetland based on hydric soil indicators.

Since Plots 5 and 6 had no indicators of wetland hydrology during a period of normal rainfall, we determined these plots to be upland. This area is located approximately 1 foot higher than the adjacent

wetland. We conducted an initial site visit on February 16, 2021, which received 0.07 inches of rain day of and 2.67 inches within the two weeks prior, according to the Hillsboro NWS station precipitation data. Since February 2021 was recorded as a wetter than normal month, we postponed delineation until March 8, 2021. Plots 5 and 6 lacked a groundwater table within the surface 16-inches during the February 2021 site visit, after leaving plots open for over a half hour.

Plot 10 was established in a low elevational feature within the forested hillslope. This area was dominated by big-leaf maple, common snowberry, and dovefoot geranium (*Geranium molle*, NOL). Plot 10 lacked hydric soil and wetland hydrology indicators; therefore, was determined to be upland. This area also lacked a defined bed and bank or evidence of surface flow.

G. Mapping Method

Wetland A, the on-site portions of Wetland B, and Plots 1 through 14 (there is no Plot 9) were professionally land surveyed by AKS with sub-meter accuracy on March 10, 2021. Wetland boundaries were flagged in the field with orange wire whips and flagging and sample plots were flagged with pink wire whips. Flags were left in the field after surveying. The delineation map is included as Figures 5 and 5A in Appendix A.

H. Deviation from LWI or NWI

According to the City of Sherwood's DSL-approved Local Wetland Inventory (LWI), wetland is mapped in the vicinity of Wetlands A and B delineated under this study (Figure 4, Appendix A). Our study generally agrees with the LWI mapping.

I. Additional Information

Wetlands A and B are naturally occurring wetlands likely to be determined jurisdictional by DSL.

Seasonal discharge from Wetland A flows off-site to the west through a 16-inch diameter culvert under SW Tonquin Road. The culvert discharges into Rock Creek, a perennial tributary to the Tualatin River, on the western side of SW Tonquin Road.

According to the US Environmental Protection Agency (EPA) and USACE finalization of The Navigable Waters Protection Rule (NWPR), wetlands are only federally jurisdictional if there is a one-way surface connection associated with inundation from the paragraph (a)(3) water to the wetland during a "typical year." Rock Creek, the (a)(3) tributary, is located off-site at a lower elevation on the western side of SW Tonquin Road. Wetland A is located several feet higher in elevation than Rock Creek. Therefore, it is very unlikely that flow associated with Rock Creek extends upslope through the culvert under Tonquin Road to inundate Wetland A during a typical year; therefore, under the NWPR, Wetland A may not be determined jurisdictional to the USACE.

However, Wetland B receives overbank flooding associated with Rock Creek (a paragraph (a)(2) water); therefore, Wetland B may be regulated under Section 404 of the Clean Water Act (CWA).

J. Summary of Results and Conclusions

Table 3 below provides a summary of the on-site sizes of the features, hydrologic connections to other nearby waters, the Cowardin and Hydrogeomorphic (HGM) classifications for the wetlands, and our prediction of whether each feature would likely be determined jurisdictional by DSL or the USACE.

Table 2: Summary of Study Results and Conclusions

Potentially Jurisdictional Feature	Latitude/Longitude	Size Within Study area (acres)	Cowardin Class	HGM class or Flow Regime	Connection to Other Waters	DSL/USACE Predicted Jurisdiction
Wetland A	45.36053722/ -122.82397334	0.26	PSS/PEM	Slope	Rock Creek	DSL
Wetland B	45.36053722/ -122.82397333	0.33	PEM	Slope/Riverine Impounding	Rock Creek	DSL and USACE

K. Required Disclaimer

This report documents the investigation, best professional judgment, and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk, unless it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with Oregon Administrative Rules (OAR) 141-090-0005 through 141-090-0055.

L. List of Preparers



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 Natural Resource Specialist
 Fieldwork, Report Preparation



Stacey Reed, PWS
 Senior Wetland Scientist
 Fieldwork, Report QA/QC

Literature Cited and Referenced

- Adams, P.R. 2001. *Guidebook for Hydrogeomorphic (HGM)-based Assessment of Oregon Wetland and Riparian Sites: Statewide Classification and Profiles*. Salem (OR): Oregon Division of State Lands. Available at:
http://www.oregon.gov/dsl/WW/Documents/hydro_guide_class.pdf. [Accessed March 2021]
- Cowardin, L.M. 1979. *Classification of Wetland and Deepwater Habitats of the United States*. Jamestown (ND): Northern Prairie Wildlife Research Center, US Fish and Wildlife Service.
- Environmental Laboratory. 1987. Technical Report Y-87-1. In: *Corps of Engineers Wetlands Delineation Manual*. Vicksburg (MS): US Army Engineer Waterways Experiment Station. Available at:
https://www.sac.usace.army.mil/Portals/43/docs/regulatory/1987_wetland_delineation_manual_reg.pdf. [Accessed March 2021].
- Hitchcock, C.L., and A. Cronquist. 1973. *Flora of the Pacific Northwest*. Seattle (WA): University of Washington Press.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List: 2018 wetland ratings*. Phytoneuron 2016-30: 1-17. Published 28 April 2016. Available at:
http://wetland-plants.usace.army.mil/nwpl_static/v33/home/home.html. [Accessed March 2021].
- Mersel and Lichvar. 2014. *Western Mountains, Valleys, and Coast: A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States*. Available at:
<https://erdc-library.erdc.dren.mil/xmlui/handle/11681/5501>. [Accessed March 2021].
- National Weather Service (NWS). 2015. Hillsboro, OR. Available at:
<http://www.weather.gov/climate/index.php?wfo=pqr>. [Accessed August 2019].
- Natural Resources Conservation Service (NRCS). 2006. *Hydric Soils List: Washington County, Oregon*. Washington (DC): US Department of Agriculture.
- Natural Resources Conservation Service (NRCS). 2014a. *Official soil series descriptions*. Washington (DC): US Department of Agriculture. Available at:
http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/soils/home/?cid=nrcs142p2_053587. [Accessed March 2021].
- Natural Resources Conservation Service (NRCS). 2014b. *Web soil survey*. Washington (DC): US Department of Agriculture. Available at: <http://websoilsurvey.nrcs.usda.gov/app/>. [Accessed March 2021].
- Oregon Department of State Lands (DSL). 2014. *Administrative Rules for Wetland Delineation Report Requirements*. Salem (OR): Department of State Lands. Available at:
<https://secure.sos.state.or.us/oard/displayDivisionRules.action?selectedDivision=355>. [Accessed March 2021].
- Oregon Map. 2019. County Assessor's Map 2S 12 8C. Oregon: State of Oregon. Available at:
<http://www.ormap.net/>. [Accessed March 2021].

Schoeneberger, P.J., D.A. Wysocki, E.C. Benham, and W.D. Broderson, eds. 2002. *Field Book for Describing and Sampling Soils* (Version 2.0). Lincoln (NE): US Department of Agriculture Natural Resources Conservation Service, National Soil Survey Center.

Vasilas, L.M., G.W. Hurt, and C.V. Noble, eds. 2010. *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils* (Version 7.0). Washington (DC): US Department of Agriculture Natural Resources Conservation Service. Available at: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046970.pdf. [Accessed March 2021].

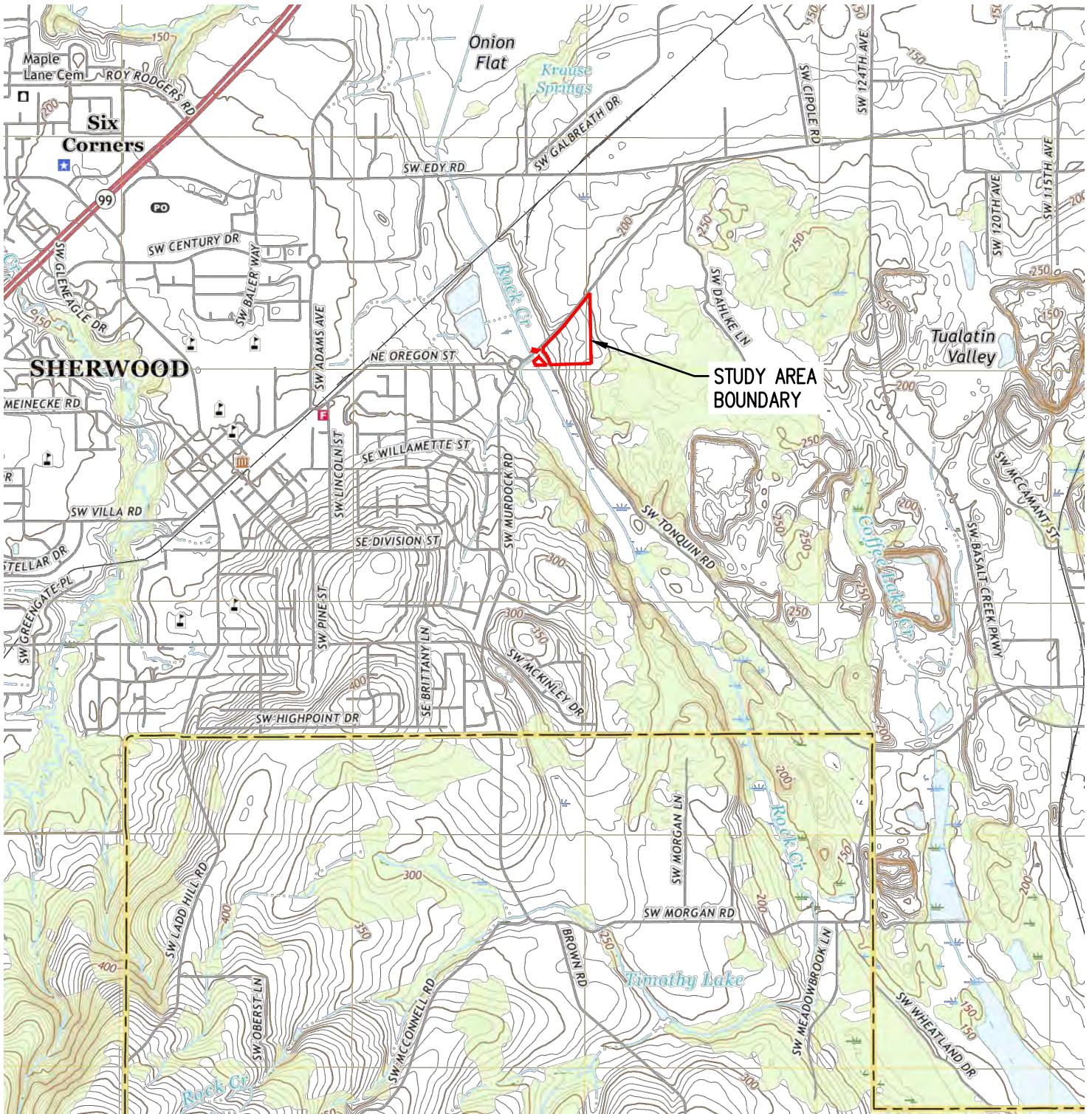
US Army Corps of Engineers (USACE). 2008. *Memorandum Re: Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States. Benjamin H. Grumbles and John Paul Woodley, Jr.* Washington, DC: Government Printing Office, December 2, 2008.

US Army Corps of Engineers. 2018. *National Wetland Plant List, version 3.4*. Available at: <http://wetland-plants.usace.army.mil/>

Wakeley, J.S., R.W. Lichvar, and C.V. Noble, eds. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0). ERDC/EL TR-10-3. Vicksburg (MS): US Army Engineer Research and Development Center, US Army Corps of Engineers.

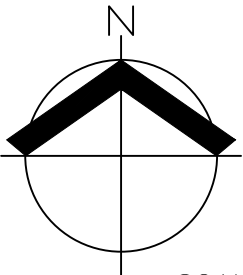
X-Rite. 2000. Year 2000 revised washable edition, Munsell soil color charts. Grand Rapids (MI): X-Rite.

Appendix A: Maps



STUDY AREA
BOUNDARY

USGS 7.5' TOPOGRAPHIC SERIES
QUADRANGLE: SHERWOOD, OR (2020)



SCALE: 1" = 2000 FEET



DATE: 04/08/2021

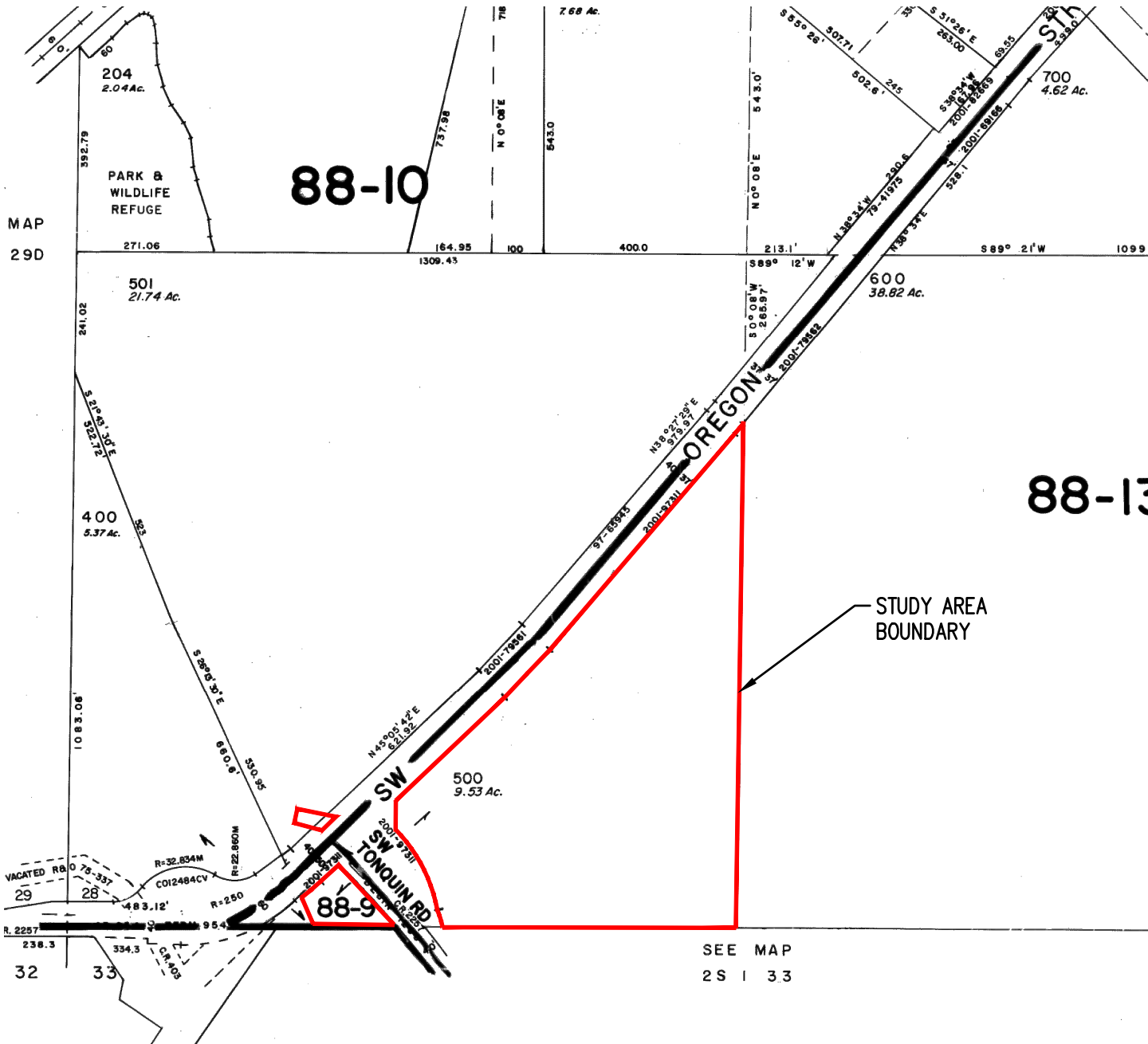
USGS VICINITY MAP
OREGON STREET BUSINESS PARK WETLAND DELINEATION REPORT

FIGURE
1

AKS ENGINEERING & FORESTRY, LLC
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TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM



DRWN: ANF
CHKD: SKT
AKS JOB:
7971



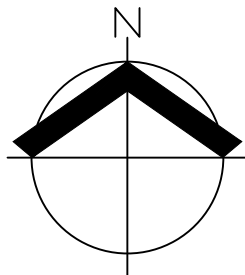
88-10

88-13

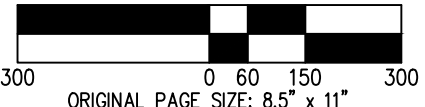
STUDY AREA BOUNDARY

SEE MAP
2 S | 33

WASHINGTON COUNTY
TAX LOT 500
AND PORTION OF TAX LOT 501
TAX MAP 2S 1 28C



SCALE: 1" = 300 FEET



ORIGINAL PAGE SIZE: 8.5" x 11"

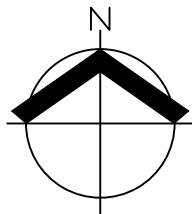
DATE: 04/08/2021

TAX MAP (MAP 2S 1 28C) OREGON STREET BUSINESS PARK WETLAND DELINEATION REPORT		FIGURE 2
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM		DRWN: ANF CHKD: SKT AKS JOB: 7971



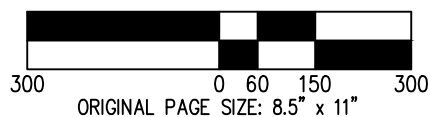


MAP UNIT SYMBOL	MAP UNIT NAME
5B	BRIEDWELL STONY SILT LOAM, 0% TO 7% SLOPES; NON-HYDRIC
28B	LAURELWOOD SILT LOAM, 3% TO 7% SLOPES; NON-HYDRIC
13	COVE SILTY CLAY LOAM; HYDRIC



NRCS WEB SOIL SURVEY FOR
WASHINGTON COUNTY

SCALE: 1" = 300 FEET



DATE: 04/08/2021

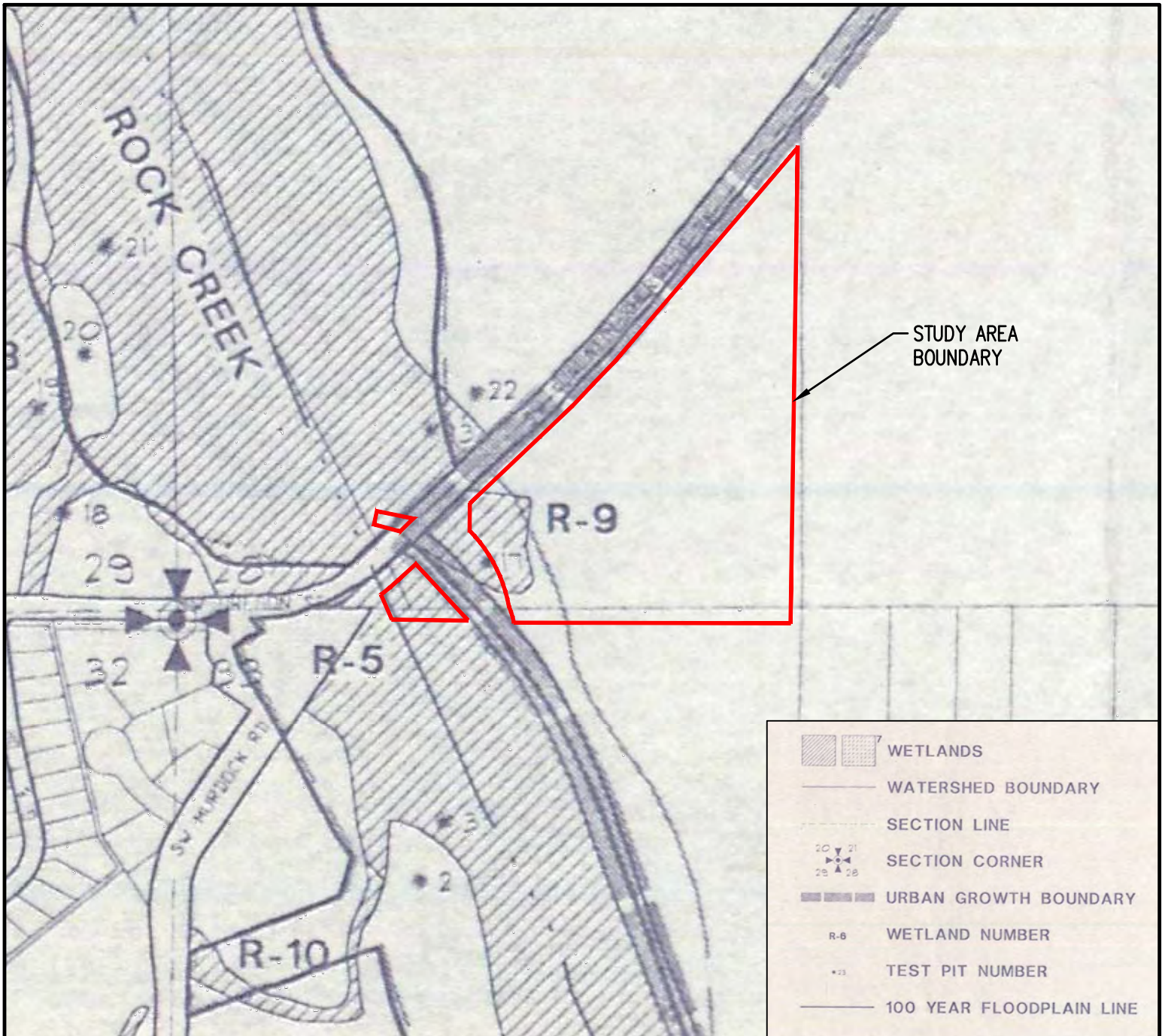
**NRCS SOIL SURVEY MAP
OREGON STREET BUSINESS PARK WETLAND DELINEATION REPORT**

FIGURE
3

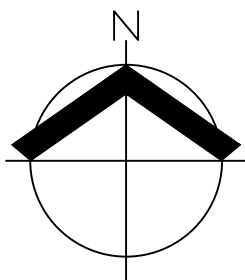
AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM



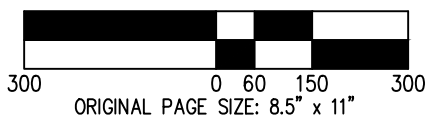
DRWN: ANF
CHKD: SKT
AKS JOB:
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CITY OF SHERWOOD, OREGON
WETLANDS INVENTORY (1992)



SCALE: 1" = 300 FEET



DATE: 04/08/2021

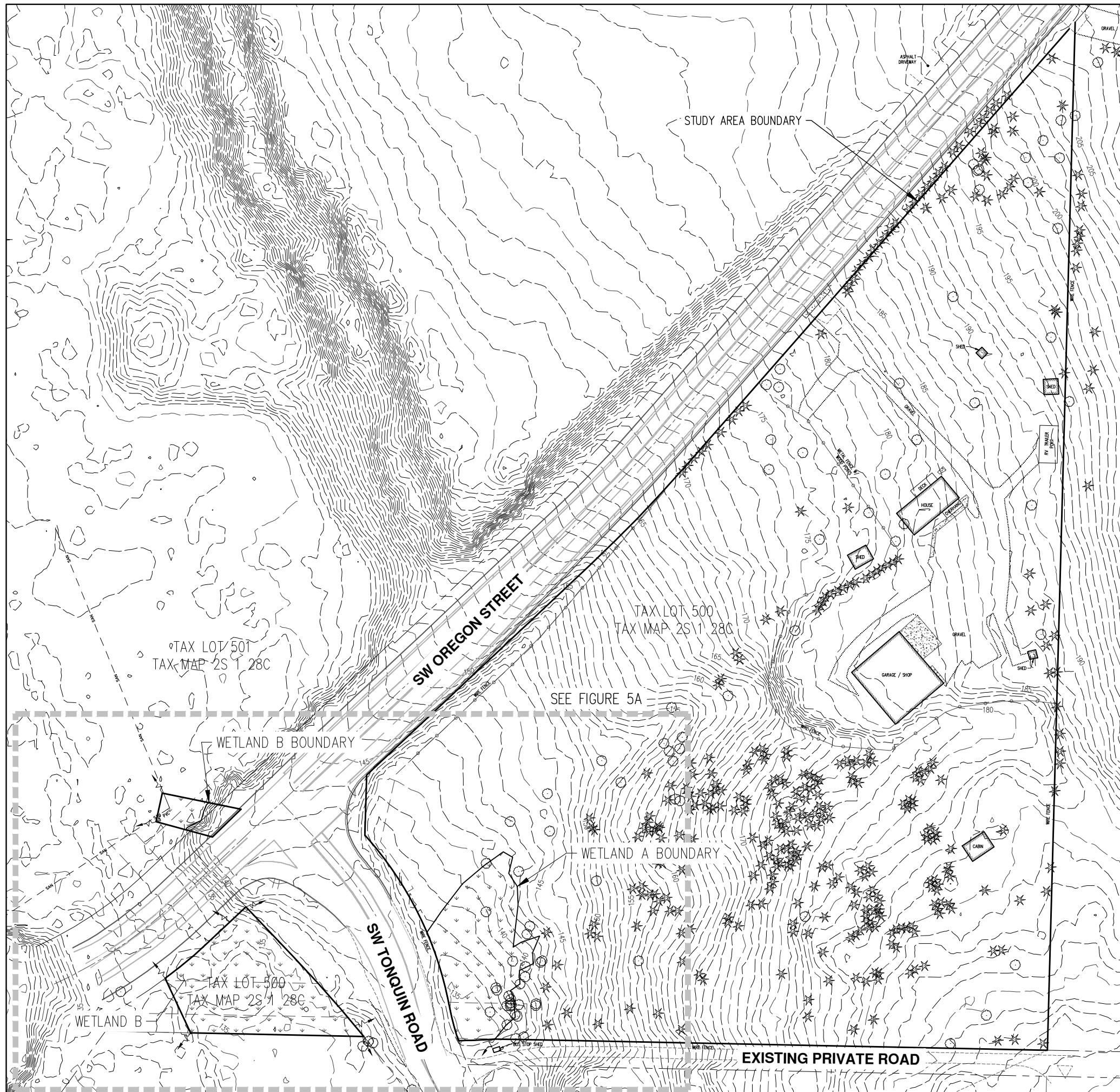
LOCAL WETLAND INVENTORY MAP
OREGON STREET BUSINESS PARK WETLAND DELINEATION REPORT

FIGURE
4



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DRWN: ANF
CHKD: SKT
AKS JOB:
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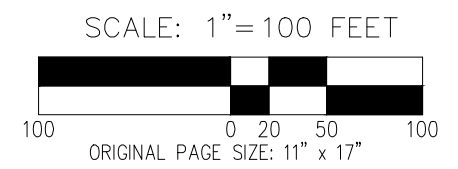
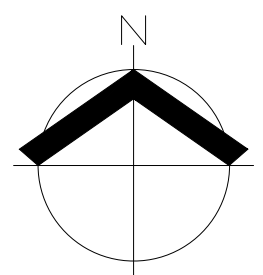


LEGEND

-  TOTAL ON-SITE WETLAND: 25,759 SF± (0.59 ACRES±)
- PSS/PEM/SLOPE WETLAND A: 11,430 SF± (0.26 ACRES±)
- PEM/SLOPE/RIVERINE WETLAND B: 14,329 SF± (0.33 ACRES±)
-  PHOTO LOCATIONS & ORIENTATION

WETLAND BOUNDARIES SHOWN WERE DELINEATED BY AKS ENGINEERING & FORESTRY, LLC ON MARCH 8, 2021 AND WERE PROFESSIONALLY LAND SURVEYED BY AKS ON MARCH 10, 2021.

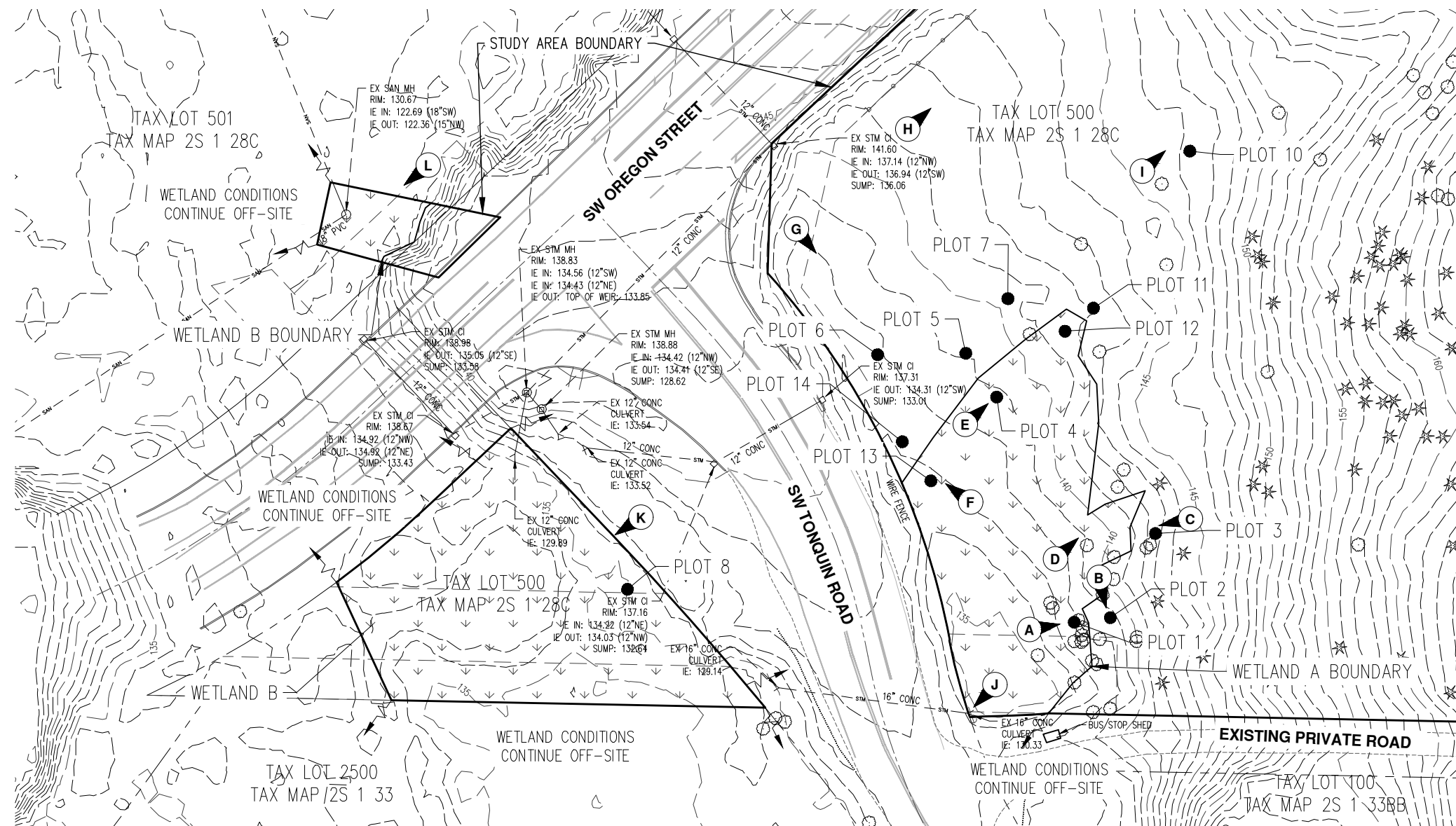
1-FOOT INTERVAL GROUND CONTOURS DERIVED FROM NOAA LIDAR. EXISTING CONDITIONS AND STUDY AREA ARE DERIVED FROM LAND SURVEY WITH SUB-METER ACCURACY.



DATE: 04/08/2021

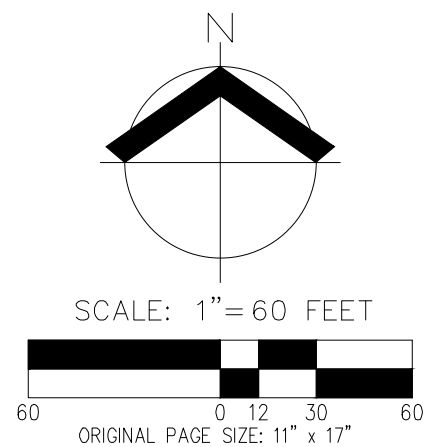
WETLAND DELINEATION OVERVIEW	FIGURE
OREGON STREET BUSINESS PARK WETLAND DELINEATION REPORT	5
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: SKT CHKD: SAR AKS JOB: 7971





LEGEND

- TOTAL ON-SITE WETLAND: 25,759 SF± (0.59 ACRES±)
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- PHOTO LOCATIONS & ORIENTATION



WETLAND BOUNDARIES SHOWN WERE DELINEATED BY AKS ENGINEERING & FORESTRY, LLC ON MARCH 8, 2021 AND WERE PROFESSIONALLY LAND SURVEYED BY AKS ON MARCH 10, 2021.

1-FOOT INTERVAL GROUND CONTOURS DERIVED FROM NOAA LIDAR. EXISTING CONDITIONS AND STUDY AREA ARE DERIVED FROM LAND SURVEY WITH SUB-METER ACCURACY.

DATE: 04/08/2021

WETLAND DELINEATION		FIGURE
OREGON STREET BUSINESS PARK WETLAND DELINEATION REPORT		5A
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM		DRWN: SKT CHKD: SAR AKS JOB: 7971



Appendix B: Historical Aerial Photographs

May 2019

21720 SW Oregon St.
Sherwood, OR
Job# 7971



Google Earth

Image © U.S. Geological Survey



500 ft

May 2017

21720 SW Oregon St.
Sherwood, OR
Job# 7971



April 2015
21720 SW Oregon St.
Sherwood, OR
Job# 7971



July 2014

21720 SW Oregon St.
Sherwood, OR
Job# 7971



May 2010

21720 SW Oregon St.
Sherwood, OR
Job# 7971



500 ft

July 2008

21720 SW Oregon St.
Sherwood, OR
Job# 7971



Google Earth

Image © 2021 Metro, Portland Oregon

400 ft



June 2006
21720 SW Oregon St.
Sherwood, OR
Job# 7971



July 2004

21720 SW Oregon St.
Sherwood, OR
Job# 7871



Google Earth

Image © 2021 Metro, Portland Oregon



400 ft

July 2003

21720 SW Oregon St.
Sherwood, OR
Job# 7971



Google Earth
Image U.S. Geological Survey

500 ft



August 2002

21720 SW Oregon St.
Sherwood, OR
Job# 7971



Google Earth

Image U.S. Geological Survey

500 ft



May 2002

21720 SW Oregon St.
Sherwood, OR
Job# 7971



Google Earth
Image U.S. Geological Survey

500 ft



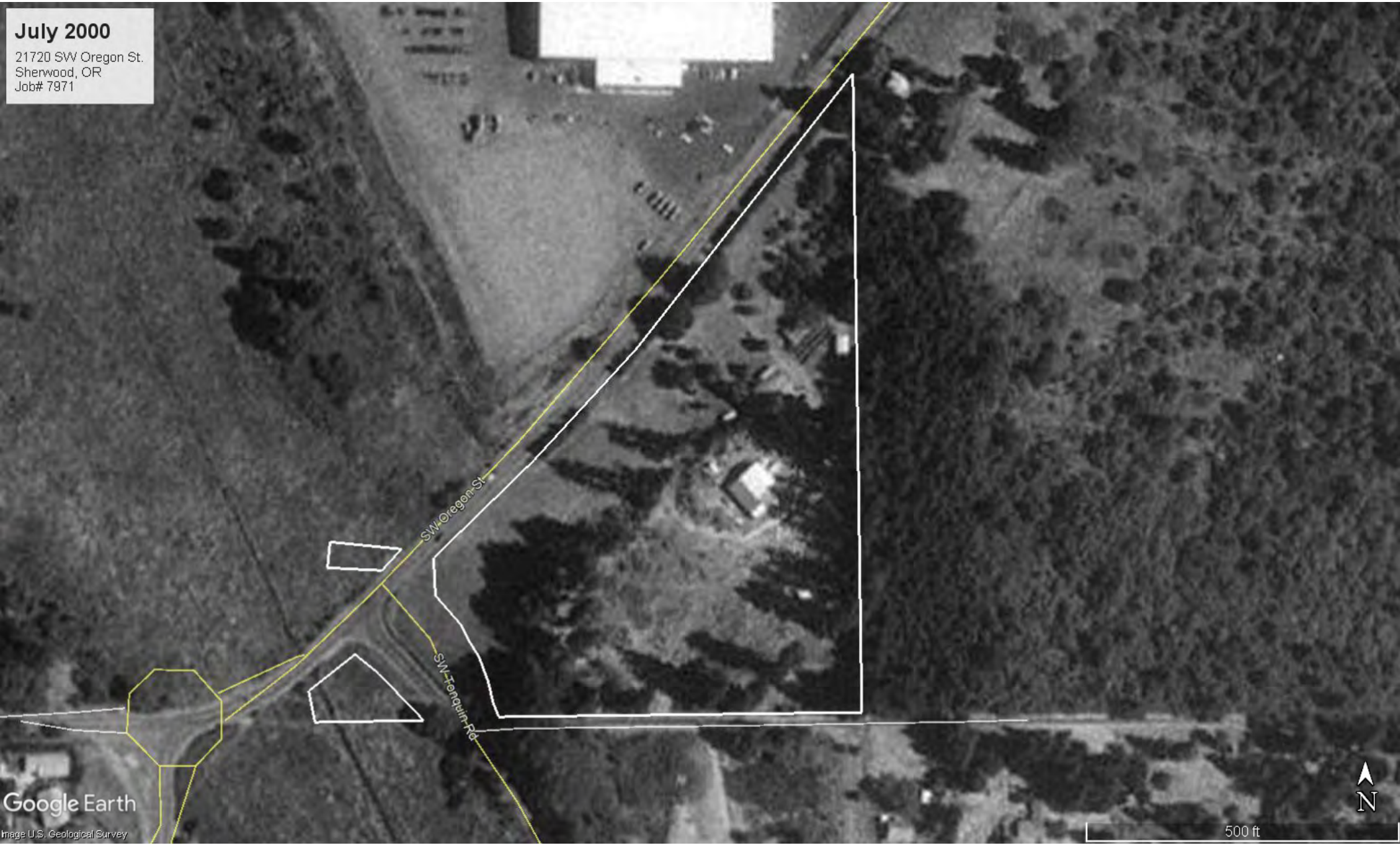
July 2001

21720 SW Oregon St.
Sherwood, OR
Job# 7971



July 2000

21720 SW Oregon St.
Sherwood, OR
Job# 7971



Google Earth
Image U.S. Geological Survey



500 ft

May 1994
21720 SW Oregon St.
Sherwood, OR
Job# 7971



Appendix C: Precipitation Data

WETS Table

WETS Station: PORTLAND-HILLSBORO AP, OR

Requested years: 1971 - 2021

Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	46.7	33.8	40.2	5.28	3.69	6.27	12	-
Feb	49.9	33.6	41.8	3.63	2.25	4.39	10	-
Mar	54.9	36.3	45.6	3.77	2.77	4.43	11	-
Apr	60.6	39.1	49.9	2.40	1.78	2.82	8	-
May	68.1	44.7	56.4	1.81	1.06	2.21	6	-
Jun	73.5	49.0	61.2	1.20	0.75	1.45	4	-
Jul	81.8	52.4	67.1	0.28	0.16	0.32	1	-
Aug	82.3	52.1	67.2	0.45	0.16	0.49	1	-
Sep	75.9	47.5	61.7	1.30	0.58	1.58	3	-
Oct	63.3	41.5	52.4	3.12	1.95	3.77	7	-
Nov	52.2	36.7	44.4	5.21	3.56	6.22	11	-
Dec	45.6	33.2	39.4	5.98	4.06	7.14	13	-
Annual:					30.26	37.33		
Average	62.9	41.7	52.3	-	-	-	-	-
Total	-	-	-	34.42			88	-

GROWING SEASON DATES

Years with missing data:	24 deg = 29	28 deg = 29	32 deg = 29
Years with no occurrence:	24 deg = 0	28 deg = 0	32 deg = 0
Data years used:	24 deg = 22	28 deg = 22	32 deg = 22
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	2/2 to 11/28: 299 days	3/15 to 11/10: 240 days	4/20 to 10/23: 186 days
70 percent *	1/23 to 12/9: 320 days	3/7 to 11/19: 257 days	4/13 to 10/31: 201 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

STATS TABLE - total precipitation (inches)

Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1998						M0.68	M0.32	T	0.87	M2.75	9.03	7.07	20.72
1999	7.48	9.78	4.29	1.50	1.74	1.55	0.66	0.84	0.14	2.49	6.91	3.91	41.29
2000	6.92	4.35	3.02	1.36	1.91	1.04	0.08	M0.15	1.27	3.00	2.16	3.24	28.50
2001	1.94	1.58	2.33	1.86	0.85	1.20	0.45	0.79	0.79	3.13	8.54	6.98	30.44
2002	7.31	3.13	3.49	1.71	1.44	1.30	M0.32	0.05	0.83	0.43	2.61	9.88	32.50
2003	8.29	2.93	5.16	5.91	0.75	0.15	T	0.55	0.94	3.07	4.43	7.93	40.11
2004	5.90	4.27	M1.68	1.79	1.24	0.82	T	2.31	1.37	3.55	2.61	3.72	29.26
2005	2.27	0.68	4.42	2.56	4.35	1.55	0.24	0.32	1.36	3.68	6.09	9.09	36.61
2006	11.90	1.99	3.57	2.02	2.70	1.08	0.14	0.08	0.00	0.00	12.00	M7.00	45.00

										59	90	88	49	34
2007	3.24	3.80	2.39	1.96	1.29	0.97	0.40	0.53	1.73	3.12	3.90	8.94	32.27	
2008	5.38	1.49	3.31	1.94	0.97	0.36	0.09	1.37	0.22	1.69	4.51	M2.77	24.10	
2009	M4.36	1.08	2.40	1.24	2.92	1.34	0.13	0.72	1.51	3.32	5.72	M3.96	28.70	
2010	5.14	4.06	3.76	3.22	3.16	3.52	0.45	0.17	2.21	3.98	5.23	8.16	43.06	
2011	3.59	3.83	5.39	3.42	M2.10	0.59	1.23	T	0.26	1.88	5.38	2.33	30.00	
2012	5.79	M2.48	6.59	2.38	2.34	2.42	0.09	0.02	0.04	5.45	7.59	7.50	42.69	
2013	1.47	1.87	1.81	2.33	3.98	1.31	T	0.85	6.27	0.87	2.73	1.08	24.57	
2014	2.41	5.06	6.07	3.42	1.70	0.92	0.52	0.14	1.10	6.12	2.83	5.88	36.17	
2015	3.01	4.57	4.68	1.41	0.44	0.54	0.32	0.55	0.86	3.42	4.00	14.60	38.40	
2016	7.53	3.96	5.31	1.88	0.80	1.33	0.33	0.25	0.93	8.66	6.25	4.77	42.00	
2017	4.11	10.06	6.96	3.56	1.82	1.05	T	0.13	1.39	4.04	7.38	2.92	43.42	
2018	5.17	2.15	2.79	3.32	0.11	0.65	T	T	0.79	3.33	2.61	4.74	25.66	
2019	3.12	4.96	1.36	3.23	1.45	0.64	0.49	0.21	3.08	1.51	1.16	5.22	26.43	
2020	7.18	1.49	2.12	0.88	1.86	2.04	0.07	0.25	M1.28	1.38	5.34	5.27	29.16	
2021	7.86	3.91											11.77	

Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.

Data missing for all days in a month or year is blank.

Creation date: 2016-07-22

These data are preliminary and have not undergone final quality control by the National Climatic Data Center (NCDC). Therefore, these data are subject to revision. Final and certified climate data can be accessed at the NCDC - <http://www.ncdc.noaa.gov>.

Climatological Report (Daily)

000
 CDUS46 KPQR 091144
 CLIHIO

CLIMATE REPORT
 NATIONAL WEATHER SERVICE
 344 AM PST TUE MAR 09 2021

.....
 ...THE HILLSBORO OR CLIMATE SUMMARY FOR MARCH 8 2021...

CLIMATE NORMAL PERIOD 1981 TO 2010
 CLIMATE RECORD PERIOD 1929 TO 2021

WEATHER ITEM	OBSERVED VALUE	TIME (LST)	RECORD VALUE	YEAR	NORMAL VALUE	DEPARTURE FROM NORMAL	LAST YEAR
--------------	----------------	------------	--------------	------	--------------	-----------------------	-----------

TEMPERATURE (F)							
YESTERDAY							
MAXIMUM	53	342 PM	73	2004	54	-1	50
MINIMUM	30	712 AM	25	1985	35	-5	30
AVERAGE	42				45	-3	40

PRECIPITATION (IN)							
YESTERDAY	0.01		1.13	1995	0.11	-0.10	
MONTH TO DATE	0.24				0.88	-0.64	
SINCE OCT 1	24.00				27.74	-3.74	
SINCE JAN 1	12.01				11.35	0.66	

DEGREE DAYS							
HEATING							
YESTERDAY	23				20	3	
MONTH TO DATE	172				165	7	
SINCE JUL 1	3310				3692	-382	

COOLING							
YESTERDAY	0				0	0	
MONTH TO DATE	0				0	0	
SINCE JAN 1	0				0	0	

WIND (MPH)							
HIGHEST WIND SPEED	23						S (190)
HIGHEST GUST SPEED	30						S (180)
AVERAGE WIND SPEED	6.1						

WEATHER CONDITIONS
 THE FOLLOWING WEATHER WAS RECORDED YESTERDAY.
 NO SIGNIFICANT WEATHER WAS OBSERVED.

RELATIVE HUMIDITY (PERCENT)

HIGHEST	100	100 AM
LOWEST	46	300 PM
AVERAGE	73	

.....

THE HILLSBORO OR CLIMATE NORMALS FOR TODAY

	NORMAL	RECORD	YEAR
MAXIMUM TEMPERATURE (F)	55	70	1965 2005
MINIMUM TEMPERATURE (F)	36	24	1943 1951

SUNRISE AND SUNSET

MARCH 9 2021.....	SUNRISE	635 AM PST	SUNSET	610 PM PST
MARCH 10 2021.....	SUNRISE	633 AM PST	SUNSET	612 PM PST

- INDICATES NEGATIVE NUMBERS.
- R INDICATES RECORD WAS SET OR TIED.
- MM INDICATES DATA IS MISSING.
- T INDICATES TRACE AMOUNT.

The U.S. Naval Observatory (USNO) data is currently unavailable. The links provided are from other US Government sources. When USNO data is returned to service, the links will be updated.

Explanation of the Preliminary Monthly Climate Data (F6) Product

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WFO Monthly/Daily Climate Data

000
 CXUS56 KPQR 011210
 CF6HIO
 PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: HILLSBORO OR
 MONTH: FEBRUARY
 YEAR: 2021
 LATITUDE: 45 32 N
 LONGITUDE: 122 57 W

TEMPERATURE IN F:		:PCPN:		SNOW:		WIND		:SUNSHINE:		SKY		:PK WND						
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18
=====																		
12Z AVG MX 2MIN																		
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR
=====																		
1	50	46	48	6	17	0	0.54	M	M	8.1	17	180	M	M	10	1	22	170
2	50	40	45	3	20	0	0.46	M	M	10.8	26	180	M	M	8	1	37	180
3	46	35	41	-1	24	0	0.10	M	M	3.1	21	180	M	M	10	1	25	180
4	45	36	41	-1	24	0	0.01	M	M	3.9	13	180	M	M	9	1	16	190
5	52	33	43	1	22	0	0.03	M	M	5.0	16	170	M	M	8	1	20	180
6	48	31	40	-2	25	0	0.01	M	M	5.7	18	180	M	M	9	12	26	210
7	49	36	43	1	22	0	0.02	M	M	4.6	15	270	M	M	10	1	20	280
8	45	31	38	-4	27	0	0.00	M	M	2.4	9	340	M	M	9	1	12	340
9	47	27	37	-5	28	0	0.00	M	M	0.9	6	50	M	M	3	12	8	40
10	47	31	39	-3	26	0	0.00	M	M	2.0	9	40	M	M	8		13	40
11	40	28	34	-8	31	0	0.10	M	M	7.5	21	80	M	M	10	1	28	70
12	29	25	27	-15	38	0	0.41	M	M	10.0	17	80	M	M	10	16	25	80
13	34	24	29	-13	36	0	0.33	M	M	5.0	18	120	M	M	10	16	23	100
14	33	28	31	-11	34	0	0.48	M	M	1.9	9	120	M	M	10	16	12	80
15	48	32	40	-2	25	0	0.18	M	M	3.3	16	230	M	M	9	12	23	210
16	50	33	42	0	23	0	0.07	M	M	3.9	18	300	M	M	8	1	24	330
17	50	33	42	0	23	0	T	M	M	1.5	8	270	M	M	7	12	10	260
18	41	35	38	-4	27	0	0.27	M	M	2.7	10	100	M	M	8	1	13	100
19	49	38	44	1	21	0	0.11	M	M	3.8	14	160	M	M	10	12	15	160
20	50	34	42	-1	23	0	T	M	M	5.2	15	180	M	M	9	1	19	300
21	51	42	47	4	18	0	T	M	M	12.7	21	180	M	M	9		25	180
22	52	37	45	2	20	0	0.22	M	M	11.2	22	180	M	M	9	1	28	180
23	49	33	41	-2	24	0	0.07	M	M	5.4	17	230	M	M	6	1	22	240
24	48	31	40	-3	25	0	0.07	M	M	1.3	8	40	M	M	6	12	11	290
25	51	36	44	1	21	0	0.20	M	M	6.6	21	280	M	M	10	1	26	280
26	50	40	45	2	20	0	0.23	M	M	9.4	31	320	M	M	9	1	37	310
27	50	31	41	-3	24	0	T	M	M	4.2	14	270	M	M	8		19	300
28	55	39	47	3	18	0	0.00	M	M	3.8	13	160	M	M	5		17	170
=====																		
SM	1309	945			686	0	3.91	M		145.9			M		237			
=====																		
AV	46.8	33.8								5.2	FASTST	M	M	8		MAX(MPH)		
								MISC	----	>	31	320					#	37 180
=====																		

NOTES:
 # LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

STATION: HILLSBORO OR
 MONTH: FEBRUARY
 YEAR: 2021
 LATITUDE: 45 32 N
 LONGITUDE: 122 57 W

[TEMPERATURE DATA]

AVERAGE MONTHLY: 40.3
 DPTR FM NORMAL: -2.0
 HIGHEST: 55 ON 28
 LOWEST: 24 ON 13

[PRECIPITATION DATA]

TOTAL FOR MONTH: 3.91
 DPTR FM NORMAL: -0.50
 GRTST 24HR 0.65 ON 12-13
 SNOW, ICE PELLETS, HAIL
 TOTAL MONTH: M
 GRTST 24HR M ON M
 GRTST DEPTH: M ON M

SYMBOLS USED IN COLUMN 16

1 = FOG OR MIST
 2 = FOG REDUCING VISIBILITY
 TO 1/4 MILE OR LESS
 3 = THUNDER
 4 = ICE PELLETS
 5 = HAIL
 6 = FREEZING RAIN OR DRIZZLE
 7 = DUSTSTORM OR SANDSTORM:
 VSBY 1/2 MILE OR LESS
 8 = SMOKE OR HAZE
 9 = BLOWING SNOW
 X = TORNADO

[NO. OF DAYS WITH]

MAX 32 OR BELOW: 1
 MAX 90 OR ABOVE: 0
 MIN 32 OR BELOW: 11
 MIN 0 OR BELOW: 0

[WEATHER - DAYS WITH]

0.01 INCH OR MORE: 20
 0.10 INCH OR MORE: 13
 0.50 INCH OR MORE: 1
 1.00 INCH OR MORE: 0

[HDD (BASE 65)]

TOTAL THIS MO. 686
 DPTR FM NORMAL 52
 TOTAL FM JUL 1 3138
 DPTR FM NORMAL -387

CLEAR (SCALE 0-3) 1
 PTCLDY (SCALE 4-7) 8
 CLOUDY (SCALE 8-10) 19

[CDD (BASE 65)]

TOTAL THIS MO. 0
 DPTR FM NORMAL 0
 TOTAL FM JAN 1 0
 DPTR FM NORMAL 0

[PRESSURE DATA]

HIGHEST SLP 30.62 ON 24
 LOWEST SLP 29.64 ON 15

[REMARKS]

#FINAL-02-21#

Explanation of the Preliminary Monthly Climate Data (F6) Product

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WFO Monthly/Daily Climate Data

238

CXUS56 KPQR 011210

CF6HIO

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: HILLSBORO OR
 MONTH: JANUARY
 YEAR: 2021
 LATITUDE: 45 32 N
 LONGITUDE: 122 57 W

TEMPERATURE IN F:		:PCPN:		SNOW:		WIND		:SUNSHINE:		SKY		:PK WND						
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18
=====																		
12Z AVG MX 2MIN																		
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR
=====																		
1	52	46	49	11	16	0	0.28	M	M	8.4	17	170	M	M	10	18	22	180
2	50	46	48	10	17	0	1.04	M	M	15.4	24	180	M	M	9	1	34	180
3	51	38	45	6	20	0	0.32	M	M	7.0	20	180	M	M	8	1	26	190
4	52	43	48	9	17	0	0.66	M	M	6.8	16	230	M	M	9	1	20	220
5	49	40	45	6	20	0	0.09	M	M	6.1	17	130	M	M	8	1	26	110
6	50	42	46	7	19	0	0.71	M	M	3.9	14	170	M	M	10	12	18	180
7	53	37	45	6	20	0	0.01	M	M	4.5	18	100	M	M	5	12	23	100
8	51	31	41	2	24	0	0.43	M	M	3.6	12	320	M	M	6	1	16	310
9	45	30	38	-1	27	0	0.03	M	M	2.5	10	300	M	M	6	12	12	300
10	47	39	43	3	22	0	0.12	M	M	1.6	12	90	M	M	10	12	13	80
11	50	39	45	5	20	0	0.52	M	M	3.1	13	180	M	M	9	12	17	170
12	59	50	55	15	10	0	1.85	M	M	13.5	22	210	M	M	10	1	29	210
13	59	39	49	9	16	0	0.01	M	M	5.3	31	280	M	M	2		40	270
14	54	35	45	5	20	0	0.02	M	M	2.8	9	290	M	M	3	1	11	290
15	50	44	47	7	18	0	0.06	M	M	2.1	8	80	M	M	10	1	9	70
16	49	39	44	4	21	0	0.00	M	M	2.4	7	170	M	M	7		8	180
17	50	35	43	3	22	0	0.03	M	M	2.3	7	310	M	M	8	12	8	310
18	53	30	42	2	23	0	0.00	M	M	2.5	9	310	M	M	3	12	11	60
19	54	28	41	0	24	0	0.00	M	M	2.0	8	120	M	M	0	1	12	90
20	47	26	37	-4	28	0	T	M	M	0.6	5	290	M	M	4	1	6	220
21	49	38	44	3	21	0	0.14	M	M	2.1	8	60	M	M	9	18	10	60
22	51	29	40	-1	25	0	0.00	M	M	3.2	12	50	M	M	3		15	60
23	46	25	36	-5	29	0	0.00	M	M	0.6	6	140	M	M	3	12	7	160
24	39	35	37	-4	28	0	0.38	M	M	1.9	10	180	M	M	10	1	13	140
25	42	34	38	-3	27	0	0.01	M	M	1.7	9	160	M	M	10	1	11	170
26	40	33	37	-4	28	0	0.47	M	M	7.4	20	100	M	M	10	1	27	80
27	42	32	37	-4	28	0	0.22	M	M	2.6	10	200	M	M	10	12	13	200
28	46	34	40	-1	25	0	0.03	M	M	3.8	10	160	M	M	10	12	14	160
29	45	32	39	-2	26	0	0.07	M	M	2.6	10	160	M	M	9	12	13	170
30	51	41	46	5	19	0	0.12	M	M	9.2	21	160	M	M	10	18	26	160
31	55	47	51	9	14	0	0.24	M	M	7.6	18	180	M	M	10	1	24	170
=====																		
SM	1531	1137			674	0	7.86	M		139.1			M		231			
=====																		
AV	49.4	36.7								4.5	FASTST	M	M	7		MAX(MPH)		
								MISC	----	31	280					40	270	

NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

STATION: HILLSBORO OR
MONTH: JANUARY
YEAR: 2021
LATITUDE: 45 32 N
LONGITUDE: 122 57 W

[TEMPERATURE DATA] [PRECIPITATION DATA] SYMBOLS USED IN COLUMN 16
AVERAGE MONTHLY: 43.0 TOTAL FOR MONTH: 7.86 1 = FOG OR MIST
DPTR FM NORMAL: 2.9 DPTR FM NORMAL: 1.80 2 = FOG REDUCING VISIBILITY
HIGHEST: 59 ON 13,12 GRTST 24HR 2.53 ON 11-12 TO 1/4 MILE OR LESS
LOWEST: 25 ON 23 3 = THUNDER
SNOW, ICE PELLETS, HAIL 4 = ICE PELLETS
TOTAL MONTH: M 5 = HAIL
GRTST 24HR M ON M 6 = FREEZING RAIN OR DRIZZLE
GRTST DEPTH: M ON M 7 = DUSTSTORM OR SANDSTORM:
VSBY 1/2 MILE OR LESS
8 = SMOKE OR HAZE
9 = BLOWING SNOW
X = TORNADO

[NO. OF DAYS WITH] [WEATHER - DAYS WITH]
MAX 32 OR BELOW: 0 0.01 INCH OR MORE: 25
MAX 90 OR ABOVE: 0 0.10 INCH OR MORE: 15
MIN 32 OR BELOW: 9 0.50 INCH OR MORE: 5
MIN 0 OR BELOW: 0 1.00 INCH OR MORE: 2

[HDD (BASE 65)]
TOTAL THIS MO. 674 CLEAR (SCALE 0-3) 5
DPTR FM NORMAL -98 PTCLDY (SCALE 4-7) 8
TOTAL FM JUL 1 2452 CLOUDY (SCALE 8-10) 18
DPTR FM NORMAL -443

[CDD (BASE 65)]
TOTAL THIS MO. 0
DPTR FM NORMAL 0 [PRESSURE DATA]
TOTAL FM JAN 1 0 HIGHEST SLP 30.54 ON 17
DPTR FM NORMAL 0 LOWEST SLP 29.39 ON 26

[REMARKS]
#FINAL-01-21#

Explanation of the Preliminary Monthly Climate Data (F6) Product

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WFO Monthly/Daily Climate Data

232

CXUS56 KPQR 011537

CF6HIO

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: HILLSBORO OR
MONTH: DECEMBER
YEAR: 2020
LATITUDE: 45 32 N
LONGITUDE: 122 57 W

TEMPERATURE IN F:		:PCPN:		SNOW:		WIND		:SUNSHINE:		SKY		:PK WND						
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18
DY MAX MIN AVG DEP HDD CDD		WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR					
1	51	30	41	0	24	0	0.00	M	M	5.8	20	80	M	M	5	12	28	70
2	55	33	44	4	21	0	0.00	M	M	11.3	21	100	M	M	0		30	90
3	50	30	40	0	25	0	0.00	M	M	1.7	7	290	M	M	1		8	290
4	55	26	41	1	24	0	0.00	M	M	2.4	8	310	M	M	0	1	10	330
5	54	28	41	1	24	0	0.01	M	M	3.7	14	100	M	M	3		16	100
6	47	38	43	3	22	0	0.03	M	M	1.8	7	70	M	M	10	1	9	50
7	50	34	42	3	23	0	0.00	M	M	0.9	7	300	M	M	1	1	8	140
8	54	34	44	5	21	0	0.18	M	M	1.8	14	310	M	M	6	1	18	330
9	50	35	43	4	22	0	T	M	M	2.2	13	310	M	M	8	12	16	310
10	41	34	38	-1	27	0	0.12	M	M	3.0	10	170	M	M	10	12	12	170
11	42	31	37	-2	28	0	0.40	M	M	1.9	9	30	M	M	10	12	12	30
12	46	31	39	1	26	0	0.04	M	M	5.5	16	90	M	M	5	12	20	80
13	44	38	41	3	24	0	0.44	M	M	2.9	12	110	M	M	10	1	16	130
14	45	36	41	3	24	0	T	M	M	1.7	8	230	M	M	9	12	10	320
15	49	41	45	7	20	0	0.11	M	M	9.0	22	170	M	M	9	1	27	170
16	50	42	46	8	19	0	0.47	M	M	4.7	16	190	M	M	8	1	22	180
17	52	38	45	7	20	0	0.02	M	M	5.4	13	240	M	M	8	1	18	180
18	50	38	44	6	21	0	0.17	M	M	8.3	22	180	M	M	8	1	26	180
19	53	44	49	11	16	0	0.48	M	M	9.9	22	180	M	M	10	1	30	180
20	53	46	50	12	15	0	1.24	M	M	2.7	13	180	M	M	10	1	16	170
21	59	41	50	12	15	0	0.28	M	M	9.8	30	310	M	M	9	1	39	180
22	49	31	40	2	25	0	0.03	M	M	3.5	17	260	M	M	7	12	23	280
23	49	28	39	1	26	0	0.00	M	M	3.3	10	60	M	M	3	12	13	70
24	44	22	33	-5	32	0	0.00	M	M	2.6	7	290	M	M	0	1	8	300
25	49	31	40	2	25	0	0.61	M	M	4.3	20	160	M	M	8	1	25	150
26	51	40	46	8	19	0	0.10	M	M	7.6	15	170	M	M	7	1	19	200
27	52	32	42	4	23	0	0.02	M	M	3.6	12	60	M	M	4	12	16	60
28	48	26	37	-1	28	0	0.00	M	M	3.4	8	310	M	M	0	1	10	70
29	37	27	32	-6	33	0	0.06	M	M	1.6	7	300	M	M	8	12	8	120
30	47	36	42	4	23	0	0.42	M	M	8.6	18	180	M	M	10	1	25	150
31	51	45	48	10	17	0	0.04	M	M	9.8	16	190	M	M	9	1	22	180
SM	1527	1066		712	0	5.27		M		144.7			M		196			
AV	49.3	34.4								4.7	FASTST	M	M	6		MAX(MPH)		
								MISC	----	30	310					39	180	

NOTES:

LAST OF SEVERAL OCCURRENCES

COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

STATION: HILLSBORO OR
MONTH: DECEMBER
YEAR: 2020
LATITUDE: 45 32 N
LONGITUDE: 122 57 W

[TEMPERATURE DATA]

[PRECIPITATION DATA]

SYMBOLS USED IN COLUMN 16

AVERAGE MONTHLY: 41.8
DPTR FM NORMAL: 3.3
HIGHEST: 59 ON 21
LOWEST: 22 ON 24

TOTAL FOR MONTH: 5.27
DPTR FM NORMAL: -1.47
GRST 24HR 1.46 ON 19-20
SNOW, ICE PELLETS, HAIL
TOTAL MONTH: M
GRST 24HR M ON M
GRST DEPTH: M ON M

- 1 = FOG OR MIST
2 = FOG REDUCING VISIBILITY TO 1/4 MILE OR LESS
3 = THUNDER
4 = ICE PELLETS
5 = HAIL
6 = FREEZING RAIN OR DRIZZLE
7 = DUSTSTORM OR SANDSTORM: VSBY 1/2 MILE OR LESS
8 = SMOKE OR HAZE
9 = BLOWING SNOW
X = TORNADO

[NO. OF DAYS WITH]

[WEATHER - DAYS WITH]

MAX 32 OR BELOW: 0
MAX 90 OR ABOVE: 0
MIN 32 OR BELOW: 13
MIN 0 OR BELOW: 0

0.01 INCH OR MORE: 21
0.10 INCH OR MORE: 13
0.50 INCH OR MORE: 2
1.00 INCH OR MORE: 1

[HDD (BASE 65)]

TOTAL THIS MO. 712
DPTR FM NORMAL -108
TOTAL FM JUL 1 1778
DPTR FM NORMAL -342

CLEAR (SCALE 0-3) 7
PTCLDY (SCALE 4-7) 9
CLOUDY (SCALE 8-10) 15

[CDD (BASE 65)]

TOTAL THIS MO. 0
DPTR FM NORMAL 0
TOTAL FM JAN 1 344
DPTR FM NORMAL 146

[PRESSURE DATA]

HIGHEST SLP 30.58 ON 1
LOWEST SLP 29.61 ON 21

[REMARKS]

#FINAL-12-20#

Appendix D: Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Oregon Street Business Park City/County: Sherwood / Washington Sampling Date: 3/8/2021
 Applicant/Owner: Oregon Street Business Park, LLC State: OR Sampling Point: 1
 Investigator(s): Stacey Reed, PWS and Sonya Templeton Section, Township, Range: Sec. 28, T.2S., R.1W., W.M.
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): <3%
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.360742 Long: -122.823014 Datum: _____
 Soil Map Unit Name: Briedwell stony silt loam, (Unit 5B), 0% to 7% slopes; Non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	

Precipitation:
 According to the NWS Hillsboro weather station, 0.01 inches of rainfall was received on the day of and 1.02 inches within the two weeks prior.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus balsamifera</u>	10%	Yes	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: <u>6</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
10% = Total Cover				
Sapling/Shrub Stratum (Plot Size: 10' r or _____)				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Fraxinus latifolia</u>	20%	Yes	FACW	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>20</u> x 2 = <u>40</u> FAC species <u>73</u> x 3 = <u>219</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>108</u> (A) <u>289</u> (B) Prevalence Index = B/A = <u>2.68</u>
2. <u>Rosa nutkana</u>	15%	Yes	FAC	
3. <u>Alnus rubra</u>	10%	No	FAC	
4. <u>Symphoricarpos albus</u>	5%	No	FACU	
5. <u>Rubus armeniacus</u>	3%	No	FAC	
53% = Total Cover				
Herb Stratum (Plot Size: 5' r or _____)				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation X 2 - Dominance Test is >50% X 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation (Explain) ¹ ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Ranunculus repens</u>	20%	Yes	FAC	
2. <u>Alopecurus pratensis</u>	15%	Yes	FAC	
3. <u>Carex obnupta</u>	10%	Yes	OBL	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
45% = Total Cover				
Woody Vine Stratum (Plot Size: 10' r or _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>55%</u>				
Hydrophytic Vegetation Present? Yes <u>X</u> No _____				

Remarks:

SOIL **Sampling Point:** 1

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-5	10YR 3/2	98	7.5YR 4/4	2	C	M	SiL	
5-11	10YR 3/2	95	7.5YR 4/4	5	C	M	SiL	
11-16	10YR 4/1	95	7.5YR 4/4	5	C	M	SiL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) (except MLRA 1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Surface Soil Cracks (B6)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Stunted or Stressed Plants (D1) (LRR A)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes No _____ Depth (inches): 9"
 Saturation Present? Yes No _____ Depth (inches): 12"
 (includes capillary fringe)

Wetland Hydrology Present? Yes No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Oregon Street Business Park City/County: Sherwood / Washington Sampling Date: 3/8/2021
 Applicant/Owner: Oregon Street Business Park, LLC State: OR Sampling Point: 2
 Investigator(s): Stacey Reed, PWS and Sonya Templeton Section, Township, Range: Sec. 28, T.2S., R.1W., W.M.
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Convex Slope (%): 3-5%
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.360746 Long: -122.822961 Datum: _____
 Soil Map Unit Name: Briedwell stony silt loam, (Unit 5B), 0% to 7% slopes; Non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Precipitation:
 According to the NWS Hillsboro weather station, 0.01 inches of rainfall was received on the day of and 1.02 inches within the two weeks prior.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus balsamifera</u>	30%	Yes	FAC	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60%</u> (A/B)
30% = Total Cover				
Sapling/Shrub Stratum (Plot Size: 10' r or _____)				Prevalence Index worksheet:
1. <u>Symphoricarpos albus</u>	20%	Yes	FACU	
2. <u>Mahonia aquifolium</u>	15%	Yes	FACU	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Rosa nutkana</u>	10%	No	FAC	FACW species <u>0</u> x 2 = <u>0</u>
4. <u>Ilex aquifolium</u>	10%	No	FACU	FAC species <u>68</u> x 3 = <u>204</u>
5. <u>Rubus armeniacus</u>	3%	No	FAC	FACU species <u>45</u> x 4 = <u>180</u>
58% = Total Cover				UPL species <u>2</u> x 5 = <u>10</u>
Herb Stratum (Plot Size: 5' r or _____)				Column Totals: <u>115</u> (A) <u>394</u> (B)
1. <u>Carex leptopoda</u>	20%	Yes	FAC	Prevalence Index = B/A = <u>3.43</u>
2. <u>Ranunculus repens</u>	5%	Yes	FAC	Hydrophytic Vegetation Indicators:
3. <u>Geranium molle</u>	2%	No	NOL	
4. _____	_____	_____	_____	X 2 - Dominance Test is >50%
5. _____	_____	_____	_____	3 - Prevalence Index is ≤3.0 ¹
6. _____	_____	_____	_____	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
7. _____	_____	_____	_____	5 - Wetland Non-Vascular Plants ¹
8. _____	_____	_____	_____	Problematic Hydrophytic Vegetation (Explain) ¹
9. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	Hydrophytic Vegetation Present?
27% = Total Cover				
Woody Vine Stratum (Plot Size: 10' r or _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum	<u>73%</u>			

Remarks:
 Bare ground covered by leaf litter.

SOIL	Sampling Point: 2
-------------	--------------------------

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/2	100					SIL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>	

Restrictive Layer (if present):	Hydric Soil Present?
Type: _____	Yes _____ No X
Depth (inches): _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)

Field Observations:				Wetland Hydrology Present?
Surface Water Present?	Yes _____ No X	Depth (inches): _____		
Water Table Present?	Yes X No _____	Depth (inches): <u>15"</u>	Yes _____ No X	
Saturation Present? (includes capillary fringe)	Yes X No _____	Depth (inches): <u>13"</u>		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Pit was left open for approximately 2 hours.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Oregon Street Business Park City/County: Sherwood / Washington Sampling Date: 3/8/2021
 Applicant/Owner: Oregon Street Business Park, LLC State: OR Sampling Point: 3
 Investigator(s): Stacey Reed, PWS and Sonya Templeton Section, Township, Range: Sec. 28, T.2S., R.1W., W.M.
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Convex Slope (%): <3%
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.360853 Long: -122.822879 Datum: _____
 Soil Map Unit Name: Briedwell stony silt loam, (Unit 5B), 0% to 7% slopes; Non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Precipitation:
 According to the NWS Hillsboro weather station, 0.01 inches of rainfall was received on the day of and 1.02 inches within the two weeks prior.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Pseudotsuga menziesii</u>	<u>20%</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Populus balsamifera</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>60%</u> (A/B)
4. _____	_____	_____	_____	
<u>30%</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>45</u> x 3 = <u>135</u> FACU species <u>30</u> x 4 = <u>120</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>80</u> (A) <u>265</u> (B) Prevalence Index = B/A = <u>3.31</u>
Sapling/Shrub Stratum (Plot Size: 10' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Rubus armeniacus</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Crataegus monogyna</u>	<u>15%</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Physocarpus capitatus</u>	<u>5%</u>	<u>No</u>	<u>FACW</u>	
4. <u>Ilex aquifolium</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
5. <u>Oemleria cerasiformis</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
<u>50%</u> = Total Cover				
Herb Stratum (Plot Size: 5' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Tellima grandiflora</u>	<u>20%</u>	<u>Yes</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>20%</u> = Total Cover				
Woody Vine Stratum (Plot Size: 10' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum <u>80%</u>				

Remarks:
 Bare ground covered by leaf litter.

SOIL	Sampling Point: 3
-------------	--------------------------

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/2	100					SiL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>	

Restrictive Layer (if present):	Hydric Soil Present?
Type: _____	Yes _____ No X _____
Depth (inches): _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:				Wetland Hydrology Present?
Surface Water Present?	Yes _____ No X _____	Depth (inches): _____	Yes _____ No X _____	
Water Table Present?	Yes _____ No X _____	Depth (inches): <u>>16"</u>		
Saturation Present? (includes capillary fringe)	Yes _____ No X _____	Depth (inches): <u>>16"</u>		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Oregon Street Business Park City/County: Sherwood / Washington Sampling Date: 3/8/2021
 Applicant/Owner: Oregon Street Business Park, LLC State: OR Sampling Point: 4
 Investigator(s): Stacey Reed, PWS and Sonya Templeton Section, Township, Range: Sec. 28, T.2S., R.1W., W.M.
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): <3%
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.361013 Long: -122.823162 Datum: _____
 Soil Map Unit Name: Briedwell stony silt loam, (Unit 5B), 0% to 7% slopes; Non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Precipitation:
 According to the NWS Hillsboro weather station, 0.01 inches of rainfall was received on the day of and 1.02 inches within the two weeks prior.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____		Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet:	
5. _____	_____	_____	_____		Total % Cover of: _____ Multiply by: _____
0% = Total Cover				OBL species <u>0</u> x 1 = <u>0</u>	
Sapling/Shrub Stratum (Plot Size: 10' r or _____)				FACW species <u>0</u> x 2 = <u>0</u>	
1. _____	_____	_____	_____	FAC species <u>85</u> x 3 = <u>255</u>	
2. _____	_____	_____	_____	FACU species <u>2</u> x 4 = <u>8</u>	
3. _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
4. _____	_____	_____	_____	Column Totals: <u>87</u> (A) <u>263</u> (B)	
5. _____	_____	_____	_____	Prevalence Index = B/A = <u>3.02</u>	
0% = Total Cover				Hydrophytic Vegetation Indicators:	
Herb Stratum (Plot Size: 5' r or _____)					1 - Rapid Test for Hydrophytic Vegetation
1. <u>Alopecurus pratensis</u>	<u>50%</u>	<u>Yes</u>	<u>FAC</u>		<u>X</u> 2 - Dominance Test is >50%
2. <u>Ranunculus repens</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>		3 - Prevalence Index is ≤3.0 ¹
3. <u>Rumex crispus</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>		4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Trifolium repens</u>	<u>2%</u>	<u>No</u>	<u>FAC</u>		5 - Wetland Non-Vascular Plants ¹
5. <u>Plantago lanceolata</u>	<u>2%</u>	<u>No</u>	<u>FACU</u>		Problematic Hydrophytic Vegetation (Explain) ¹
6. _____	_____	_____	_____		¹ Indicators of hydric soil and wetland hydrology must be present.
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
87% = Total Cover					
Woody Vine Stratum (Plot Size: 10' r or _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>13%</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No _____	

Remarks:

SOIL	Sampling Point: 4
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Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 3/2	95	7.5YR 4/4	5	C	M	SiL	
10-16	10YR 4/1	95	7.5YR 4/4	5	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):

- | | |
|------------------------------------------------------------|-------------------------------------------------------------------|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | <input type="checkbox"/> Redox Depressions (F8) |

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil

Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- | | |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) | |

Secondary Indicators (2 or more required)

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- Drainage Patterns (B10)
- Dry-Season Water Table (C2)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- FAC-Neutral Test (D5)
- Raised Ant Mounds (D6) (LRR A)
- Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No Depth (inches): _____
 Water Table Present? Yes No _____ Depth (inches): 9"
 Saturation Present? Yes No _____ Depth (inches): Surface
 (includes capillary fringe)

Wetland

Hydrology Present? Yes No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Pit left open approximately 30 minutes. Hydrology supported by upslope hillside spring.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Oregon Street Business Park City/County: Sherwood / Washington Sampling Date: 3/8/2021
 Applicant/Owner: Oregon Street Business Park, LLC State: OR Sampling Point: 5
 Investigator(s): Stacey Reed, PWS and Sonya Templeton Section, Township, Range: Sec. 28, T.2S., R.1W., W.M.
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Convex Slope (%): <3%
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.361064 Long: -122.823162 Datum: _____
 Soil Map Unit Name: Briedwell stony silt loam, (Unit 5B), 0% to 7% slopes; Non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Precipitation:
 According to the NWS Hillsboro weather station, 0.01 inches of rainfall was received on the day of and 1.02 inches within the two weeks prior.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Acer macrophyllum</u>	<u>15%</u>	<u>Yes</u>	<u>FACU</u>		Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet:	
15% = Total Cover					Total % Cover of: _____ Multiply by: _____
Sapling/Shrub Stratum (Plot Size: 10' r or _____)				OBL species <u>0</u> x 1 = <u>0</u>	
1. _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
2. _____	_____	_____	_____	FAC species <u>93</u> x 3 = <u>279</u>	
3. _____	_____	_____	_____	FACU species <u>10</u> x 4 = <u>40</u>	
4. _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
5. _____	_____	_____	_____	Column Totals: <u>103</u> (A) <u>319</u> (B)	
0% = Total Cover				Prevalence Index = B/A = <u>3.10</u>	
Herb Stratum (Plot Size: 5' r or _____)				Hydrophytic Vegetation Indicators:	
1. <u>Poa species</u>	<u>40%</u>	<u>Yes</u>	<u>FAC*</u>		<u>1</u> - Rapid Test for Hydrophytic Vegetation
2. <u>Alopecurus pratensis</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>		<u>X</u> <u>2</u> - Dominance Test is >50%
3. <u>Agrostis species</u>	<u>20%</u>	<u>Yes</u>	<u>FAC*</u>		<u>3</u> - Prevalence Index is ≤3.0 ¹
4. <u>Plantago lanceolata</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>		<u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. <u>Taraxacum officinale</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>		<u>5</u> - Wetland Non-Vascular Plants ¹
6. <u>Trifolium repens</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>		Problematic Hydrophytic Vegetation (Explain) ¹
7. _____	_____	_____	_____		¹ Indicators of hydric soil and wetland hydrology must be present.
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
103% = Total Cover					
Woody Vine Stratum (Plot Size: 10' r or _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>0%</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No _____	

Remarks:
 *Assumed FAC.

SOIL	Sampling Point: 5
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Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 3/2	95	7.5YR 4/6	5	C	M	SiL	
9-16	10YR 4/1	90	7.5YR 4/6	10	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>	

Restrictive Layer (if present):	Hydric Soil Present?
Type: _____	Yes <input checked="" type="checkbox"/> No _____
Depth (inches): _____	

Remarks:
 Redox appears relict.

HYDROLOGY

Wetland Hydrology Indicators:	
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:	Wetland Hydrology Present?
Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____	Yes _____ No <input checked="" type="checkbox"/>
Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): >16"	
Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): >16" (includes capillary fringe)	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Plot left open approximately 1 hour. Soils dry throughout. No free water or saturation observed within surface 12-inches during a February 16, 2021 initial site visit either. Does not meet problematic wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Oregon Street Business Park City/County: Sherwood / Washington Sampling Date: 3/8/2021
 Applicant/Owner: Oregon Street Business Park, LLC State: OR Sampling Point: 6
 Investigator(s): Stacey Reed, PWS and Sonya Templeton Section, Township, Range: Sec. 28, T.2S., R.1W., W.M.
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Convex Slope (%): <3%
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.361060 Long: -122.823370 Datum: _____
 Soil Map Unit Name: Briedwell stony silt loam, (Unit 5B), 0% to 7% slopes; Non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Precipitation:
 According to the NWS Hillsboro weather station, 0.01 inches of rainfall was received on the day of and 1.02 inches within the two weeks prior.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____		Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet:	
5. _____	_____	_____	_____		Total % Cover of: _____ Multiply by: _____
0% = Total Cover				OBL species <u>0</u> x 1 = <u>0</u>	
Sapling/Shrub Stratum (Plot Size: 10' r or _____)				FACW species <u>0</u> x 2 = <u>0</u>	
1. _____	_____	_____	_____	FAC species <u>94</u> x 3 = <u>282</u>	
2. _____	_____	_____	_____	FACU species <u>4</u> x 4 = <u>16</u>	
3. _____	_____	_____	_____	UPL species <u>2</u> x 5 = <u>10</u>	
4. _____	_____	_____	_____	Column Totals: <u>100</u> (A) <u>308</u> (B)	
5. _____	_____	_____	_____	Prevalence Index = B/A = <u>3.08</u>	
0% = Total Cover				Hydrophytic Vegetation Indicators:	
Herb Stratum (Plot Size: 5' r or _____)					1 - Rapid Test for Hydrophytic Vegetation
1. <u>Poa species</u>	<u>40%</u>	<u>Yes</u>	<u>FAC*</u>		<u>X</u> 2 - Dominance Test is >50%
2. <u>Alopecurus pratensis</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>		3 - Prevalence Index is ≤3.0 ¹
3. <u>Agrostis species</u>	<u>20%</u>	<u>Yes</u>	<u>FAC*</u>		4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Geranium molle</u>	<u>2%</u>	<u>No</u>	<u>NOL</u>		5 - Wetland Non-Vascular Plants ¹
5. <u>Plantago lanceolata</u>	<u>2%</u>	<u>No</u>	<u>FACU</u>		Problematic Hydrophytic Vegetation (Explain) ¹
6. <u>Trifolium repens</u>	<u>2%</u>	<u>No</u>	<u>FAC</u>		¹ Indicators of hydric soil and wetland hydrology must be present.
7. <u>Rumex crispus</u>	<u>2%</u>	<u>No</u>	<u>FAC</u>		
8. <u>Prunella vulgaris</u>	<u>2%</u>	<u>No</u>	<u>FACU</u>		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
100% = Total Cover					
Woody Vine Stratum (Plot Size: 10' r or _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>0%</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No _____	

Remarks:
 *Assumed FAC.

SOIL	Sampling Point: 6
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Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	95	7.5YR 4/6	5	C	M	SiL	
8-16	10YR 4/1	98	7.5YR 4/6	2	C	M	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):</p> <p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8) </p>	<p>Indicators for Problematic Hydric Soils³:</p> <p> <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks) </p> <p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p>Restrictive Layer (if present):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____</p>
-----------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------

Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) </p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p> <input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7) </p>
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<p>Field Observations:</p> <p>Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): >16"</p> <p>Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): >16" (includes capillary fringe)</p>	<p>Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Plot left open approximately 1 hour. Soils dry throughout. No free water or saturation within 12-inches during a February 16, 2021 site visit either. Does not meet problematic wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Oregon Street Business Park City/County: Sherwood / Washington Sampling Date: 3/8/2021
 Applicant/Owner: Oregon Street Business Park, LLC State: OR Sampling Point: 7
 Investigator(s): Stacey Reed, PWS and Sonya Templeton Section, Township, Range: Sec. 28, T.2S., R.1W., W.M.
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Convex Slope (%): <3%
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.361133 Long: -122.823122 Datum: _____
 Soil Map Unit Name: Briedwell stony silt loam, (Unit 5B), 0% to 7% slopes; Non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Precipitation:
 According to the NWS Hillsboro weather station, 0.01 inches of rainfall was received on the day of and 1.02 inches within the two weeks prior.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Acer macrophyllum</u>	<u>30%</u>	<u>Yes</u>	<u>FACU</u>		Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
3. _____	_____	_____	_____		
4. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67%</u> (A/B)	
30% = Total Cover					
Sapling/Shrub Stratum (Plot Size: 10' r or _____)				Prevalence Index worksheet:	
1. <u>Rosa nutkana</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>		Total % Cover of: _____ Multiply by: _____
2. <u>Corylus cornuta</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	OBL species <u>0</u> x 1 = <u>0</u>	
3. <u>Rubus armeniacus</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	FACW species <u>0</u> x 2 = <u>0</u>	
4. _____	_____	_____	_____	FAC species <u>126</u> x 3 = <u>378</u>	
5. _____	_____	_____	_____	FACU species <u>10</u> x 4 = <u>40</u>	
30% = Total Cover				UPL species <u>0</u> x 5 = <u>0</u>	
Herb Stratum (Plot Size: 5' r or _____)				Column Totals: <u>136</u> (A) <u>418</u> (B)	
1. <u>Poa species</u>	<u>95%</u>	<u>Yes</u>	<u>FAC*</u>	Prevalence Index = B/A = <u>3.07</u>	
2. <u>Taraxacum officinale</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators:	
3. <u>Rumex crispus</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>		1 - Rapid Test for Hydrophytic Vegetation
4. <u>Ranunculus repens</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>		<u>X</u> 2 - Dominance Test is >50%
5. _____	_____	_____	_____		3 - Prevalence Index is ≤3.0 ¹
6. _____	_____	_____	_____		4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
7. _____	_____	_____	_____		5 - Wetland Non-Vascular Plants ¹
8. _____	_____	_____	_____		Problematic Hydrophytic Vegetation (Explain) ¹
9. _____	_____	_____	_____		¹ Indicators of hydric soil and wetland hydrology must be present.
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
106% = Total Cover					
Woody Vine Stratum (Plot Size: 10' r or _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum	<u>0%</u>			Hydrophytic Vegetation Present? Yes <u>X</u> No _____	

Remarks:

SOIL	Sampling Point: 7
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Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 3/2	100					SiL	
10-16	10YR 3/2	97	7.5YR 4/4	3	C	M	SiL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):</p> <p>___ Histosol (A1) ___ Sandy Redox (S5) ___ Histic Epipedon (A2) ___ Stripped Matrix (S6) ___ Black Histic (A3) ___ Loamy Mucky Mineral (F1) (except MLRA 1) ___ Hydrogen Sulfide (A4) ___ Loamy Gleyed Matrix (F2) ___ Depleted Below Dark Surface (A11) ___ Depleted Matrix (F3) ___ Thick Dark Surface (A12) ___ Redox Dark Surface (F6) ___ Sandy Mucky Mineral (S1) ___ Depleted Dark Surface (F7) ___ Sandy Gleyed Matrix (S4) ___ Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p>___ 2 cm Muck (A10) ___ Red Parent Material (TF2) ___ Very Shallow Dark Surface (TF12) ___ Other (Explain in Remarks)</p> <p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
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<p>Restrictive Layer (if present):</p> <p>Type: _____ Depth (inches): _____</p>	<p>Hydric Soil Present?</p> <p>Yes _____ No X _____</p>
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Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p>___ Surface Water (A1) ___ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) ___ High Water Table (A2) ___ Salt Crust (B11) ___ Saturation (A3) ___ Aquatic Invertebrates (B13) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) ___ Oxidized Rhizospheres along Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Stunted or Stressed Plants (D1) (LRR A) ___ Surface Soil Cracks (B6) ___ Other (Explain in Remarks) ___ Inundation Visible on Aerial Imagery (B7) ___ Sparsely Vegetated Concave Surface (B8)</p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p>___ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) ___ Drainage Patterns (B10) ___ Dry-Season Water Table (C2) ___ Saturation Visible on Aerial Imagery (C9) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ FAC-Neutral Test (D5) ___ Raised Ant Mounds (D6) (LRR A) ___ Frost-Heave Hummocks (D7)</p>
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<p>Field Observations:</p> <p>Surface Water Present? Yes _____ No X _____ Depth (inches): _____ Water Table Present? Yes _____ No X _____ Depth (inches): <u>>16"</u> Saturation Present? Yes _____ No X _____ Depth (inches): <u>>16"</u> (includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p>Yes _____ No X _____</p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Plot left open approximately 1 hour. Soils dry throughout.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Oregon Street Business Park City/County: Sherwood / Washington Sampling Date: 3/8/2021
 Applicant/Owner: Oregon Street Business Park, LLC State: OR Sampling Point: 8
 Investigator(s): Stacey Reed, PWS and Sonya Templeton Section, Township, Range: Sec. 28, T.2S., R.1W., W.M.
 Landform (hillslope, terrace, etc.): Footslope/Floodplain Local relief (concave, convex, none): Concave Slope (%): <3%
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.360765 Long: -122.823791 Datum: _____
 Soil Map Unit Name: Briedwell stony silt loam, (Unit 5B), 0% to 7% slopes; Non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Precipitation:
 According to the NWS Hillsboro weather station, 0.01 inches of rainfall was received on the day of and 1.02 inches within the two weeks prior.

Remarks:
 Plot is located within Wetland B on the west side of SW Tonquin Road.

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
5. _____	_____	_____	_____	
0% = Total Cover				OBL species <u>0</u> x 1 = <u>0</u>
Sapling/Shrub Stratum (Plot Size: 10' r or _____)				FACW species <u>100</u> x 2 = <u>200</u>
1. _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
2. _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>
3. _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>
4. _____	_____	_____	_____	Column Totals: <u>100</u> (A) <u>200</u> (B)
5. _____	_____	_____	_____	Prevalence Index = B/A = <u>2.00</u>
0% = Total Cover				Hydrophytic Vegetation Indicators:
Herb Stratum (Plot Size: 5' r or _____)				
1. <u>Phalaris arundinacea</u>	<u>100%</u>	<u>Yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
100% = Total Cover				
Woody Vine Stratum (Plot Size: 10' r or _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				

Remarks:
 Bareground covered by leaf litter.

SOIL	Sampling Point: 8
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Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	2.5Y 3/1	90	7.5YR 4/4	10	C	M/PL	SiCL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):</p> <p><input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Thick Dark Surface (A12) <input checked="" type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Red Parent Material (TF2)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> <p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
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<p>Restrictive Layer (if present):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____</p>
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Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)</p> <p><input checked="" type="checkbox"/> High Water Table (A2)</p> <p><input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11)</p> <p><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13)</p> <p><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p><input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p> <p><input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)</p> <p><input type="checkbox"/> Frost-Heave Hummocks (D7)</p>
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<p>Field Observations:</p> <p>Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): 8"</p> <p>Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): Surface (includes capillary fringe)</p>	<p>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____</p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Oregon Street Business Park City/County: Sherwood / Washington Sampling Date: 3/8/2021
 Applicant/Owner: Oregon Street Business Park, LLC State: OR Sampling Point: 10
 Investigator(s): Stacey Reed, PWS and Sonya Templeton Section, Township, Range: Sec. 28, T.2S., R.1W., W.M.
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): <3%
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.361319 Long: -122.822837 Datum: _____
 Soil Map Unit Name: Briedwell stony silt loam, (Unit 5B), 0% to 7% slopes; Non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Precipitation:
 According to the NWS Hillsboro weather station, 0.01 inches of rainfall was received on the day of and 1.02 inches within the two weeks prior.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Acer macrophyllum</u>	<u>30%</u>	<u>Yes</u>	<u>FACU</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>30%</u> = Total Cover				
Sapling/Shrub Stratum (Plot Size: 10' r or _____)				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0%</u> (A/B)
1. <u>Symphoricarpos albus</u>	<u>20%</u>	<u>Yes</u>	<u>FACU</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>40</u> x 4 = <u>160</u> UPL species <u>80</u> x 5 = <u>400</u> Column Totals: <u>130</u> (A) <u>590</u> (B) Prevalence Index = B/A = <u>4.54</u>
2. <u>Mahonia aquifolium</u>	<u>15%</u>	<u>Yes</u>	<u>FACU</u>	
3. <u>Rubus armeniacus</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	
4. <u>Oemleria cerasiformis</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
<u>45%</u> = Total Cover				
Herb Stratum (Plot Size: 5' r or _____)				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 ¹ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants ¹ Problematic Hydrophytic Vegetation (Explain) ¹ ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Geranium molle</u>	<u>80%</u>	<u>Yes</u>	<u>NOL</u>	
2. <u>Poa species</u>	<u>5%</u>	<u>No</u>	<u>FAC*</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>85%</u> = Total Cover				
Woody Vine Stratum (Plot Size: 10' r or _____)				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0%</u> = Total Cover				
% Bare Ground in Herb Stratum	<u>15%</u>			

Remarks:
 *Assumed FAC.

SOIL	Sampling Point: 10
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Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	10YR 3/2	100					SiL	
9-16	10YR 3/3	100					SiL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):</p> <p><input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Red Parent Material (TF2)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> <p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
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<p>Restrictive Layer (if present):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present?</p> <p>Yes _____ No X _____</p>
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Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11)</p> <p><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13)</p> <p><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p><input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p> <p><input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)</p> <p><input type="checkbox"/> Frost-Heave Hummocks (D7)</p>
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<p>Field Observations:</p> <p>Surface Water Present? Yes _____ No X _____ Depth (inches): _____</p> <p>Water Table Present? Yes _____ No X _____ Depth (inches): <u>>16"</u></p> <p>Saturation Present? Yes _____ No X _____ Depth (inches): <u>>16"</u></p> <p>(includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p>Yes _____ No X _____</p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Oregon Street Business Park City/County: Sherwood / Washington Sampling Date: 3/8/2021
 Applicant/Owner: Oregon Street Business Park, LLC State: OR Sampling Point: 11
 Investigator(s): Stacey Reed, PWS and Sonya Templeton Section, Township, Range: Sec. 28, T.2S., R.1W., W.M.
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Convex Slope (%): <3%
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.361121 Long: -122.823001 Datum: _____
 Soil Map Unit Name: Briedwell stony silt loam, (Unit 5B), 0% to 7% slopes; Non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Precipitation:
 According to the NWS Hillsboro weather station, 0.01 inches of rainfall was received on the day of and 1.02 inches within the two weeks prior.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Acer macrophyllum</u>	<u>40%</u>	<u>Yes</u>	<u>FACU</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
40% = Total Cover				
Sapling/Shrub Stratum (Plot Size: 10' r or _____)				Prevalence Index worksheet:
1. <u>Crataegus monogyna</u>	<u>30%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Rubus armeniacus</u>	<u>15%</u>	<u>Yes</u>	<u>FAC</u>	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Oemleria cerasiformis</u>	<u>10%</u>	<u>No</u>	<u>FACU</u>	FACW species <u>8</u> x 2 = <u>16</u>
4. <u>Physocarpus capitatus</u>	<u>3%</u>	<u>No</u>	<u>FACW</u>	FAC species <u>48</u> x 3 = <u>144</u>
5. _____	_____	_____	_____	FACU species <u>30</u> x 4 = <u>120</u>
58% = Total Cover				UPL species <u>0</u> x 5 = <u>0</u>
Herb Stratum (Plot Size: 5' r or _____)				Column Totals: <u>86</u> (A) <u>280</u> (B)
1. <u>Tellima grandiflora</u>	<u>10%</u>	<u>Yes</u>	<u>FACU</u>	Prevalence Index = B/A = <u>3.26</u>
2. <u>Equisetum hyemale</u>	<u>5%</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators:
3. <u>Urtica dioica</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>	
4. _____	_____	_____	_____	2 - Dominance Test is >50%
5. _____	_____	_____	_____	3 - Prevalence Index is ≤3.0 ¹
6. _____	_____	_____	_____	4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
7. _____	_____	_____	_____	5 - Wetland Non-Vascular Plants ¹
8. _____	_____	_____	_____	Problematic Hydrophytic Vegetation (Explain) ¹
9. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
18% = Total Cover				
Woody Vine Stratum (Plot Size: 10' r or _____)				
1. <u>Hedera helix</u>	<u>10%</u>	<u>Yes</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
10% = Total Cover				
% Bare Ground in Herb Stratum	<u>82%</u>			

Remarks:

SOIL	Sampling Point: 11
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Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/2	100					SiL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>	

Restrictive Layer (if present):	Hydric Soil Present?
Type: _____	Yes _____ No X _____
Depth (inches): _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:				Wetland Hydrology Present?
Surface Water Present?	Yes _____ No X _____	Depth (inches): _____	Yes _____ No X _____	
Water Table Present?	Yes X _____ No _____	Depth (inches): <u>16"</u>		
Saturation Present? (includes capillary fringe)	Yes X _____ No _____	Depth (inches): <u>15"</u>		

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Oregon Street Business Park City/County: Sherwood / Washington Sampling Date: 3/8/2021
 Applicant/Owner: Oregon Street Business Park, LLC State: OR Sampling Point: 12
 Investigator(s): Stacey Reed, PWS and Sonya Templeton Section, Township, Range: Sec. 28, T.2S., R.1W., W.M.
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): <3%
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.361094 Long: -122.823047 Datum: _____
 Soil Map Unit Name: Briedwell stony silt loam, (Unit 5B), 0% to 7% slopes; Non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	

Precipitation:
 According to the NWS Hillsboro weather station, 0.01 inches of rainfall was received on the day of and 1.02 inches within the two weeks prior.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75%</u> (A/B)
0% = Total Cover				
Sapling/Shrub Stratum (Plot Size: 10' r or _____)				Prevalence Index worksheet:
1. <u>Rubus armeniacus</u>	<u>15%</u>	<u>Yes</u>	<u>FAC</u>	
2. <u>Rosa nutkana</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Crataegus monogyna</u>	<u>2%</u>	<u>No</u>	<u>FAC</u>	FACW species <u>0</u> x 2 = <u>0</u>
4. _____	_____	_____	_____	FAC species <u>33</u> x 3 = <u>99</u>
5. _____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>
22% = Total Cover				UPL species <u>5</u> x 5 = <u>25</u>
Herb Stratum (Plot Size: 5' r or _____)				Column Totals: <u>38</u> (A) <u>124</u> (B)
1. <u>Ranunculus repens</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index = B/A = <u>3.26</u>
2. <u>Geranium molle</u>	<u>5%</u>	<u>Yes</u>	<u>NOL</u>	Hydrophytic Vegetation Indicators:
3. <u>Rumex crispus</u>	<u>1%</u>	<u>No</u>	<u>FAC</u>	
4. _____	_____	_____	_____	<u>X</u> <u>2</u> - Dominance Test is >50%
5. _____	_____	_____	_____	<u>3</u> - Prevalence Index is ≤3.0 ¹
6. _____	_____	_____	_____	<u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
7. _____	_____	_____	_____	<u>5</u> - Wetland Non-Vascular Plants ¹
8. _____	_____	_____	_____	Problematic Hydrophytic Vegetation (Explain) ¹
9. _____	_____	_____	_____	¹ Indicators of hydric soil and wetland hydrology must be present.
10. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
11. _____	_____	_____	_____	
16% = Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
Woody Vine Stratum (Plot Size: 10' r or _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. _____	_____	_____	_____	
0% = Total Cover				
% Bare Ground in Herb Stratum <u>84%</u>				Remarks:

Remarks:

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	98	7.5YR 3/3	2	C	M	SiL	
8-16	10YR 3/2	90	7.5YR 3/4	10	C	M	SiL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):</p> <p><input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Thick Dark Surface (A12) <input checked="" type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Red Parent Material (TF2)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> <p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
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<p>Restrictive Layer (if present):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present?</p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
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Remarks:

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)</p> <p><input checked="" type="checkbox"/> High Water Table (A2)</p> <p><input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Salt Crust (B11)</p> <p><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Aquatic Invertebrates (B13)</p> <p><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p>	<p><u>Secondary Indicators (2 or more required)</u></p> <p><input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> Shallow Aquitard (D3)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p> <p><input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)</p> <p><input type="checkbox"/> Frost-Heave Hummocks (D7)</p>
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<p>Field Observations:</p> <p>Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): 10"</p> <p>Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): 7"</p> <p>(includes capillary fringe)</p>	<p>Wetland Hydrology Present?</p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Oregon Street Business Park City/County: Sherwood / Washington Sampling Date: 3/8/2021
 Applicant/Owner: Oregon Street Business Park, LLC State: OR Sampling Point: 13
 Investigator(s): Stacey Reed, PWS and Sonya Templeton Section, Township, Range: Sec. 28, T.2S., R.1W., W.M.
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Concave Slope (%): <3%
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.360908 Long: -122.823274 Datum: _____
 Soil Map Unit Name: Briedwell stony silt loam, (Unit 5B), 0% to 7% slopes; Non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Precipitation:
 According to the NWS Hillsboro weather station, 0.01 inches of rainfall was received on the day of and 1.02 inches within the two weeks prior.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____		Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet:	
_____	0% = Total Cover	_____	_____		Total % Cover of: _____ Multiply by: _____
Sapling/Shrub Stratum (Plot Size: 10' r or _____)				OBL species <u>0</u> x 1 = <u>0</u>	
1. _____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
2. _____	_____	_____	_____	FAC species <u>95</u> x 3 = <u>285</u>	
3. _____	_____	_____	_____	FACU species <u>2</u> x 4 = <u>8</u>	
4. _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
5. _____	_____	_____	_____	Column Totals: <u>97</u> (A) <u>293</u> (B)	
_____	0% = Total Cover	_____	_____	Prevalence Index = B/A = <u>3.02</u>	
Herb Stratum (Plot Size: 5' r or _____)				Hydrophytic Vegetation Indicators:	
1. <u>Alopecurus pratensis</u>	<u>40%</u>	<u>Yes</u>	<u>FAC</u>		<u>1</u> - Rapid Test for Hydrophytic Vegetation
2. <u>Agrostis species</u>	<u>20%</u>	<u>Yes</u>	<u>FAC*</u>		<u>X</u> <u>2</u> - Dominance Test is >50%
3. <u>Ranunculus repens</u>	<u>20%</u>	<u>Yes</u>	<u>FAC</u>		<u>3</u> - Prevalence Index is ≤3.0 ¹
4. <u>Schedonorus arundinaceus</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>		<u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. <u>Rumex crispus</u>	<u>3%</u>	<u>No</u>	<u>FAC</u>		<u>5</u> - Wetland Non-Vascular Plants ¹
6. <u>Trifolium repens</u>	<u>2%</u>	<u>No</u>	<u>FAC</u>		Problematic Hydrophytic Vegetation (Explain) ¹
7. <u>Daucus carota</u>	<u>1%</u>	<u>No</u>	<u>FACU</u>		¹ Indicators of hydric soil and wetland hydrology must be present.
8. <u>Taraxacum officinale</u>	<u>1%</u>	<u>No</u>	<u>FACU</u>		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
_____	97% = Total Cover	_____	_____		
Woody Vine Stratum (Plot Size: 10' r or _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
_____	0% = Total Cover	_____	_____		
% Bare Ground in Herb Stratum <u>3%</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No _____	

Remarks:
 *Assumed FAC.

SOIL	Sampling Point: 13
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Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):

Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-10	10YR 3/2	95	7.5YR 3/3	5	C	M	SiL	
10-16	10YR 4/1	95	7.5YR 4/6	5	C	M	SiCl	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

<p>Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Histosol (A1)</td><td><input type="checkbox"/> Sandy Redox (S5)</td></tr> <tr><td><input type="checkbox"/> Histic Epipedon (A2)</td><td><input type="checkbox"/> Stripped Matrix (S6)</td></tr> <tr><td><input type="checkbox"/> Black Histic (A3)</td><td><input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)</td></tr> <tr><td><input type="checkbox"/> Hydrogen Sulfide (A4)</td><td><input type="checkbox"/> Loamy Gleyed Matrix (F2)</td></tr> <tr><td><input type="checkbox"/> Depleted Below Dark Surface (A11)</td><td><input checked="" type="checkbox"/> Depleted Matrix (F3)</td></tr> <tr><td><input type="checkbox"/> Thick Dark Surface (A12)</td><td><input checked="" type="checkbox"/> Redox Dark Surface (F6)</td></tr> <tr><td><input type="checkbox"/> Sandy Mucky Mineral (S1)</td><td><input type="checkbox"/> Depleted Dark Surface (F7)</td></tr> <tr><td><input type="checkbox"/> Sandy Gleyed Matrix (S4)</td><td><input type="checkbox"/> Redox Depressions (F8)</td></tr> </table>	<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	<p>Indicators for Problematic Hydric Soils³:</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> 2 cm Muck (A10)</td></tr> <tr><td><input type="checkbox"/> Red Parent Material (TF2)</td></tr> <tr><td><input type="checkbox"/> Very Shallow Dark Surface (TF12)</td></tr> <tr><td><input type="checkbox"/> Other (Explain in Remarks)</td></tr> </table> <p>³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>	<input type="checkbox"/> 2 cm Muck (A10)	<input type="checkbox"/> Red Parent Material (TF2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	<input type="checkbox"/> Other (Explain in Remarks)
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<p>Restrictive Layer (if present):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric Soil Present?</p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
-----------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

<p>Primary Indicators (minimum of one required; check all that apply)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Surface Water (A1)</td><td><input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)</td></tr> <tr><td><input checked="" type="checkbox"/> High Water Table (A2)</td><td><input type="checkbox"/> Salt Crust (B11)</td></tr> <tr><td><input checked="" type="checkbox"/> Saturation (A3)</td><td><input type="checkbox"/> Aquatic Invertebrates (B13)</td></tr> <tr><td><input type="checkbox"/> Water Marks (B1)</td><td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td></tr> <tr><td><input type="checkbox"/> Sediment Deposits (B2)</td><td><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</td></tr> <tr><td><input type="checkbox"/> Drift Deposits (B3)</td><td><input type="checkbox"/> Presence of Reduced Iron (C4)</td></tr> <tr><td><input type="checkbox"/> Algal Mat or Crust (B4)</td><td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td></tr> <tr><td><input type="checkbox"/> Iron Deposits (B5)</td><td><input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)</td></tr> <tr><td><input type="checkbox"/> Surface Soil Cracks (B6)</td><td><input type="checkbox"/> Other (Explain in Remarks)</td></tr> <tr><td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td><td></td></tr> <tr><td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td><td></td></tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		<p>Secondary Indicators (2 or more required)</p> <table style="width: 100%;"> <tr><td><input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> FAC-Neutral Test (D5)</td></tr> <tr><td><input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)</td></tr> <tr><td><input type="checkbox"/> Frost-Heave Hummocks (D7)</td></tr> </table>	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> FAC-Neutral Test (D5)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
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<p>Field Observations:</p> <table style="width: 100%;"> <tr> <td>Surface Water Present?</td> <td>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></td> <td>Depth (inches): _____</td> </tr> <tr> <td>Water Table Present?</td> <td>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></td> <td>Depth (inches): <u>8"</u></td> </tr> <tr> <td>Saturation Present? (includes capillary fringe)</td> <td>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></td> <td>Depth (inches): <u>Surface</u></td> </tr> </table>	Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>8"</u>	Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>	<p>Wetland Hydrology Present?</p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____								
Water Table Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>8"</u>								
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>Surface</u>								

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrology driven by surface water from upslope seeps. Pit left open approximately 1 hour.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Oregon Street Business Park City/County: Sherwood / Washington Sampling Date: 3/8/2021
 Applicant/Owner: Oregon Street Business Park, LLC State: OR Sampling Point: 14
 Investigator(s): Stacey Reed, PWS and Sonya Templeton Section, Township, Range: Sec. 28, T.2S., R.1W., W.M.
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Convex Slope (%): <3%
 Subregion (LRR): A. Northwest Forests and Coast Lat: 45.360956 Long: -122.823328 Datum: _____
 Soil Map Unit Name: Briedwell stony silt loam, (Unit 5B), 0% to 7% slopes; Non-hydric NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Precipitation:
 According to the NWS Hillsboro weather station, 0.01 inches of rainfall was received on the day of and 1.02 inches within the two weeks prior.

Remarks:

VEGETATION

Tree Stratum (Plot Size: 30' r or _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____		Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>6</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83%</u> (A/B)	
4. _____	_____	_____	_____	Prevalence Index worksheet:	
_____	0% = Total Cover				Total % Cover of: _____ Multiply by: _____
Sapling/Shrub Stratum (Plot Size: 10' r or _____)				OBL species <u>0</u> x 1 = <u>0</u>	
1. <u>Crataegus monogyna</u>	15%	Yes	FAC	FACW species <u>0</u> x 2 = <u>0</u>	
2. <u>Rosa nutkana</u>	10%	Yes	FAC	FAC species <u>103</u> x 3 = <u>309</u>	
3. _____	_____	_____	_____	FACU species <u>23</u> x 4 = <u>92</u>	
4. _____	_____	_____	_____	UPL species <u>0</u> x 5 = <u>0</u>	
5. _____	_____	_____	_____	Column Totals: <u>126</u> (A) <u>401</u> (B)	
_____	25% = Total Cover			Prevalence Index = B/A = <u>3.18</u>	
Herb Stratum (Plot Size: 5' r or _____)				Hydrophytic Vegetation Indicators:	
1. <u>Schedonorus arundinaceus</u>	30%	Yes	FAC		1 - Rapid Test for Hydrophytic Vegetation
2. <u>Agrostis species</u>	20%	Yes	FAC*		X 2 - Dominance Test is >50%
3. <u>Poa species</u>	20%	Yes	FAC*		3 - Prevalence Index is ≤3.0 ¹
4. <u>Hypochaeris radicata</u>	10%	Yes	FACU		4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. <u>Taraxacum officinale</u>	5%	No	FACU		5 - Wetland Non-Vascular Plants ¹
6. <u>Ranunculus repens</u>	5%	No	FAC		Problematic Hydrophytic Vegetation (Explain) ¹
7. <u>Leucanthemum vulgare</u>	5%	No	FACU		¹ Indicators of hydric soil and wetland hydrology must be present.
8. <u>Trifolium repens</u>	3%	No	FAC		
9. <u>Daucus carota</u>	3%	No	FACU		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
_____	101% = Total Cover				
Woody Vine Stratum (Plot Size: 10' r or _____)					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
_____	0% = Total Cover				
% Bare Ground in Herb Stratum <u>0%</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No _____	

Remarks:
 Assumed FAC.

Profile Description (Describe to the depth needed to document the indicator or confirm the absence of indicators):								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-12	10YR 3/2	98	7.5YR 3/4	2	C	M	SiL	
12-16	10YR 4/1	99	7.5YR 4/6	1	C	M	SiL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators (Applicable to all LRRs, unless otherwise noted):	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	

Restrictive Layer (if present): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No X _____
--------------------------------------------------------------------------------	--------------------------------------------------------------

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Frost-Heave Hummocks (D7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Raised Ant Mounds (D6) (LRR A) <input type="checkbox"/> Frost-Heave Hummocks (D7)

Field Observations:	Wetland Hydrology Present? Yes _____ No X _____
Surface Water Present? Yes _____ No X _____ Depth (inches): _____	
Water Table Present? Yes _____ No X _____ Depth (inches): <u>>16"</u>	
Saturation Present? Yes X _____ No _____ Depth (inches): <u>16"</u> (includes capillary fringe)	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Plot left open approximately 1 hour. Saturation at bottom of pit, no free water.

Appendix E:
Photo Location Map and Site Photographs



Photo A. View north of wetland Plot 1 with Wetland A boundary and upland Plot 2.



Photo B. View southeast of upland Plot 2 and Wetland A boundary.



Photo C. View facing south of upland Plot 3 towards Wetland A.



Photo D. View north of Wetland A.



Photo E. View north of wetland A boundary and wetland Plots 4 and 12 with upland Plots 5 and 7 at a higher elevation than the wetland.



Photo F. View facing north from Wetland A towards wetland Plot 13 and upland Plots 6, 5, and 14. Photo shows where wetland was partially filled under WD2000-0488 and slopes gradually higher into the wetland.



Photo G. View south from the northwestern corner of the site towards Wetland A. Shows the site slopes gradually towards the wetland and no roadside ditches.



Photo H. View northeast of upland field within study area.



Photo I. View east of upland Plot 10.



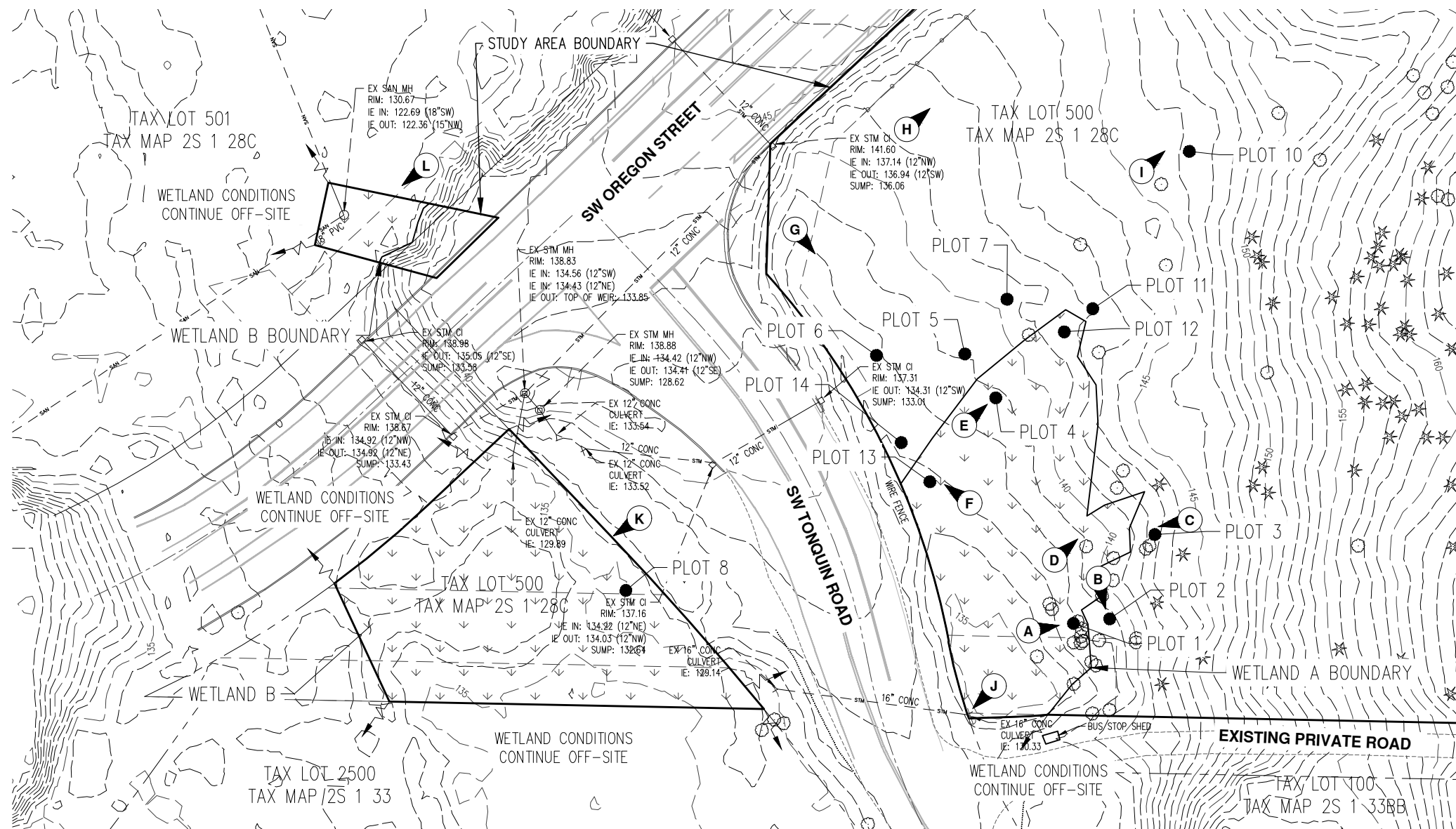
Photo J. View of culvert under SW Tonquin Road within Wetland A.



Photo K. View facing west of Wetland B on the west side of SW Tonquin Road in area of wetland enhancement and excavation of depression area per DSL RF-24010.

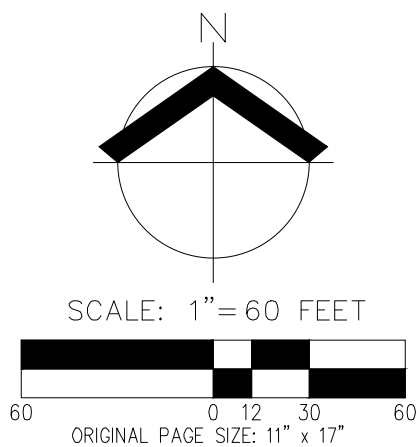


Photo L. View facing west of Wetland B on the north side of SW Oregon Street.



LEGEND

- TOTAL ON-SITE WETLAND: 25,759 SF± (0.59 ACRES±)
- PSS/PEM/SLOPE WETLAND A: 11,430 SF± (0.26 ACRES±)
- PEM/SLOPE/RIVERINE WETLAND B: 14,329 SF± (0.33 ACRES±)
- PHOTO LOCATIONS & ORIENTATION



WETLAND BOUNDARIES SHOWN WERE DELINEATED BY AKS ENGINEERING & FORESTRY, LLC ON MARCH 8, 2021 AND WERE PROFESSIONALLY LAND SURVEYED BY AKS ON MARCH 10, 2021.

1-FOOT INTERVAL GROUND CONTOURS DERIVED FROM NOAA LIDAR. EXISTING CONDITIONS AND STUDY AREA ARE DERIVED FROM LAND SURVEY WITH SUB-METER ACCURACY.

DATE: 04/08/2021

WETLAND DELINEATION		FIGURE
OREGON STREET BUSINESS PARK WETLAND DELINEATION REPORT		5A
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM		DRWN: SKT CHKD: SAR AKS JOB: 7971



Exhibit F: Ownership Information



First American

First American Title Insurance Company

121 SW Morrison Street, Suite 300
Portland, OR 97204
Phn - (503)222-3651 (800)929-3651
Fax - (877)242-3513

PUBLIC RECORD REPORT
FOR NEW SUBDIVISION OR LAND PARTITION

THIS REPORT IS ISSUED BY THE ABOVE-NAMED COMPANY ("THE COMPANY") FOR THE EXCLUSIVE USE OF:

AKS Engineering & Forestry LLC
12965 SW Herman RD STE 100
Tualatin, OR 97062
Phone: (503)563-6151
Fax: (503)563-6152

Date Prepared : March 02, 2020
Effective Date : 8:00 A.M on February 21, 2020
Order No. : 7019-3402741
Subdivision :

The information contained in this report is furnished by First American Title Insurance Company (the "Company") as an information service based on the records and indices maintained by the Company for the county identified below. This report is not title insurance, is not a preliminary title report for title insurance, and is not a commitment for title insurance. No examination has been made of the Company's records, other than as specifically set forth in this report. Liability for any loss arising from errors and/or omissions is limited to the lesser of the fee paid or the actual loss to the Customer, and the Company will have no greater liability by reason of this report. This report is subject to the Definitions, Conditions and Stipulations contained in it.

REPORT

- A. The Land referred to in this report is located in the County of Washington, State of Oregon, and is described as follows:

As fully set forth on Exhibit "A" attached hereto and by this reference made a part hereof.

- B. As of the Effective Date, the tax account and map references pertinent to the Land are as follows:

As fully set forth on Exhibit "A" attached hereto and by this reference made a part hereof.

- C. As of the Effective Date and according to the Public Records, we find title to the land apparently vested in:

As fully set forth on Exhibit "B" attached hereto and by this reference made a part hereof

- D. As of the Effective Date and according to the Public Records, the Land is subject to the following liens and encumbrances, which are not necessarily shown in the order of priority:

As fully set forth on Exhibit "C" attached hereto and by this reference made a part hereof.

EXHIBIT "A"
(Land Description Map Tax and Account)

THE SOUTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 28, TOWNSHIP 2 SOUTH, RANGE 1 WEST OF THE WILLAMETTE MERIDIAN, IN THE COUNTY OF WASHINGTON AND STATE OF OREGON.

EXCEPTING THEREFROM THAT TRACT CONVEYED TO JOHN CAMPBELL BY DEED RECORDED IN BOOK 56, PAGE 232, WASHINGTON COUNTY, OREGON, WHICH TRACT IS DESCRIBED AS FOLLOWS:

PART OF THE SOUTHWEST ONE-QUARTER OF SECTION 28, TOWNSHIP 2 SOUTH, RANGE 1 WEST OF THE WILLAMETTE MERIDIAN, IN THE COUNTY OF WASHINGTON AND STATE OF OREGON. BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 28, AND THENCE NORTH ON THE WEST SECTION LINE 16.41 CHAINS TO THE CENTER OF THE DITCH; THENCE UP SAID DITCH SOUTH 21° 1/2" EAST 7.92 CHAINS AND SOUTH 26° EAST 10.01 CHAINS TO THE SOUTH LINE OF SAID SECTION 28; THENCE WEST ON SAID LINE 7.32 CHAINS TO THE POINT OF BEGINNING.

ALSO EXCEPTING THEREFROM PART OF THE SOUTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 28, TOWNSHIP 2 SOUTH, RANGE 1 WEST OF THE WILLAMETTE MERIDIAN, IN THE COUNTY OF WASHINGTON AND STATE OF OREGON, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF THE SOUTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 28; THENCE SOUTH 0° 08' 14" EAST ALONG THE WEST LINE OF SAID SECTION 28, 241.02 FEET TO THE MOST NORTHERLY POINT OF THAT PARCEL DEEDED BY P.P. BAILEY AND WIFE TO JOHN CAMPBELL, RECORDED BY DEED DATED MARCH 9, 1901, RECORDED MARCH 26, 1901, IN BOOK 56, PAGE 232, OF WASHINGTON COUNTY DEED RECORDS, SAID POINT ALSO BEING IN THE CENTER OF A DITCH DESCRIBED IN SAID BAILEY DEED; THENCE SOUTH 21° 43' 30" EAST FOLLOWING SAID DITCH CENTERLINE 523.00 FEET (522.72 DEED); THENCE CONTINUING ALONG SAID DITCH CENTERLINE SOUTH 26° 13' 30" EAST 530.95 FEET TO THE NORTHERLY RIGHT OF WAY LINE OF COUNTY ROAD NO. 492; THENCE NORTH 45° 19' EAST ALONG SAID COUNTY ROAD RIGHT OF WAY LINE 664.92 FEET; THENCE CONTINUING ALONG SAID COUNTY ROAD RIGHT OF WAY LINE NORTH 38° 09' 44" EAST 723.79 FEET TO THE EAST LINE OF THE SOUTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 28; THENCE NORTH 0° 08' 44" WEST ALONG SAID EAST LINE OF THE SOUTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SECTION 28, 218.67 FEET TO A STONE AND THE NORTHEAST CORNER THEREOF; THENCE SOUTH 89° 52' 44" WEST ALONG THE NORTH LINE OF THE SOUTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 28, 1309.43 FEET TO THE POINT OF BEGINNING.

AND FURTHER EXCEPTING A PART OF THE SOUTHWEST ONE-QUARTER OF SECTION 28, TOWNSHIP 2 SOUTH, RANGE 1 WEST OF THE WILLAMETTE MERIDIAN, IN THE COUNTY OF WASHINGTON AND STATE OF OREGON, DESCRIBED AS FOLLOWS:

BEGINNING AT A STONE AT THE NORTHWEST CORNER OF THE SOUTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 28; THENCE SOUTH 0° 08' 44" EAST ALONG THE WEST LINE OF THE SOUTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 28, 218.67 FEET TO THE NORTHERLY RIGHT OF WAY LINE OF COUNTY ROAD NO. 492; THENCE NORTH 38° 09' 44" EAST ALONG SAID COUNTY ROAD RIGHT OF WAY 281.47 FEET TO THE NORTH LINE OF THE SOUTHWEST ONE-QUARTER OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 28; THENCE SOUTH 89° 08' 16" WEST ALONG THE NORTH LINE OF THE SOUTHWEST ONE-QUARTER OF SAID SECTION 28, 174.49 FEET TO THE POINT OF BEGINNING.

NOTE: This Legal Description was created prior to January 01, 2008.

Map No.: 2S128C-00500
Tax Account No.: R1492192 and R547466

EXHIBIT "B"
(Vesting)

Bruce D. Polley and Karen M. Polley, as tenants by the entirety

EXHIBIT "C"
(Liens and Encumbrances)

1. The assessment roll and the tax roll disclose that the within described premises were specially zoned or classified for Farm use. If the land has become or becomes disqualified for such use under the statute, an additional tax or penalty may be imposed.
2. A Potential Additional Tax liability is due in the amount of \$2,896.94 for the tax year 2019-2020 (Affects APN #R1492192)
3. A Potential Additional Tax liability is due in the amount of \$367.19 for the tax year 2019-2020 (Affects APN #R547466)
4. Statutory powers and assessments of Clean Water Services.
5. The rights of the public in and to that portion of the premises herein described lying within the limits of streets, roads and highways.
6. Easement, including terms and provisions contained therein:
Recording Information: January 14, 1954 as Book 352, Page 329
In Favor of: Portland General Electric Company, a corporation of Oregon
For: Electrical lines, telephone lines and appurtenances
Affects: Exact location not disclosed
7. Easement, including terms and provisions contained therein:
Recording Information: April 07, 1959 as Book 416, Page 167
In Favor of: Portland General Electric Company, an Oregon corporation
For: Electric power transmission lines
Affects: Exact location not disclosed
8. Unrecorded leases or periodic tenancies, if any.

NOTE: Taxes for the year 2019-2020 PAID IN FULL

Tax Amount:	\$3,575.87
Map No.:	2S128C-00500
Property ID:	R1492192
Tax Code No.:	088.13

NOTE: Taxes for the year 2019-2020 PAID IN FULL

Tax Amount:	\$100.74
Map No.:	2S128C-00500
Property ID:	R547466
Tax Code No.:	088.09

NOTE: This Public Record Report does not include a search for Financing Statements filed in the Office of the Secretary of State, or in a county other than the county wherein the premises are situated, and no liability is assumed if a Financing Statement is filed in the Office of the County Clerk covering Crops on the premises wherein the lands are described other than by metes and bounds or under the rectangular survey system or by recorded lot and block.

DEFINITIONS, CONDITIONS AND STIPULATIONS

1. Definitions. The following terms have the stated meaning when used in this report:
 - (a) "Customer": The person or persons named or shown as the addressee of this report.
 - (b) "Effective Date": The effective date stated in this report.
 - (c) "Land": The land specifically described in this report and improvements affixed thereto which by law constitute real property.
 - (d) "Public Records": Those records which by the laws of the state of Oregon impart constructive notice of matters relating to the Land.

2. Liability of the Company.
 - (a) THIS REPORT IS NOT AN INSURED PRODUCT OR SERVICE OR A REPRESENTATION OF THE CONDITION OF TITLE TO REAL PROPERTY. IT IS NOT AN ABSTRACT, LEGAL OPINION, OPINION OF TITLE, TITLE INSURANCE COMMITMENT OR PRELIMINARY REPORT, OR ANY FORM OF TITLE INSURANCE OR GUARANTY. THIS REPORT IS ISSUED EXCLUSIVELY FOR THE BENEFIT OF THE APPLICANT THEREFOR, AND MAY NOT BE USED OR RELIED UPON BY ANY OTHER PERSON. THIS REPORT MAY NOT BE REPRODUCED IN ANY MANNER WITHOUT FIRST AMERICAN'S PRIOR WRITTEN CONSENT. FIRST AMERICAN DOES NOT REPRESENT OR WARRANT THAT THE INFORMATION HEREIN IS COMPLETE OR FREE FROM ERROR, AND THE INFORMATION HEREIN IS PROVIDED WITHOUT ANY WARRANTIES OF ANY KIND, AS-IS, AND WITH ALL FAULTS. AS A MATERIAL PART OF THE CONSIDERATION GIVEN IN EXCHANGE FOR THE ISSUANCE OF THIS REPORT, RECIPIENT AGREES THAT FIRST AMERICAN'S SOLE LIABILITY FOR ANY LOSS OR DAMAGE CAUSED BY AN ERROR OR OMISSION DUE TO INACCURATE INFORMATION OR NEGLIGENCE IN PREPARING THIS REPORT SHALL BE LIMITED TO THE FEE CHARGED FOR THE REPORT. RECIPIENT ACCEPTS THIS REPORT WITH THIS LIMITATION AND AGREES THAT FIRST AMERICAN WOULD NOT HAVE ISSUED THIS REPORT BUT FOR THE LIMITATION OF LIABILITY DESCRIBED ABOVE. FIRST AMERICAN MAKES NO REPRESENTATION OR WARRANTY AS TO THE LEGALITY OR PROPRIETY OF RECIPIENT'S USE OF THE INFORMATION HEREIN.
 - (b) No costs (including, without limitation attorney fees and other expenses) of defense, or prosecution of any action, is afforded to the Customer.
 - (c) In any event, the Company assumes no liability for loss or damage by reason of the following:
 - (1) Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records.
 - (2) Any facts, rights, interests or claims which are not shown by the Public Records but which could be ascertained by an inspection of the land or by making inquiry of persons in possession thereof.
 - (3) Easements, liens or encumbrances, or claims thereof, which are not shown by the Public Records.
 - (4) Discrepancies, encroachments, shortage in area, conflicts in boundary lines or any other facts which a survey would disclose.
 - (5) (i) Unpatented mining claims; (ii) reservations or exceptions in patents or in Acts authorizing the issuance thereof, (iii) water rights or claims or title to water.
 - (6) Any right, title, interest, estate or easement in land beyond the lines of the area specifically described or referred to in this report, or in abutting streets, roads, avenues, alleys, lanes, ways or waterways.
 - (7) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use or enjoyment on the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the Public Records at the effective date hereof.
 - (8) Any governmental police power not excluded by 2(d)(7) above, except to the extent that notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the Public Records at the effective date hereof.
 - (9) Defects, liens, encumbrances, adverse claims or other matters created, suffered, assumed, agreed to or actually known by the Customer.

3. Charge. The charge for this report does not include supplemental reports, updates or other additional services of the Company.



First American

First American Title Insurance Company

121 SW Morrison Street, Suite 300

Portland, OR 97204

Phone: (503)222-3651 / Fax: (877)242-3513

PR: NWEST

Ofc: 7019 (1011)

Final Invoice

To: AKS Engineering & Forestry LLC
12965 SW Herman RD STE 100
Tualatin, OR 97062

Invoice No.: 1011 - 7019153171

Date: 03/02/2020

Our File No.: 7019-3402741

Title Officer: Dona Lane

Escrow Officer:

Customer ID: 994563

Attention: Michael Kalina

Your Ref.:

Liability Amounts

RE: Property:
21720 SW Oregon Street, Sherwood, OR 97140

Buyers:

Sellers: Bruce Polley, Karen Polley

Description of Charge	Invoice Amount
Guarantee: Subdivision/Plat Certificate	\$275.00

INVOICE TOTAL **\$275.00**

Comments:

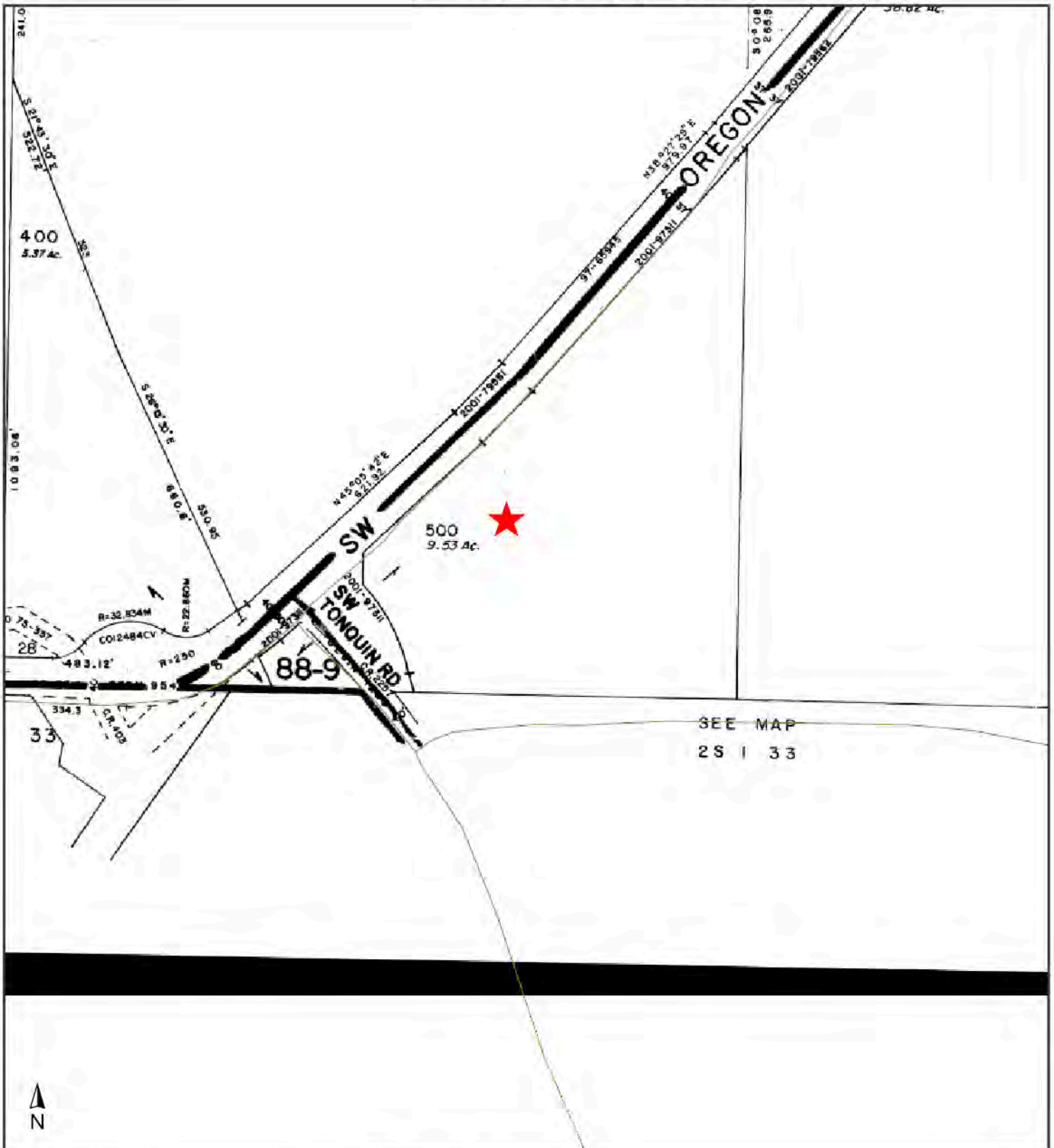
Thank you for your business!

To assure proper credit, please send a copy of this Invoice and Payment to:

Attention: Accounts Receivable Department

PO Box 31001-2281

Pasadena, CA 91110-2281



First American Title™

ParcelID: R1492192

**21720 SW Oregon St
Sherwood, OR 97140**

This map/plat is being furnished as an aid in locating the herein described land in relation to adjoining streets, natural boundaries and other land, and is not a survey of the land depicted. Except to the extent a policy of title insurance is expressly modified by endorsement, if any, the company does not insure dimensions, distances, location of easements, acreage or other matters shown thereon.

7298

KNOW ALL MEN BY THESE PRESENTS that John Cereghino & Gladys Cereghino,

husband and wife,

(hereinafter called "the Grantors," whether one or more than one) for and in consideration of the payment of the sum of Ten and no/100ths Dollars (\$10.00),

the receipt of which is hereby acknowledged, hereby grant, sell and convey to Portland General Electric Company, an Oregon Corporation, (hereinafter called "the Grantee"), its successors and assigns, a perpetual easement and right of way over, under and across the following described parcel of land situated in Washington

County, Oregon, being a strip of land 50 feet in width, extending 18 feet on each the south side and 32 feet on the north side of a center line more particularly described as follows:

Beginning at a point in the lands of the grantors described in Book 149 on Page 215 and Book 158 on Page 191, Dead Records of Washington County, Oregon, and said lands being situated in Section 28, T28, R18, W4, said county, said point being on the west boundary of County Road No. 1260, 18 feet northerly at right angles to the south line of said Section 28; THENCE, from said beginning point, over, under and across the lands of the grantors S 69° 39' 36" W, parallel said section line, a distance of 234.04 feet, more or less, to the easterly boundary of County Road No. 492. The above described centerline is shown-colored red on print of drawing numbered ES 4090 and for purposes of description is attached hereto and made a part hereof.

TO HAVE AND TO HOLD the above described easement and right of way unto the Grantee, its successors and assigns, together with the present and future right to top, limb or fall all growing and dead trees and snags (said trees and snags hereinafter collectively called "danger trees") located on land owned by the Grantors, adjacent to the above described right of way, which danger trees will be determined by the Grantee. The consideration paid for this easement includes the value of all trees on the right of way and all danger trees adjacent to said right of way. The Grantee shall pay the person who is the owner of future danger trees at the date of their cutting (in addition to the purchase price herein agreed to) the market value of said future danger trees at the date of their cutting under authority of the Grantee, such payment to be made within a reasonable period of time after they have been so cut.

Said easement and right of way shall be for the following purposes, namely: the perpetual right to enter upon and to erect, maintain, repair, rebuild, operate and patrol electric power transmission lines, structures and appurtenant signal lines, including the right to erect such poles, towers, transmission structures, wires, cables, guys, supports and appurtenances as are necessary thereon, together with the present and future right to clear said right of way and keep the same clear of brush, timber, structures and fire hazards, provided that fire hazards shall not be interpreted to include any growing crops other than trees.

It is hereby agreed by the Grantors that, (1) title to all brush, timber, or structures existing upon the right of way and to all present danger trees shall vest immediately in the Grantee; (2) all future danger trees cut pursuant to the terms hereof shall remain the property of the owner thereof on the date of their cutting.

The Grantors hereby acknowledge that the purchase price named herein is accepted by the Grantors as full compensation for all damages incidental to the exercise of any of said easements, loss of growing crops on right of way during construction, for guys and anchors extending beyond the right of way and danger trees rights, except payment for any additional danger trees as defined hereinabove which may be cut under authority of the Grantee as provided hereinabove.

If the Grantee, its successors and assigns, shall fail to use said right of way for the purposes above mentioned for a continuous period of five years after construction of said power lines, then and in that event this right of way and easement shall terminate and all rights and privileges granted hereunder shall revert to the Grantors, their heirs and assigns.

The Grantors hereby warrant that they are possessed of a marketable title to the property covered by this easement, and have the right to grant the same.

The Grantors, for themselves and their heirs and assigns, covenant to and with the Grantee, its successors and assigns, that the Grantee, its successors and assigns, shall peaceably enjoy the rights and privileges herein granted.

IN WITNESS WHEREOF, the Grantors have caused this easement to be executed this 3 day of

April, 1987

John Cereghino (SEAL)

Gladys Cereghino (SEAL)

(SEAL)

(SEAL)

BOOK 416 PAGE 167

7798-2

STATE OF OREGON
County of Washington

On this 3rd day of July, 1962, before me, the undersigned, a Notary Public in and for said County and State, personally appeared John Corrahine and Gladys Corrahine

to me known to be the individuals described in and who executed the same freely and voluntarily for the purposes and uses aforementioned.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my notarial seal this, the day and year in this instrument first written.

My commission expires: _____
Notary Public for Oregon

BOOK 416 PAGE 168

STATE OF OREGON
County of _____

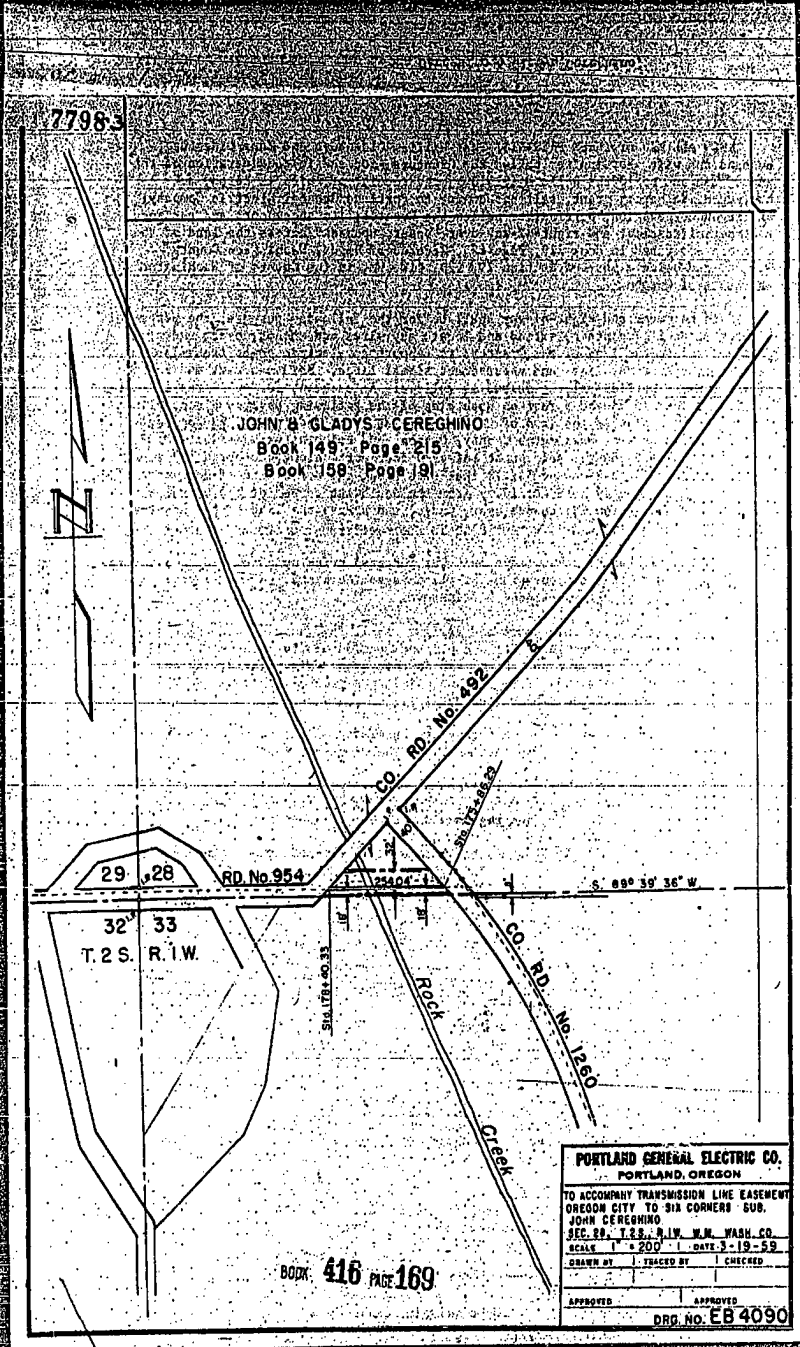
On this _____ day of _____, 19____, before me, the undersigned, a Notary Public in and for said County and State, personally appeared _____

to me known to be the individuals described in and who executed the same freely and voluntarily for the purposes and uses aforementioned.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my notarial seal this, the day and year in this instrument first written.

My commission expires: _____
Notary Public for Oregon

Faint, illegible text, possibly bleed-through from the reverse side of the page.



KNOW ALL MEN BY THESE PRESENTS, That JOHN and GLADYS CERECHINO
(husband and wife)

of Washington County, Oregon,

in consideration of One and no/100 (\$1.00) Dollars, and other good and valuable considerations, the receipt of which is hereby acknowledged, hereby grant unto PORTLAND GENERAL ELECTRIC COMPANY, a corporation of Oregon, its successors and assigns, an easement and/or right-of-way, situated in Washington County, Oregon, of such width not to exceed 10 feet as may be reasonably necessary to accomplish the purposes of this easement at such location as may be determined by the Grantee, over, under and across the following described real property:

Across the lands of the grantors in Section 28, Township 2 South, Range 1 West, W.M. as described in Volume 158, Page 191 of the Washington County Deed Records.

It is understood and agreed that this easement may be used by the Grantee to serve the Grantor, his heirs, successors and assigns, and any other customers of the Grantee owning, occupying or possessing property in the vicinity of the real property herein described.

TO HAVE AND TO HOLD the above described easement and right-of-way unto the said Grantee, its successors and assigns, together with the right of ingress and egress to and from the above described right-of-way, over and across the adjacent land of the Grantor, for the purpose of the erection, maintenance and operation therein, thereon and thereover, of electrical lines, telephone lines, together with such poles, wires, guys, and facilities as may be reasonably connected therewith or appurtenant thereto; provided, that the Grantee shall have the right to cut and/or trim and keep cut and/or trimmed any tree growth upon or adjacent to said right-of-way which may interfere with or menace the construction or operation of said lines; provided, also, that the Grantor, his heirs and assigns, shall always have the right to reasonably use and enjoy said above described right-of-way for all purposes which may not interfere or be inconsistent with the use by the Grantee for the purposes above mentioned; and, provided also, that if the Grantee, its successors and assigns, shall fail to use said right-of-way for the purposes above mentioned, for a continuous period of one year after construction of said pole line, then and in that event this right-of-way and easement shall terminate and all rights and privileges granted hereunder shall revert to the Grantor, his heirs and assigns.

The Grantor, for themselves and their heirs and assigns, covenant to and with the Grantee, its successors and assigns, that the Grantee, its successors and assigns, shall peacefully enjoy the rights and privileges herein granted.

IN WITNESS WHEREOF, the Grantor has caused this easement to be executed this 18th day of September, 1953.

Witnesses:

John Cerechino (SEAL)
Gladys Cerechino (SEAL)
(SEAL)
(SEAL)
(SEAL)

Approved: _____
General The Manager or Supv. of Distribution

Approved as to description: _____

Notary: _____

Approved: _____

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STATE OF OREGON,

County of Washington

On this 18th day of September, 1953, before me, the undersigned, a Notary Public

in and for said County and State, personally appeared JOHN and GLADYS CEREGHINO

(husband and wife)

to me known to be the individuals described in and who executed the foregoing conveyance and acknowledged to me that they executed the same freely and voluntarily for the purposes and uses aforementioned.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my notarial seal this, the day and year in this instrument first written.

James T. Palmer, Notary Public for Oregon.

My commission expires

Sept. 20, 1953

STATE OF OREGON,

County of

On this day of 19 before me, the undersigned, a Notary Public

In and for said County and State, personally appeared

Filed for record, 10:10 A.M. B. N. TORRES, CLERK

Washington County, Oregon

2008-025922

03/24/2008 02:58:44 PM

D-DW

Cnt=1 Stn=9 C TOMPKINS

\$15.00 \$5.00 \$11.00 - Total = \$31.00



01230984200800259220030034

I, Richard Hobermicht, Director of Assessment and Taxation and Ex-Officio County Clerk for Washington County, Oregon, do hereby certify that the within instrument of writing was received and recorded in the book of records of said county.

A handwritten signature in black ink, appearing to read "Richard Hobermicht".

Richard Hobermicht, Director of Assessment and Taxation, Ex-Officio County Clerk



NA

WARRANTY DEED



KNOW ALL MEN BY THESE PRESENTS, That

ALLEN J. CHRISTOPHER AND SHIRLEY M. CHRISTOPHER, husband and wife

hereinafter called the grantor, for the consideration hereinafter stated, to grantor paid by

BRUCE D. POLLEY AND KAREN M. POLLEY, husband and wife

hereinafter called the grantee, does hereby grant, bargain, sell and convey unto the grantee and grantee's heirs, successors and assigns, that certain real property, with the tenements, hereditaments and appurtenances thereunto belonging or in any way appertaining, situated in WASHINGTON County, State of Oregon, described as follows, to-wit:

SEE ATTACHED EXHIBIT "A"

(IF SPACE INSUFFICIENT, CONTINUE DESCRIPTION ON REVERSE SIDE)

To Have and to Hold the same unto the grantee and grantee's heirs, successors and assigns forever.

And grantor hereby covenants to and with grantee and grantee's heirs, successors and assigns, that grantor is lawfully seized in fee simple of the above granted premises, free from all encumbrances

and that grantor will warrant and forever defend the premises and every part and parcel thereof against the lawful claims and demands of all persons whomsoever, except those claiming under the above described encumbrances.

The true and actual consideration paid for this transfer, stated in terms of dollars, is \$ 225,000.00

However, the actual consideration consists of or includes other property or value given or promised which is the whole consideration (indicate which). (The sentence between the symbols, if not applicable, should be deleted. See ORS 93.030.)

In construing this deed, where the context so requires, the singular includes the plural and all grammatical changes shall be made so that this deed shall apply equally to corporations and to individuals.

In Witness Whereof, the grantor has executed this instrument this 2nd day of February, 1996; if a corporate grantor, it has caused its name to be signed and its seal, if any, affixed by an officer or other person duly authorized to do so by order of its board of directors.

THIS INSTRUMENT WILL NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY APPROVED USES AND TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES AS DEFINED IN ORS 30.930.

Allen J. Christopher

Shirley M. Christopher

STATE OF OREGON, County of Grant ss.

This instrument was acknowledged before me on February 2, 1996, by Allen J. Christopher and Shirley M. Christopher

This instrument was acknowledged before me on , 19 ,

by

as

of

Ad Coe Miller

Notary Public for Oregon

My commission expires 11-20-99

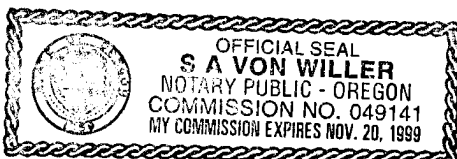


EXHIBIT 'A'**LEGAL DESCRIPTION**

The Southwest one-quarter of the Southwest one-quarter of Section 28, Township 2 South, Range 1 West of the Willamette Meridian, in the County of Washington and State of Oregon.

EXCEPTING THEREFROM that tract conveyed to John Campbell by deed recorded in Book 56, Page 232, Washington County, Oregon, which tract is described as follows:

Part of the Southwest one-quarter of Section 28, Township 2 South, Range 1 West of the Willamette Meridian, in the County of Washington and State of Oregon. Beginning at the Southwest corner of said Section 28, and thence North on the West section line 16.41 chains to the center of the ditch; thence up said ditch South 21° 1/2" East 7.92 chains and South 26° East 10.01 chains to the South line of said Section 28; thence West on said line 7.32 chains to the point of beginning.

ALSO EXCEPTING THEREFROM part of the Southwest one-quarter of the Southwest one-quarter of Section 28, Township 2 South, Range 1 West of the Willamette Meridian, in the County of Washington and State of Oregon, described as follows:

Beginning at the Northwest corner of the Southwest one-quarter of the Southwest one-quarter of said Section 28; thence South 0° 08' 14" East along the West line of said Section 28, 241.02 feet to the most Northerly point of that Parcel deeded by P.P. Bailey and wife to John Campbell, recorded by deed dated March 9, 1901, recorded March 26, 1901, in Book 56, Page 232, of Washington County Deed Records, said point also being in the center of a ditch described in said Bailey deed; thence South 21° 43' 30" East following said ditch centerline 523.00 feet (522.72 deed); thence continuing along said ditch centerline South 26° 13' 30" East 530.95 feet to the Northerly right of way line of County Road No. 492; thence North 45° 19' East along said County Road right of way line 664.92 feet; thence continuing along said County Road right of way line North 38° 09' 44" East 723.79 feet to the East line of the Southwest one-quarter of the Southwest one-quarter of said Section 28; thence North 0° 08' 44" West along said East line of the Southwest one-quarter of the Southwest one-quarter of Section 28, 218.67 feet to a stone and the Northeast corner thereof; thence South 89° 52' 44" West along the North line of the Southwest one-quarter of the Southwest one-quarter of said Section 28, 1309.43 feet to the point of beginning.

AND FURTHER EXCEPTING a part of the Southwest one-quarter of Section 28, Township 2 South, Range 1 West of the Willamette Meridian, in the County of Washington and State of Oregon, described as follows:

Beginning at a stone at the Northwest corner of the Southeast one-quarter of the Southwest one-quarter of said Section 28; thence South 0° 08' 44" East along the West line of the Southeast one-quarter of the Southwest one-quarter of said Section 28, 218.67 feet to the Northerly right of way line of County Road No. 492; thence North 38° 09' 44" East along said County Road right of way 281.47 feet to the North line of the Southeast one-quarter of the Southwest one-quarter of said Section 28; thence South 89° 08' 16" West along the North line of the Southeast one-quarter of said Section 28, 174.49 feet to the point of beginning.

Exhibit G: Traffic Impact Analysis



Oregon Street Business Park

Transportation Impact Analysis

Sherwood, Oregon



RENEWS: 6/30/2024

Date:
May 23, 2022

Prepared for:
Oregon Street Business Park, LLC

Copy:
Mimi Doukas, AKS Engineering & Forestry

Prepared by:
Nick Mesler, EIT
Daniel Stumpf, PE

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Executive Summary

1. The Oregon Street Business Park site is located at 21720 SW Oregon Street in what is recently incorporated land in Sherwood, Oregon. The development site is part of the larger Area 48-Tonquin Employment Area (TEA) which is planned to be fully annexed into the City of Sherwood with the buildout of the planning area. The site is currently zoned as Employment Industrial (EI) by the City of Sherwood.
2. The proposed development includes approximately 115,170 square feet of “flex” industrial space on a gross 9.23-acre site. Access to the site will be provided via a planned public roadway (SW Laurel Wood Way) along SW Oregon Street, near the east edge of the site.
3. The proposed development is projected to generate 81 morning peak hour trips, 73 evening peak hour trips, and 572 average weekday trips.
4. No significant trends or crash patterns were identified at any of the study intersections that were indicative of safety concerns. No additional safety mitigation is recommended per the crash data analysis.
5. The preliminary traffic signal analysis determined that signal warrants are not projected to be met at any of the applicable study intersections under year 2023 Buildout Conditions, with the exception of the following intersection:

- SW Oregon Street & SW Tonquin Road

This intersection is identified in the City of Sherwood *Capital Improvement Plan (2020-2025)* (CIP) as Project ID #D3, which intends to reconstruct this intersection to a dumbbell roundabout with the SW Oregon Street/SW Murdock Road intersection. Thus, the roundabout is the preferred alternative to a signal.

6. Left-turn lane warrants are not projected to be met at any of the applicable study intersections upon completion and occupancy of the proposed development during the AM or PM Peak Hour.
7. All study intersections are currently operating acceptably per City of Sherwood and Washington County standards and are projected to continue operating acceptably in Background Year 2023, both with and without the addition of project traffic, with the following exceptions:
 - SW Oregon Street & SW Tonquin Road – v/c ratio exceeds 0.99 during PM peak hour
 - SW Murdock Road & SW Sunset Boulevard – v/c ratio exceeds 0.85 during PM peak hour
8. It is recommended that the project applicant dedicate the necessary right-of-way as mitigation to the applicable CIP project at the intersection of SW Oregon Street & SW Tonquin Road. This intersection is identified in the City of Sherwood *Capital Improvement Plan (2020-2025)* (CIP) as Project ID #D3, which intends to reconstruct this intersection to a dumbbell roundabout with the SW Oregon Street/SW Murdock Road intersection.

9. It is recommended that the project applicant make a proportionate fair-share contribution to the applicable CIP project at the intersection of SW Murdock Road & SW Sunset Boulevard. This intersection is identified in the City of Sherwood *Capital Improvement Plan (2020-2025)* (CIP) as Project ID #D33, which intends to construct a southbound right-turn lane and a northbound left-turn lane. A proportionate share fee to mitigate site trip impacts is calculated at \$45,833.33.



Project Description

Introduction

This report describes and evaluates the transportation impacts associated with the proposed development of the Oregon Street Business Park property located at 21720 SW Oregon Street in what is recently incorporated land in Sherwood, Oregon. The development site is part of the larger Area 48-Tonquin Employment Area (TEA) which is planned to be fully annexed into the City of Sherwood with the buildout of the planning area. The site is currently zoned as Employment Industrial (EI) by the City of Sherwood.

The proposed development includes approximately 115,170 square feet of “flex” industrial space on a gross 9.23-acre site. Access to the site will be provided via a planned public roadway (SW Laurel Wood Way) along SW Oregon Street, near the east edge of the site.

Based on correspondence with the City of Sherwood, a safety and capacity/level of service analysis was conducted at the following intersections:

1. SW Oregon Street & SW Tualatin-Sherwood Road
2. SW Oregon Street & SW Tonquin Road
3. SW Oregon Street & SW Murdock Road
4. SW Murdock Road & SW Sunset Boulevard
5. SW Oregon Street & Site Access (SW Laurel Wood Way)

The purpose of this study is to determine whether the transportation system within the vicinity of the site is capable of safely and efficiently supporting the existing and proposed uses and to determine any mitigation that may be necessary to do so. Detailed information on traffic counts, trip generation calculations, safety analyses, and level of service calculations is included in the appendix to this report.

Location Description

The subject site is located at 21720 SW Oregon Street and is surrounded by undeveloped land and industrial land uses. The site is located south of SW Oregon Street and east of SW Tonquin Road, and also includes a small 0.2-acre piece of land west of SW Tonquin Road. There are existing industrial/storage buildings on the property which will be removed upon redevelopment.



Vicinity Roadways

The proposed development is expected to impact six (6) vicinity roadways. Table 1 provides a description of each vicinity roadway.

Table 1: Vicinity Roadway Descriptions

Street Name	Jurisdiction	Functional Classification	Speed (MPH)	Curbs & Sidewalks	On-Street Parking	Bicycle Facilities
SW Tualatin-Sherwood Road	Washington County	Arterial	45 mph	Both Sides	Prohibited	Class II Bike Lanes
SW Oregon Street	Washington County	Arterial	25/35 mph	Partial Both Sides	Prohibited	Class II Bike Lanes
SW Tonquin Road	Washington County	Arterial	55 mph	None	Prohibited	None
SW Murdock Road	City of Sherwood	Arterial	35 mph	Partial Both Side	Partially Permitted	None
SW Sunset Boulevard	City of Sherwood	Arterial	35 mph	Both Sides	Prohibited	None

Study Intersections

The proposed development is expected to impact five (5) vicinity intersections of significance. Table 2 below provides a summarized description of each study intersection.

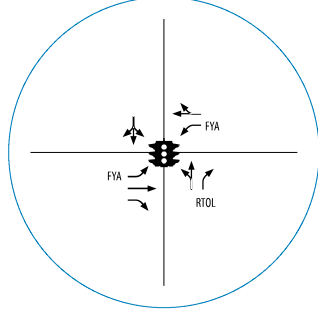
Table 2: Vicinity Intersection Descriptions

ID	Intersection	Approaches	Traffic Control	Phasing/Stopped Approaches
1	SW Oregon Street & SW Tualatin-Sherwood Road	Four	Signalized	Permissive NB/SB Left FYA EB/WB Left NB Right-Turn Overlap
2	SW Oregon Street & SW Tonquin Road	Three	Stop-Controlled	NB Approach Stop-Controlled
3	SW Oregon Street & SW Murdock Road	Three	Roundabout	Yield-Controlled Approaches
4	SW Murdock Road & SW Sunset Boulevard	Four	Stop-Controlled	All Approaches Stop-Controlled
5	SW Oregon Street & Site Access	Three	Stop-Controlled	NB Approach Stop-Controlled

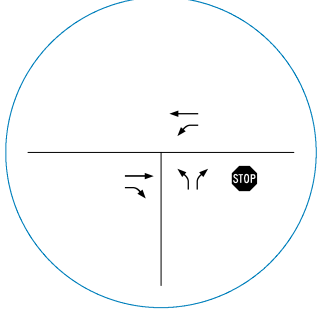
FYA = Flashing Yellow Arrow

A vicinity map displaying the project site, vicinity streets, and the study intersections with their associated lane configurations and control types is shown in Figure 1.

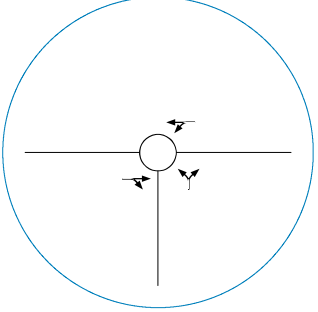
1 SW Oregon Street & SW Tualatin-Sherwood Road



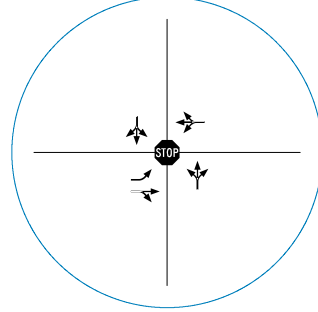
2 SW Oregon Street & SW Tonquin Road



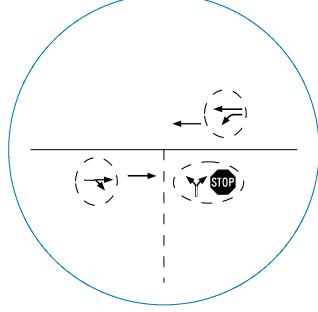
3 SW Oregon Street & SW Murdock Road



4 SW Sunset Boulevard & SW Murdock Road



5 SW Oregon Street & Site Access



Legend

- Study Intersection
- Lane Geometry
- Future Year Geometry
- Signalized Intersection
- Stop Sign
- Roundabout
- RTOL - Right-Turn Overlap
- FYA - Flashing Yellow Arrow



Legend

- Study Intersections
- Project Site
- City of Sherwood Roads
- Washington County Roads

Vicinity Map



NOT TO SCALE

Figure 1
Oregon Street Business Park
5/23/2022

Site Trips

Trip Generation

The proposed development includes the construction of 115,170 square feet of general light industrial space. No trip credit is being given to the existing industrial building on site.

To estimate the number of trips that are projected to be generated by the proposed development, trip rates from the *Trip Generation Manual*¹ were used. Specifically, data from land use code 110, General Light Industrial, was used to estimate the proposed development's trip generation based on the building square footage. This land use code is consistent with the character of the proposed development and the transportation modelling conducted for the Tonquin Employment Area Concept Plan: Preferred Concept Plan Report (October 2010).

The trip generation calculations show that the proposed development is projected to generate 81 new morning peak hour trips, 73 new evening peak hour trips, and 572 new average weekday trips. The trip generation estimates are summarized in Table 1. Detailed trip generation calculations are included as an attachment to this memorandum.

Note that a larger development size with subsequently higher trip generation was previously analyzed with a prior iteration of this Transportation Impact Analysis, dated June 1, 2021. Since the prior development size of the project was larger than the current development size, utilizing the past trip generation in place of the current trip generation analysis will provide a more conservative assessment of site trip impacts to the transportation system; however, the actual proposed development trip generation was utilized to evaluate the proportionate share fees calculated in the *Proportionate Share Mitigation Assessment* section.

Table 3: Trip Generation Summary

Land Use	ITE Code	Size	Morning Peak Hour			Evening Peak Hour			Weekday
			In	Out	Total	In	Out	Total	Total
<i>Proposed Development (Actual Trip Generation)</i>									
General Light Industrial	110	115,170 SF	71	10	81	9	64	73	572
<i>Prior Analysis Trip Generation</i>									
General Light Industrial	110	120,815 SF	75	10	85	10	66	76	600

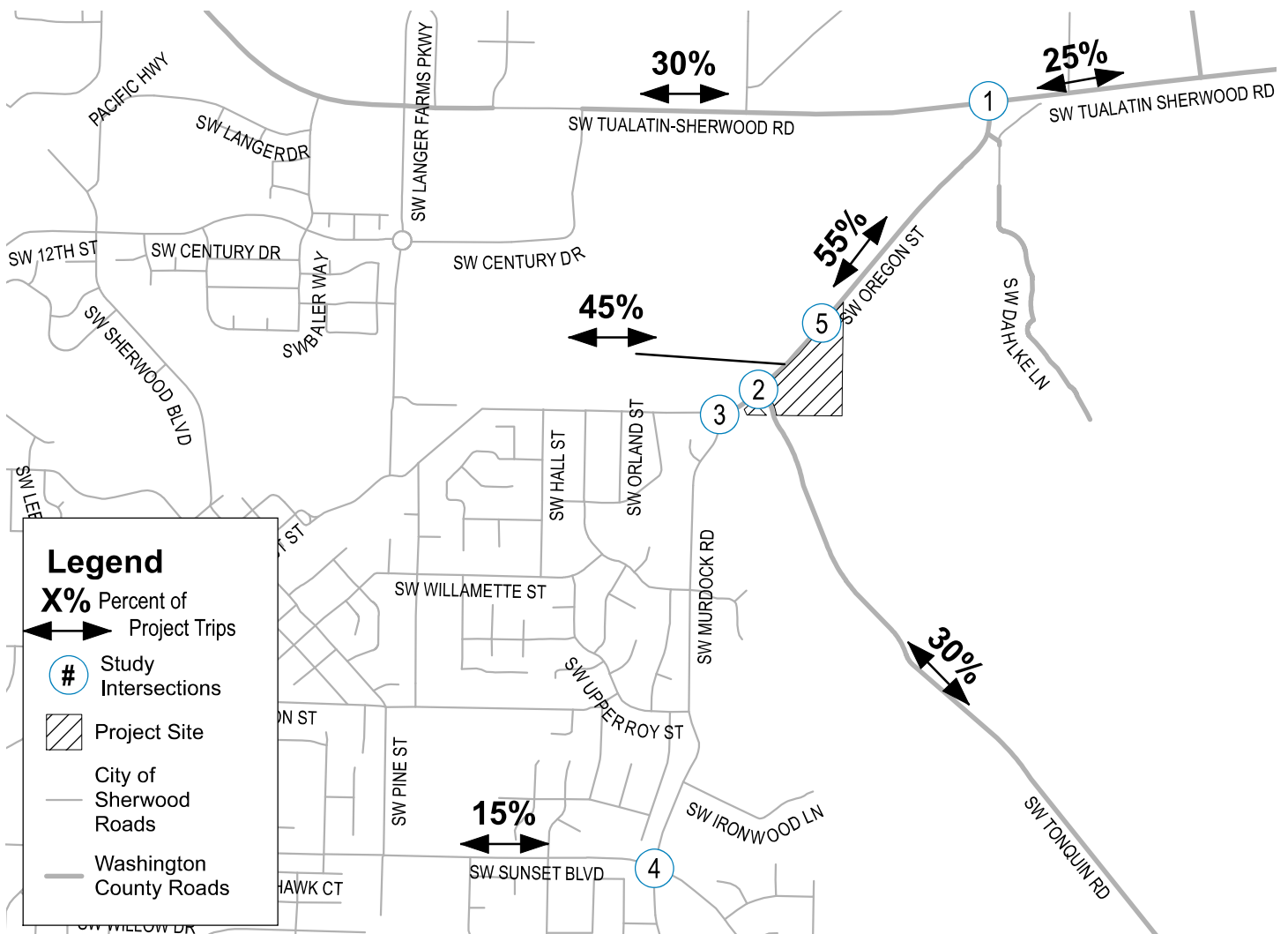
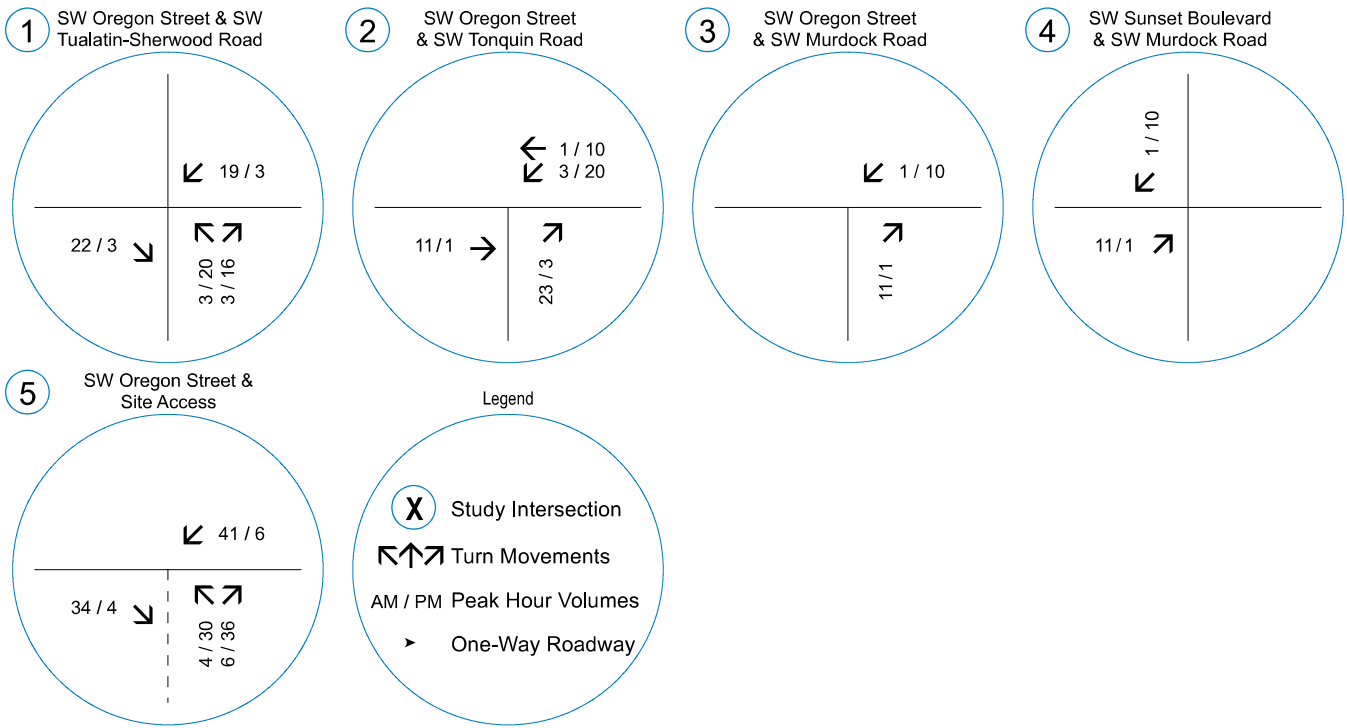
¹ Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 10th Edition, 2017.

Trip Distribution

The project trip distribution was developed based on the geographical location of the project, US residential/employment census data (<https://onthemap.ces.census.gov/>), and the existing roadway network facilities. The following trip distribution is projected:

- Approximately 30 percent of trips will travel to/from the west of the project site via SW Tualatin-Sherwood Road, west of SW Oregon Street;
- Approximately 30 percent of trips will travel to/from the south of the project site via SW Tonquin Road;
- Approximately 25 percent of trips will travel to/from the east of the project site via SW Tualatin-Sherwood Road, east of SW Oregon Street; and
- Approximately 15 percent of trips will travel to/from the west of the project site via SW Murdock Road and SW Sunset Boulevard.

The regional trip distribution and traffic assignment for site trips generated by the proposed development are shown in Figure 2.



Traffic Volumes
 Trip Distribution & Assignment
 AM & PM Peak Hour



Figure 2
 Oregon Street Business Park
 5/23/2022

Traffic Volumes

This section describes the study intersection peak hour traffic volumes under existing conditions (year 2021), the anticipated opening day year 2023 background volumes, and the opening day year 2023 buildout volumes.

Existing Conditions

Since this study is being conducted during the COVID-19 viral pandemic, which has become a public health concern throughout the State of Oregon, collection of current traffic counts is not feasible at this time. Due to the pandemic, traffic volumes have been significantly depressed statewide since March 2020. In order to reflect normal travel conditions, historical traffic count data conducted on Wednesday, February 13, 2019; Tuesday, August 18, 2020; and Wednesday, October 25, 2017 (SW Sunset Boulevard & SW Murdock Boulevard only) were obtained. Upon reviewing the traffic counts, the 2019 data was found to be higher than the 2020 COVID-era counts by as much as 91%. Therefore, the historical 2017 and 2019 traffic counts were utilized for analysis in lieu of the 2020 counts. All traffic counts were conducted from 7:00 to 9:00 AM and from 4:00 to 6:00 PM. Data was used from each intersections' respective morning and evening peak hour.

To adjust for year 2021 baseline conditions, a conservative, compounding annual growth rate of 2.00% was applied to each intersection movement. Thus, to reach the Year 2021 baseline volumes, a 4.04% adjustment was applied to the 2019 count data and a 8.24% adjustment was applied to the 2017 data. Figure 3 displays the baseline existing conditions traffic volumes for the study intersections during the morning and evening peak hour. The 2017 and 2019 count data is provided as an appendix to this report.

Background Conditions

To provide analysis of the impact of the proposed development on the nearby transportation facilities, an estimate of future traffic volumes is required. Consistent with the growth factors identified in the development of the Existing Conditions baseline volume, an annual compounding 2.00% growth rate was applied to the 2021 Existing Conditions baseline volumes for an assumed anticipated year 2023 project opening day.

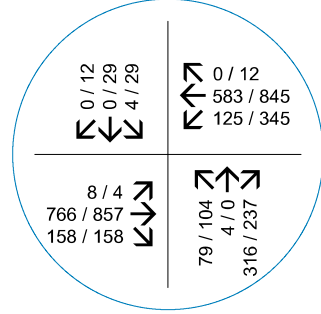
Figure 4 displays the projected year 2023 background volumes during the morning and evening peak hours.

Buildout Conditions

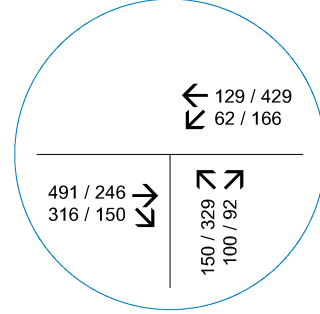
Peak hour trips calculated to be generated by the proposed development, as described earlier within the *Site Trips* section, were added to the projected year 2023 buildout traffic volumes to obtain the expected 2023 buildout year volumes.

Figure 5 displays the projected year 2023 peak hour background traffic volumes with the additional site trips projected to be generated by the proposed development.

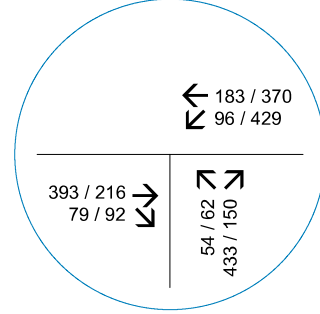
1 SW Oregon Street & SW Tualatin-Sherwood Road



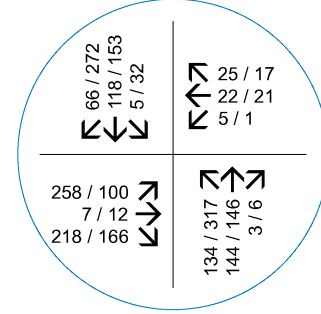
2 SW Oregon Street & SW Tonquin Road



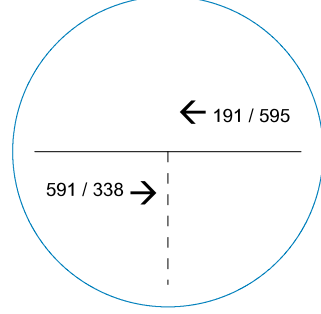
3 SW Oregon Street & SW Murdock Road



4 SW Sunset Boulevard & SW Murdock Road

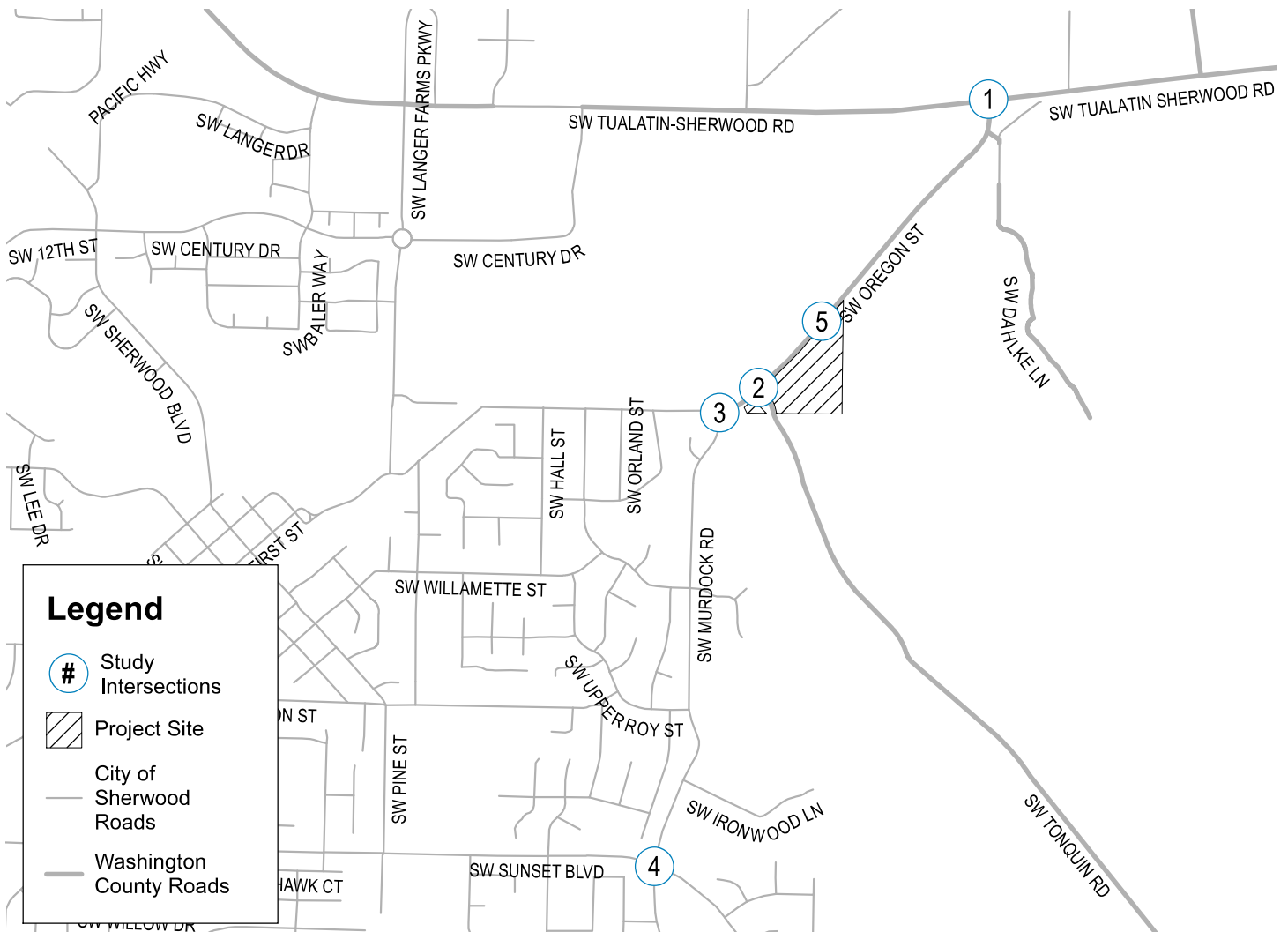


5 SW Oregon Street & Site Access



Legend

- Study Intersection
- Turn Movements
- AM / PM Peak Hour Volumes
- One-Way Roadway



Legend

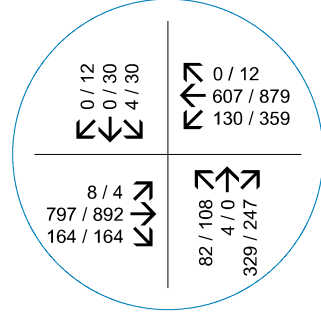
- Study Intersections
- Project Site
- City of Sherwood Roads
- Washington County Roads

Traffic Volumes
Existing Conditions
AM & PM Peak Hour

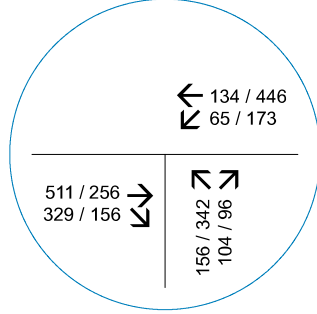


Figure 3
Oregon Street Business Park
5/23/2022

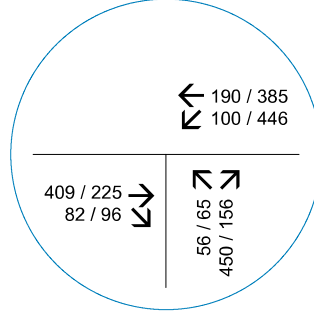
1 SW Oregon Street & Tualatin-Sherwood Road



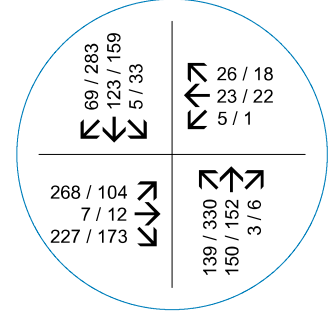
2 SW Oregon Street & SW Tonquin Road



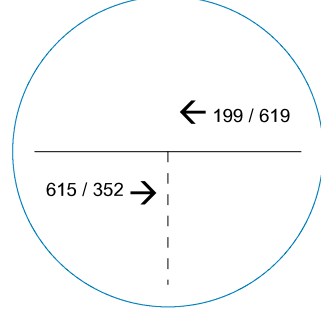
3 SW Oregon Street & SW Murdock Road



4 SW Sunset Boulevard & SW Murdock Road

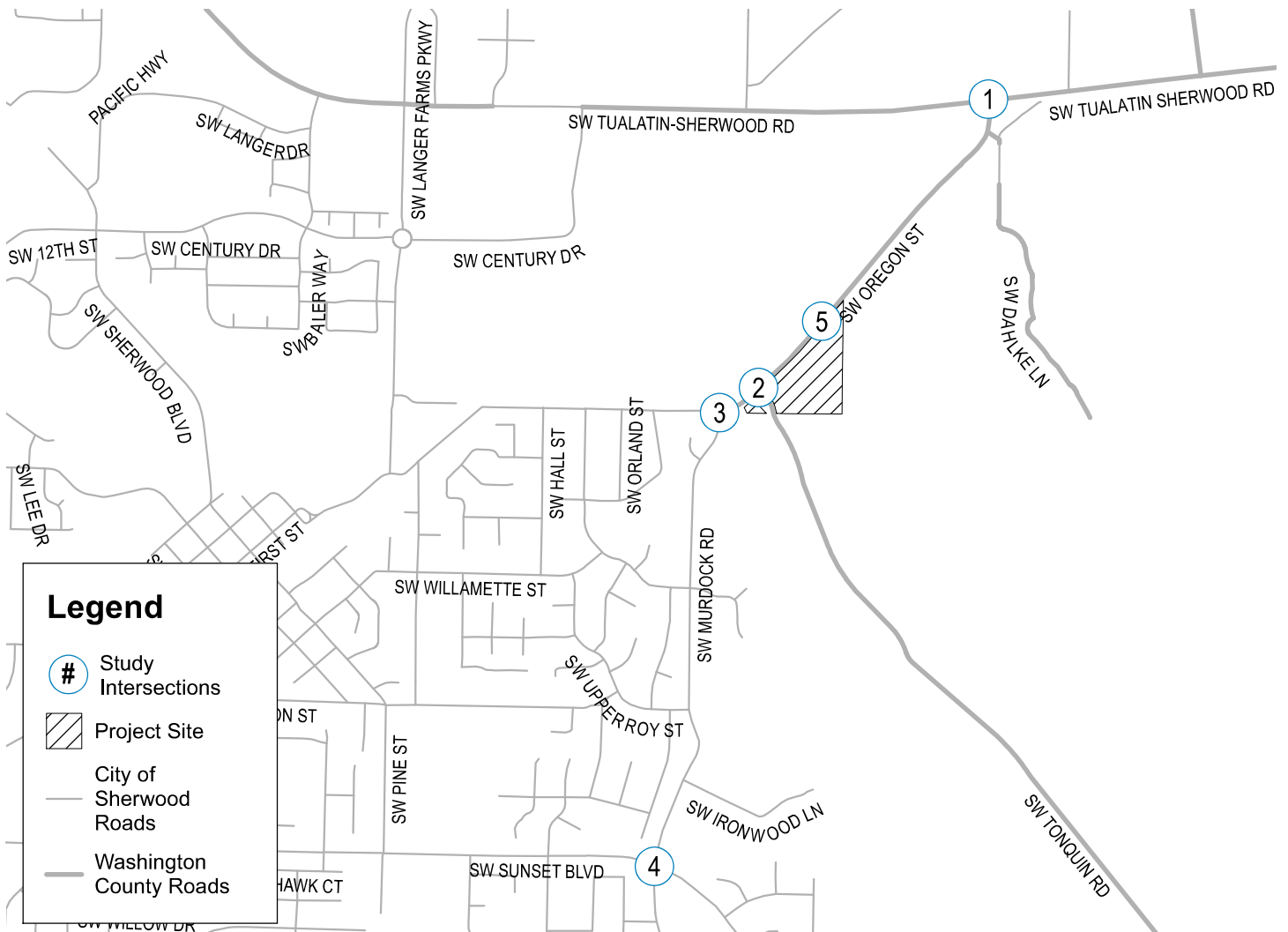


5 SW Oregon Street & Site Access



Legend

- Study Intersection
- Turn Movements
- AM / PM Peak Hour Volumes
- One-Way Roadway



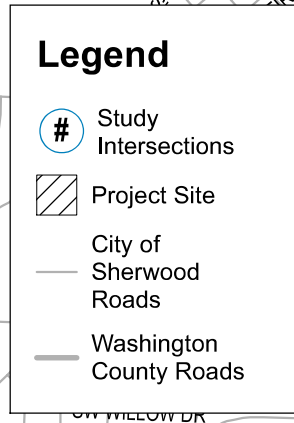
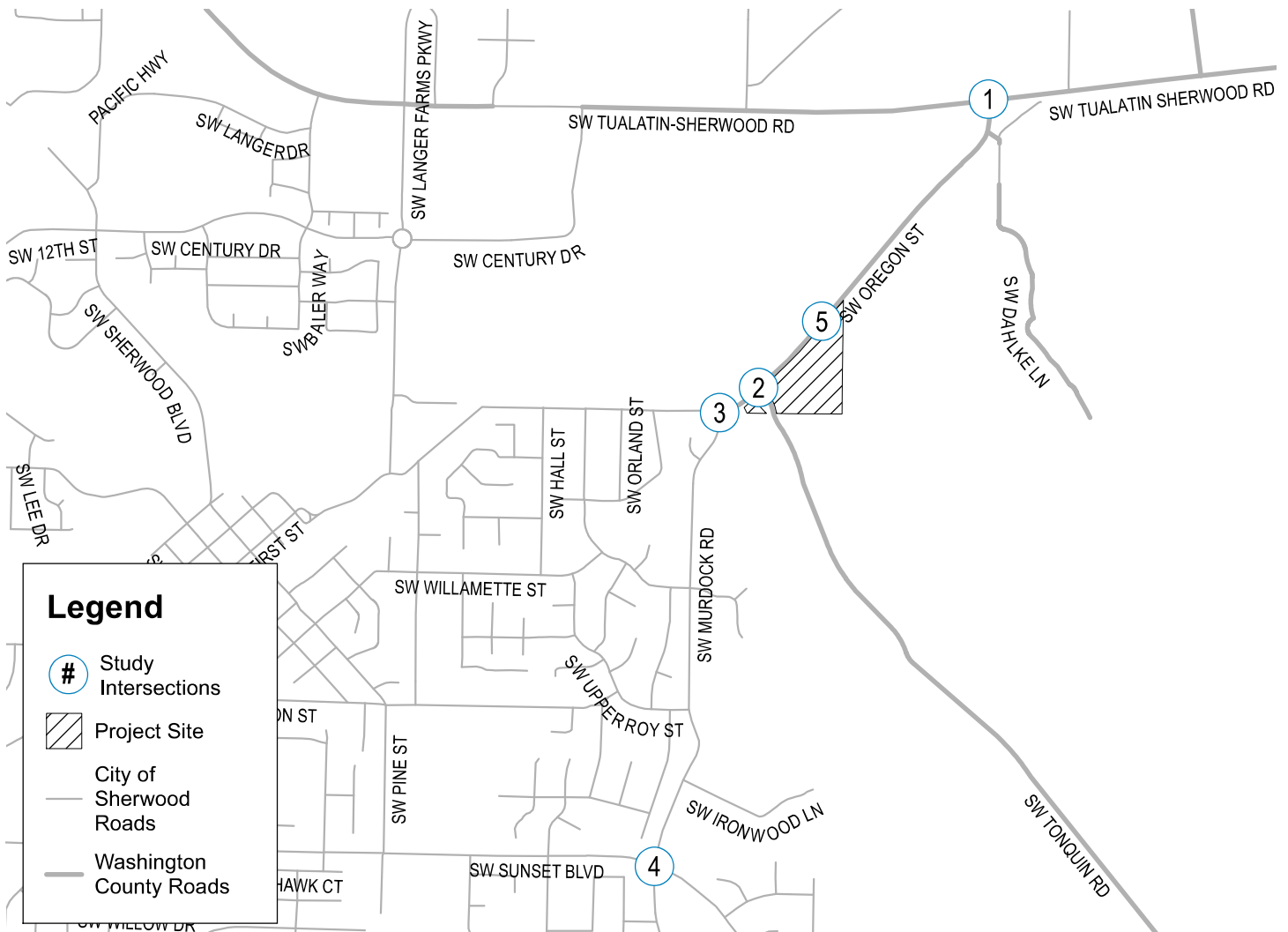
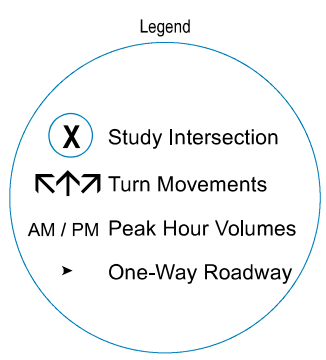
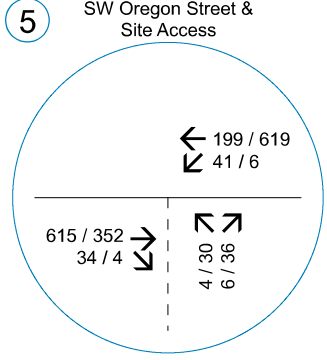
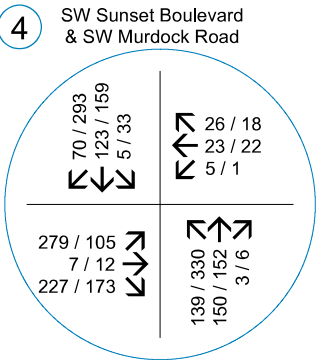
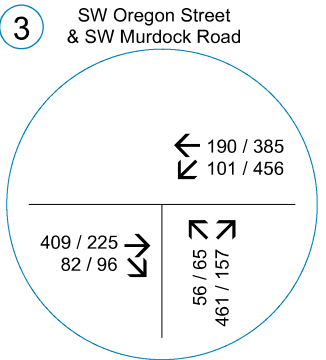
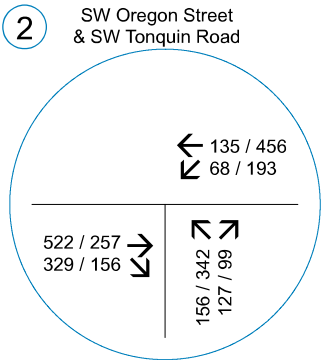
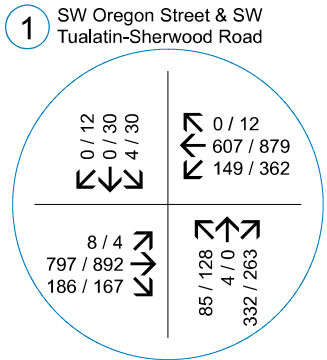
Legend

- Study Intersections
- Project Site
- City of Sherwood Roads
- Washington County Roads

Traffic Volumes
Year 2023 Background Conditions
AM & PM Peak Hour



Figure 4
Oregon Street Business Park
5/23/2022



Traffic Volumes
Year 2023 Buildout Conditions
AM & PM Peak Hour



Figure 5
Oregon Street Business Park
5/23/2022

Safety Analysis

Crash History Review

Using data obtained from ODOT’s Crash Analysis and Reporting Unit, a review was performed of the most recent five years of available crash data at the study intersections (January 2014 through December 2018). The crash data was evaluated based on the number of crashes, the type of collisions, the severity of the collisions, and the resulting crash rate for each intersection. Crash rates provide the ability to compare safety risks at different intersections by accounting for both the number of crashes that have occurred during the study period and the number of vehicles that typically travel through the intersection. Crash rates were calculated under the common assumption that traffic counted during the evening peak hour represents approximately ten percent of annual average daily traffic (AADT) at each intersection. Crash rates in excess of 1.00 crashes per million entering vehicles (CMEV) may be indicative of design deficiencies and therefore require a need for further investigation and possible mitigation.

With regard to crash severity, ODOT classifies crashes in the following categories:

1. Property Damage Only (*PDO*);
2. Possible Injury – Complaint of Pain (*Injury C*);
3. Non-Incapacitating Injury (*Injury B*);
4. Incapacitating Injury – Bleeding, Broken Bones (*Injury A*); and
5. Fatality or Fatal Injury.

Table 4 provides a summary of crash types while Table 5 summarizes crash severities and rates for each of the study intersections. Detailed crash reports are included in the technical appendix to this report.

Table 4: Crash Type Summary

Intersection	Crash Type						Total Crashes
	Rear End	Turning	Angle	Fixed Object	Head-On	Sideswipe	
1. SW Oregon Street & SW Tualatin-Sherwood Road	27	18	0	0	1	1	47
2. SW Oregon Street & SW Tonquin Road	2	5	0	0	0	0	7
3. SW Oregon Street & SW Murdock Road	1	0	1	1	0	0	3
4. SW Murdock Road & SW Sunset Boulevard	3	2	0	0	0	0	5



Table 5: Crash Severity and Rate Summary

Intersection	Crash Severity					Total Crashes	PHEV	Crash Rate
	PDO	C	B	A	Fatal			
1. SW Oregon Street & SW Tualatin-Sherwood Road	20	16	10	1	0	47	2,632	0.98
2. SW Oregon Street & SW Tonquin Road	5	2	0	0	0	7	1,412	0.27
3. SW Oregon Street & SW Murdock Road	1	2	0	0	0	3	1,319	0.12
4. SW Murdock Road & SW Sunset Boulevard	4	1	0	0	0	5	1,243	0.22

BOLDED text indicates crash rate exceeding a value of 1.00 CMEV.

At the intersection of SW Oregon Street & SW Tualatin-Sherwood Road, there was one reported crash that resulted in sustained injuries consistent with *Injury A* classification. The crash occurred when a westbound vehicle collided with another westbound vehicle, resulting in a rear-end collision. The striking vehicle’s driver was reportedly driving carelessly, driving a vehicle with inadequate or no brakes, and rear-ended the second vehicle stopped in traffic. The driver of the struck vehicle sustained injuries consistent with *Injury A* classification. The driver of the striking vehicle sustained injuries consistent with *Injury C* classification. The collision was reported to have occurred under favorable lighting and weather conditions.

Washington County SPIS List

The Washington County Safety Priority Index System (SPIS) List 2016 (2013-2015 Data) was reviewed and determined that the intersection of SW Oregon Street & SW Tualatin-Sherwood Road was ranked #62 of 326 intersections throughout Washington County. This intersection also was identified to have a crash rate exceeding 1.00 CMEV.

The SW Tualatin-Sherwood Road corridor is planned to be widened to five lanes from Langer Farms Parkway and Teton Avenue with traffic signal upgrades throughout. The corridor widening construction is set to begin in the summer of 2021 and expected to be completed in two to three years. It is anticipated that this Capital Improvement Project will reduce congestion and improve safety along the corridor and at this intersection.

Based on a review of the most recent five years of available crash data, no significant trends or crash patterns were identified at any of the study intersections that were indicative of safety concerns. Accordingly, no additional safety mitigation is recommended per the crash data analysis.



Warrant Analysis

Preliminary Traffic Signal Warrants

Preliminary traffic signal warrants were examined for all unsignalized study intersections. Methodologies were based on the Manual on Uniform Traffic Control Devices (MUTCD), published by the Federal Highway Administration in 2009. Warrant 1, Eight-Hour Vehicular Volumes, was evaluated based on the common assumption that traffic counted during the evening peak hour represents 10 percent of the average daily traffic (ADT) and that the 8th highest hour is 5.65 percent of the daily volume. Detailed analysis worksheets can be found in an appendix to this report.

The preliminary traffic signal analysis determined that signal warrants are not projected to be met at any of the applicable study intersections under year 2023 Buildout Conditions, with the exception of the following intersection:

- SW Oregon Street & SW Tonquin Road

This intersection is identified in the City of Sherwood *Capital Improvement Plan (2020-2025)* (CIP) as Project ID #D3, which intends to reconstruct this intersection to a dumbbell roundabout with the SW Oregon Street/SW Murdock Road intersection. Thus, the roundabout is the preferred alternative to a signal.

Left-Turn Lane Warrants

Left-turn lane warrants were examined for the site access intersection under year 2023 buildout conditions. A left-turn refuge is primarily a safety consideration for the major-street approach, removing left-turning vehicles from the through traffic stream.

Warrants for an eastbound left-turn lane at the site access intersection were based on the methodology outlined in the National Cooperative Highway Research Program (NCHRP) Report Number 457². This methodology evaluates the need for a left-turn lane based on the number of left-turning vehicles, the number of travel lanes, the number of advancing and opposing vehicles, and the roadway travel speed. Detailed warrant analyses for each study intersection are included in the technical appendix to this report.

Left-turn lane warrants are not projected to be met upon completion and occupancy of the proposed development during the AM or PM Peak Hour at the site access intersection with SW Oregon Street.

² Bonneson, James A. and Michael D. Fontaine, *NCHRP Report 457: An Engineering Study Guide for Evaluating Intersection Improvements*, Transportation Research Board, 2001.

Operational Analysis

Capacity and delay analyses were conducted for each of the study intersections per the signalized and unsignalized intersection analysis methodologies in the *Highway Capacity Manual*³ (HCM). Calculations for the intersections are performed using Synchro 10.3.122.0 software. Intersections are generally evaluated based on the average control delay experienced by vehicles and are assigned a grade according to their operation. The level of service (LOS) of an intersection can range from LOS A, which indicates very little or no delay experienced by vehicles, to LOS F, which indicates a high degree of congestion and delay. The volume-to-capacity (v/c) ratio is a measure that compares the traffic volumes (demand) against the available capacity of an intersection.

Performance Standards

The operating standards adopted by Washington County and the City of Sherwood are summarized below.

Washington County

SW Tualatin-Sherwood Road, SW Oregon Street, and SW Tonquin Road are under the jurisdiction of Washington County. The County has defined operating standards for signalized and stop controlled intersections as follows:

- For signalized intersections, the maximum intersection v/c ratio shall be no greater than 0.99.
- For unsignalized intersections, no movement shall experience a v/c ratio greater than 0.99.

City of Sherwood

According to the City of Sherwood's Transportation System Plan (TSP), signalized, all-way stop-control, and roundabout intersections under City jurisdiction must operate at LOS D or better with a v/c ratio of 0.85 or less. Two-way stop-controlled intersections are required to operate at LOS E or better with a v/c ratio of 0.90 or less⁴.

³ Transportation Research Board, *Highway Capacity Manual*, 6th Edition, 2016.

⁴ City of Sherwood, *Sherwood Transportation System Plan*. Adopted June 17th, 2014.

Delay & Capacity Analysis

The v/c, delay, and LOS results of the capacity analysis are shown in

Table 6 below for the morning and evening peak hours. Detailed calculations as well as tables showing the relationship between delay and LOS are included in the appendix to this report.

Table 6: Intersection Capacity Analysis Summary

Intersection	Scenario	AM Peak Hour			PM Peak Hour		
		V/C	LOS	Delay (s)	V/C	LOS	Delay (s)
1. SW Oregon Street & SW Tualatin-Sherwood Road	Existing Conditions	0.73	B	17.3	0.86	C	27.7
	2023 Background Conditions	0.76	B	19.4	0.92	D	36.2
	2023 Buildout Conditions	0.76	B	19.8	0.95	D	39.0
2. SW Oregon Street & SW Tonquin Road	Existing Conditions	0.52	D	28.1	1.75	F	398.5
	2023 Background Conditions	0.56	D	31.4	1.96	F	490.2
	2023 Buildout Conditions	0.58	D	33.4	2.16	F	584.9
3. SW Oregon Street & SW Murdock Road	Existing Conditions	0.61	A	9.2	0.65	A	9.6
	2023 Background Conditions	0.65	A	9.9	0.68	B	10.3
	2023 Buildout Conditions	0.66	B	10.1	0.69	B	10.5
4. SW Murdock Road & SW Sunset Boulevard	Existing Conditions	0.53	C	16.8	0.89	E	40.0
	2023 Background Conditions	0.56	C	17.8	0.94	F	50.7
	2023 Buildout Conditions	0.58	C	18.6	0.94	F	51.7
5. SW Oregon Street & Site Access (SW Laurel Wood Way)	Existing Conditions	Does Not Exist					
	2023 Background Conditions	Does Not Exist					
	2023 Buildout Conditions	0.05	B	14.5	0.19	C	16.8

BOLDED text indicates intersection operation above jurisdictional standards.

Based on the results of the operational and capacity analysis, all study intersections are currently operating acceptably per City of Sherwood and Washington County standards and are projected to continue operating acceptably in Background Year 2023, both with and without the addition of project traffic, with the following exceptions:

- 2. SW Oregon Street & SW Tonquin Road – v/c ratio exceeds 0.99 during PM Peak Hour
- 4. SW Murdock Road & SW Sunset Boulevard – v/c ratio exceeds 0.85 during PM Peak Hour

Intersection Mitigation Analysis

As noted in the previous section, and consistent with the findings and recommendation of the City of Sherwood TSP, there are two study area intersections that have existing operational deficiencies that are anticipated to continue in the year 2023 buildout year, with and without the addition of project traffic.

- The intersection of SW Oregon Street & SW Tonquin Road is identified in the City of Sherwood *Capital Improvement Plan (2020-2025)* (CIP) as Project ID #D3, which intends to reconstruct this intersection to a dumbbell roundabout with the SW Oregon Street/SW Murdock Road intersection.
- The intersection of SW Murdock Road & SW Sunset Boulevard is identified in the City of Sherwood *Capital Improvement Plan (2020-2025)* (CIP) as Project ID #D33, which intends to construct a southbound right-turn lane and a northbound left-turn lane.

These improvements will reduce the intersection v/c ratio and level of service to within acceptable standards. Table 7 summarizes the v/c ratio, level of service, and delay for the background, buildout, and mitigated conditions:

Table 7: Intersection Mitigation Analysis

Intersection	Scenario	PM Peak Hour		
		V/C	LOS	Delay (s)
2. SW Oregon Street & SW Tonquin Road	2023 Background Conditions	1.96	F	490.2
	2023 Buildout Conditions	2.20	F	602.7
	2023 Mitigated Conditions	0.78	B	13.8
4. SW Murdock Road & SW Sunset Boulevard	2023 Background Conditions	0.94	E	35.8
	2023 Buildout Conditions	0.95	E	37.6
	2023 Mitigated Conditions	0.73	D	27.3

BOLDED text indicates intersection operation above jurisdictional standards.

The identified CIP projects will improve intersection operations to meet the City of Sherwood and Washington County jurisdictional standards.

It is recommended that the project applicant dedicate the necessary right-of-way as mitigation to the applicable CIP project at the intersection of SW Oregon Street & SW Tonquin Road. This intersection is identified in the City of Sherwood *Capital Improvement Plan (2020-2025)* (CIP) as Project ID #D3, which intends to reconstruct this intersection to a dumbbell roundabout with the SW Oregon Street/SW Murdock Road intersection.

It is recommended that the project applicant make a proportionate fair-share contribution to the applicable CIP project at the intersection of SW Murdock Road & SW Sunset Boulevard. This intersection is identified in the City of Sherwood *Capital Improvement Plan (2020-2025)* (CIP) as Project ID #D33, which intends to construct a southbound right-turn lane and a northbound left-turn lane.

No additional operational mitigation is necessary or recommended at these intersections.



Proportionate Share Mitigation Assessment

Consistent with *The Reserve TIA* (conducted by Kittleson & Associates September 19, 2019) and the *Cedar Creek Subdivision TIA* (conducted by Lancaster Mobley April 8, 2020), proportionate share fees were evaluated at intersections determined as failing, using methodologies similar to those presented in Table 6 and Table 7 of the referenced TIAs, respectively. Table 8 below provides the methodology used to calculate proportionate share fees based on the proposed development's trip generation impacts.

Table 8: Proportional Share Methodology Summary

Intersection	SW Sunset Boulevard at SW Murdock Road/SW Baker Road
Mitigation Project Summary	Construct NB Left Turn Lane & SB Right Turn Lane
City TSP Project ID	D33
Peak Hour	Weekday PM
Scenario when Mitigation is Triggered	No Build (2024)
Existing Total Entering Volume, TEV (X)	1,208
2024 No Build (Background with RIRO, Y)	1,377
Project Trips (PT)	11
Background Growth (Z=Y-X)	169
Proportional Share (% , $PT/(PT+Z)$)	6.11%
Mitigation Cost Estimate (\$)	\$750,000
Cost Estimate Reference	TSP (Ref 5)
Proportional Share Cost	\$45,833.33

Based on the proportionate share fee calculations, a proportionate share fee to mitigate site trip impacts to the above intersection is \$45,833.33.

The intersection of SW Oregon Street & SW Tonquin Road is identified in the City of Sherwood *Capital Improvement Plan (2020-2025)* (CIP) as Project ID #D3, which intends to reconstruct this intersection to a dumbbell roundabout with the SW Oregon Street/SW Murdock Road intersection. This capital improvement project will be funded by the Washington County Transportation Development Tax (TDT) and City of Sherwood System Development Charges (SDC). It is recommended that the project applicant dedicate the necessary right-of-way as appropriate mitigation.

Conclusions

No significant trends or crash patterns were identified at any of the study intersections that were indicative of safety concerns. No additional safety mitigation is recommended per the crash data analysis.

The preliminary traffic signal analysis determined that signal warrants are not projected to be met at any of the applicable study intersections under year 2023 Buildout Conditions, with the exception of the following intersection:

- SW Oregon Street & SW Tonquin Road

This intersection is identified in the City of Sherwood *Capital Improvement Plan (2020-2025)* (CIP) as Project ID #D3, which intends to reconstruct this intersection to a dumbbell roundabout with the SW Oregon Street/SW Murdock Road intersection. Thus, the roundabout is the preferred alternative to a signal.

Left-turn lane warrants are not projected to be met upon at any of the applicable study intersections following completion and occupancy of the proposed development during the AM or PM Peak Hour.

All study intersections are currently operating acceptably per City of Sherwood and Washington County standards and are projected to continue operating acceptably in Background Year 2023, both with and without the addition of project traffic, with the following exceptions:

- SW Oregon Street & SW Tonquin Road – v/c ratio exceeds 0.99 during PM Peak Hour
- SW Murdock Road & SW Sunset Boulevard – v/c ratio exceeds 0.85 during PM Peak Hour

It is recommended that the project applicant dedicate the necessary right-of-way as mitigation to the applicable CIP project at the intersection of SW Oregon Street & SW Tonquin Road. This intersection is identified in the City of Sherwood *Capital Improvement Plan (2020-2025)* (CIP) as Project ID #D3, which intends to reconstruct this intersection to a dumbbell roundabout with the SW Oregon Street/SW Murdock Road intersection.

It is recommended that the project applicant make a proportionate fair-share contribution to the applicable CIP project at the intersection of SW Murdock Road & SW Sunset Boulevard. This intersection is identified in the City of Sherwood *Capital Improvement Plan (2020-2025)* (CIP) as Project ID #D33, which intends to construct a southbound right-turn lane and a northbound left-turn lane. A proportionate share fee to mitigate site trip impacts is calculated at \$45,833.33.

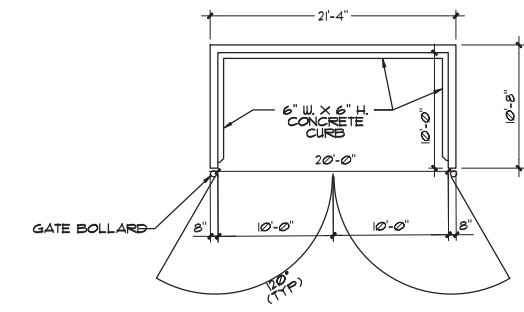
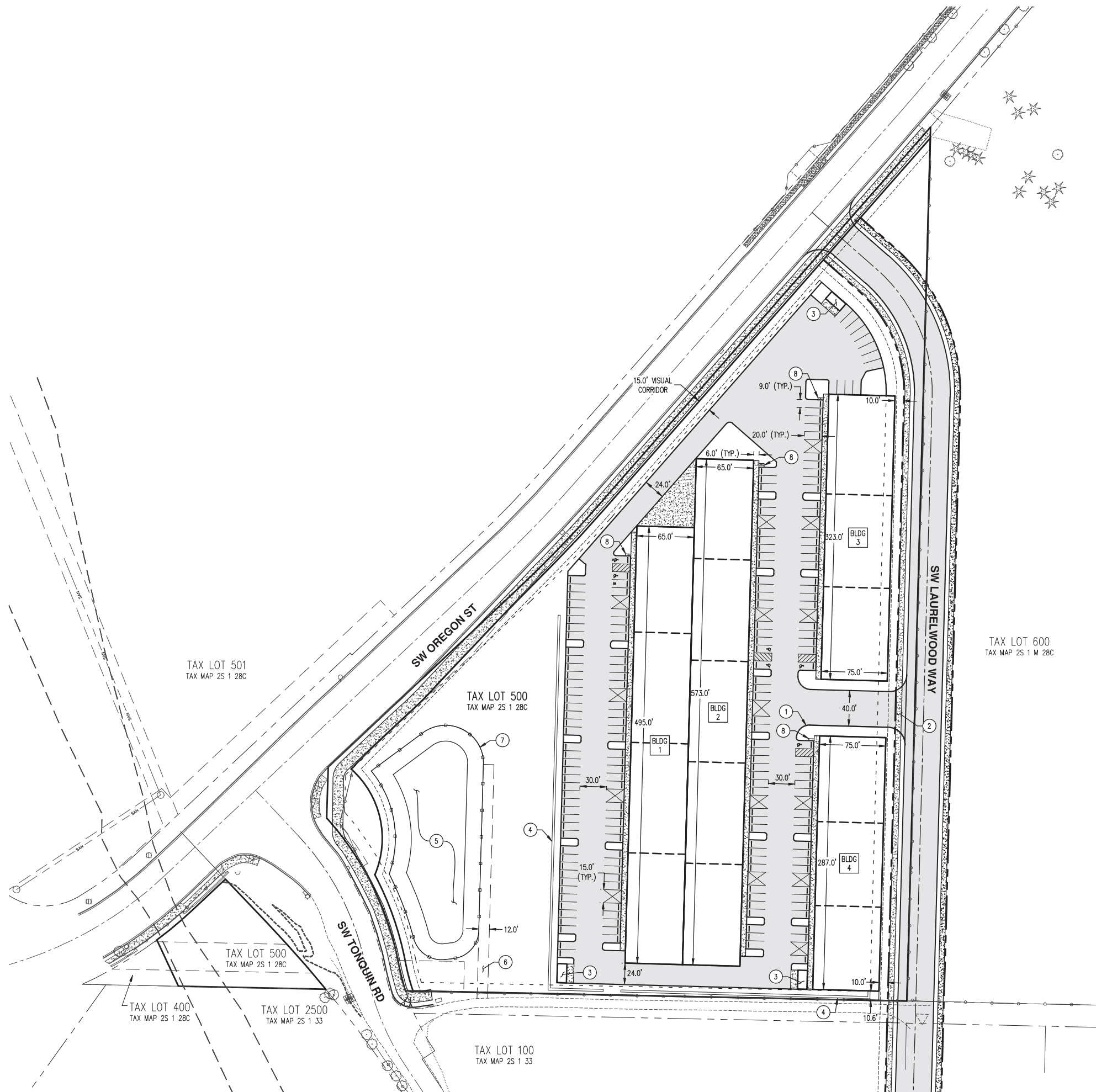
Appendix



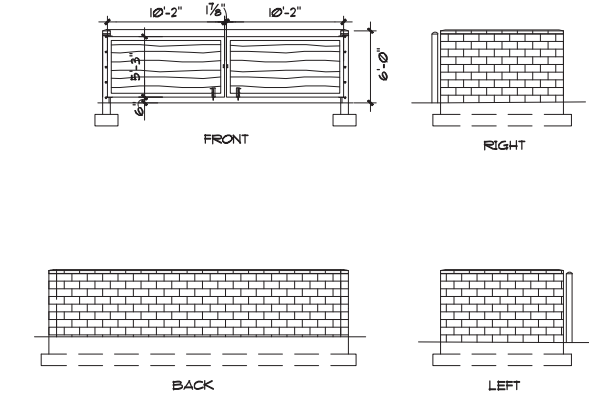
Appendix A

Site Plan





1 TYPICAL TRASH ENCLOSURE PLAN VIEW
NOT TO SCALE



1 TYPICAL TRASH ENCLOSURE ELEVATIONS
NOT TO SCALE

KEYED NOTES

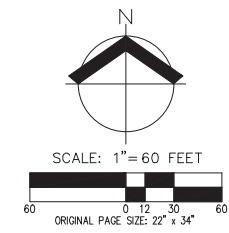
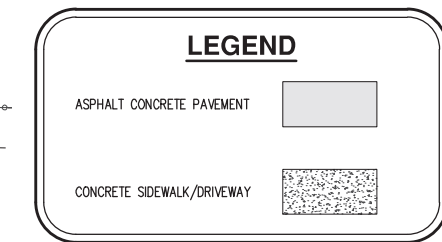
1. NEW STANDARD CURB (TYP.)
2. NEW 40' COMMERCIAL DRIVEWAY
3. NEW TRASH ENCLOSURE
4. NEW RETAINING WALL
5. NEW STORMWATER FACILITY
6. NEW ASPHALT ACCESS ROAD
7. NEW FENCE
8. BICYCLE PARKING

BUILDING AREAS:

- BUILDING 1: 32,175 SF
- BUILDING 2: 37,245 SF
- BUILDING 3: 24,225 SF
- BUILDING 4: 21,525 SF
- TOTAL: 115,170 SF

PARKING SPACES:

- STANDARD: 178
- ADA: 6 (1 VAN ACCESSIBLE)
- VANPOOL: 1
- TOTAL: 185 SPACES (185 REQUIRED)
- BIKE PARKING: 5 (5 REQUIRED)



PRELIMINARY SITE PLAN

**OREGON STREET BUSINESS PARK
SHERWOOD, OR**



RENEWAL DATE: 12/31/23
JOB NUMBER: 7971
DATE: 02/01/2022
DESIGNED BY: BDL
DRAWN BY: BDL
CHECKED BY: JPC

Appendix B

Traffic Counts





(303) 216-2439
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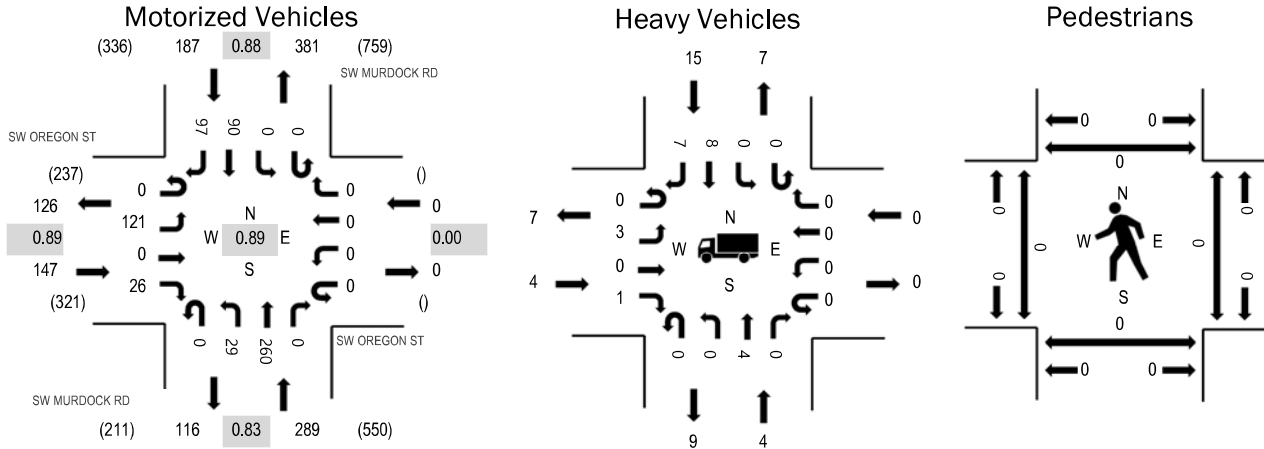
Location: 3 SW MURDOCK RD & SW OREGON ST AM

Date: Tuesday, August 18, 2020

Peak Hour: 07:35 AM - 08:35 AM

Peak 15-Minutes: 07:35 AM - 07:50 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.7%	0.89
WB	0.0%	0.00
NB	1.4%	0.83
SB	8.0%	0.88
All	3.7%	0.89

Traffic Counts - Motorized Vehicles

Interval Start Time	SW OREGON ST Eastbound				SW OREGON ST Westbound				SW MURDOCK RD Northbound				SW MURDOCK RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	12	0	0	0	0	0	0	0	2	23	0	0	0	2	5	44	593
7:05 AM	0	9	0	1	0	0	0	0	0	2	14	0	0	0	1	5	32	596
7:10 AM	0	18	0	3	0	0	0	0	0	0	26	0	0	0	5	52	609	
7:15 AM	0	13	0	3	0	0	0	0	0	4	18	0	0	0	4	7	49	602
7:20 AM	0	12	0	2	0	0	0	0	0	3	14	0	0	0	4	4	39	612
7:25 AM	0	16	0	0	0	0	0	0	0	3	17	0	0	0	6	5	47	619
7:30 AM	0	16	0	2	0	0	0	0	0	4	16	0	0	0	7	7	52	620
7:35 AM	0	17	0	1	0	0	0	0	0	3	31	0	0	0	4	9	65	623
7:40 AM	0	10	0	3	0	0	0	0	0	3	23	0	0	0	6	3	48	612
7:45 AM	0	16	0	3	0	0	0	0	0	4	23	0	0	0	9	7	62	612
7:50 AM	0	16	0	5	0	0	0	0	0	2	31	0	0	0	4	3	61	613
7:55 AM	0	10	0	1	0	0	0	0	0	3	10	0	0	0	13	5	42	605
8:00 AM	0	6	0	1	0	0	0	0	0	2	28	0	0	0	5	5	47	614
8:05 AM	0	3	0	1	0	0	0	0	0	2	16	0	0	0	8	15	45	
8:10 AM	0	7	0	1	0	0	0	0	0	1	22	0	0	0	6	8	45	
8:15 AM	0	12	0	2	0	0	0	0	0	3	22	0	0	0	7	13	59	
8:20 AM	0	7	0	3	0	0	0	0	0	5	16	0	0	0	8	7	46	
8:25 AM	0	8	0	2	0	0	0	0	0	0	18	0	0	0	12	8	48	
8:30 AM	0	9	0	3	0	0	0	0	0	1	20	0	0	0	8	14	55	
8:35 AM	0	13	0	1	0	0	0	0	0	4	21	0	0	0	10	5	54	
8:40 AM	0	8	0	3	0	0	0	0	0	2	23	0	0	0	7	5	48	
8:45 AM	0	9	0	2	0	0	0	0	0	4	22	0	0	0	12	14	63	
8:50 AM	0	13	0	2	0	0	0	0	0	3	19	0	0	0	11	5	53	
8:55 AM	0	13	0	3	0	0	0	0	0	4	13	0	0	0	9	9	51	
Count Total	0	273	0	48	0	0	0	0	0	64	486	0	0	0	163	173	1,207	
Peak Hour	0	121	0	26	0	0	0	0	0	29	260	0	0	0	90	97	623	

Location: 3 SW MURDOCK RD & SW OREGON ST AM

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	1	1	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	1	0	0	0	1	7:10 AM	0	1	0	1	2	7:10 AM	0	0	0	0	0
7:15 AM	1	1	0	2	4	7:15 AM	0	0	0	1	1	7:15 AM	0	0	0	0	0
7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0	7:20 AM	1	0	0	0	1
7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	0	1	0	1	2	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	0	0	0	2	2	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	0	1	0	2	3	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	0	0	0	2	2	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	1	0	0	2	3	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	0	1	0	2	3	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
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8:10 AM	1	0	0	1	2	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	1	1	0	1	3	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
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8:30 AM	0	0	0	0	0	8:30 AM	0	1	0	1	2	8:30 AM	0	0	0	0	0
8:35 AM	1	1	0	0	2	8:35 AM	0	1	0	0	1	8:35 AM	0	0	0	0	0
8:40 AM	0	2	0	2	4	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	0	3	0	2	5	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	0	0	2	2	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	7	12	0	25	44	Count Total	1	3	0	4	8	Count Total	1	0	0	0	1
Peak Hour	4	4	0	15	23	Peak Hour	1	1	0	2	4	Peak Hour	0	0	0	0	0

Location: 1 SW OREGON ST & SW TONQUIN RD AM



ALL TRAFFIC DATA SERVICES

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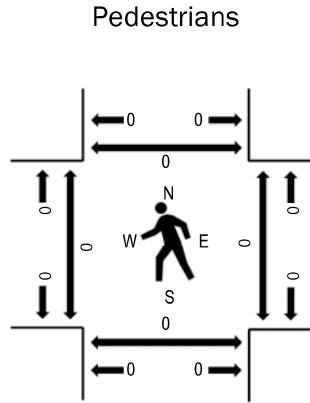
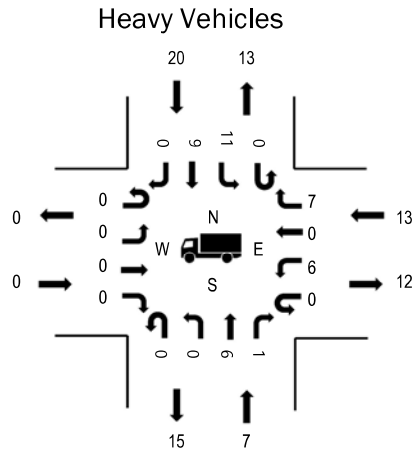
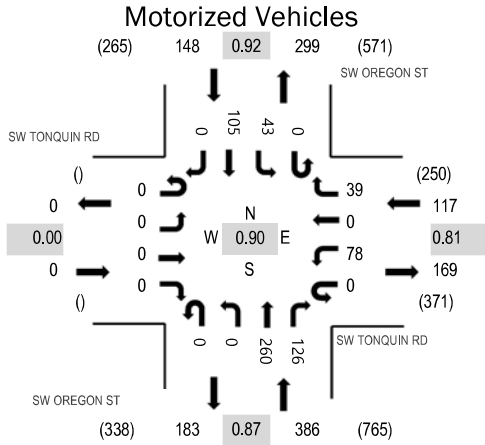
Location: 1 SW OREGON ST & SW TONQUIN RD AM

Date: Tuesday, August 18, 2020

Peak Hour: 07:35 AM - 08:35 AM

Peak 15-Minutes: 07:35 AM - 07:50 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	11.1%	0.81
NB	1.8%	0.87
SB	13.5%	0.92
All	6.1%	0.90

Traffic Counts - Motorized Vehicles

Interval Start Time	SW TONQUIN RD Eastbound				SW TONQUIN RD Westbound				SW OREGON ST Northbound				SW OREGON ST Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	0	0	0	0	5	0	4	0	0	25	12	0	5	4	0	55	645
7:05 AM	0	0	0	0	0	3	0	9	0	0	17	7	0	4	4	0	44	639
7:10 AM	0	0	0	0	0	3	0	8	0	0	20	23	0	2	0	0	56	640
7:15 AM	0	0	0	0	0	9	0	4	0	0	25	5	0	2	5	0	50	631
7:20 AM	0	0	0	0	0	5	0	4	0	0	14	11	0	3	3	0	40	648
7:25 AM	0	0	0	0	0	5	0	6	0	0	13	22	0	2	3	0	51	650
7:30 AM	0	0	0	0	0	9	0	2	0	0	18	15	0	7	8	0	59	646
7:35 AM	0	0	0	0	0	8	0	1	0	0	30	17	0	5	4	0	65	651
7:40 AM	0	0	0	0	0	3	0	2	0	0	22	13	0	4	5	0	49	639
7:45 AM	0	0	0	0	0	8	0	5	0	0	26	12	0	8	8	0	67	640
7:50 AM	0	0	0	0	0	4	0	3	0	0	30	16	0	5	4	0	62	636
7:55 AM	0	0	0	0	0	8	0	3	0	0	12	11	0	3	10	0	47	636
8:00 AM	0	0	0	0	0	3	0	3	0	0	26	6	0	3	8	0	49	635
8:05 AM	0	0	0	0	0	6	0	4	0	0	17	3	0	2	13	0	45	
8:10 AM	0	0	0	0	0	4	0	3	0	0	23	6	0	1	10	0	47	
8:15 AM	0	0	0	0	0	11	0	7	0	0	21	15	0	3	10	0	67	
8:20 AM	0	0	0	0	0	9	0	2	0	0	12	9	0	2	8	0	42	
8:25 AM	0	0	0	0	0	6	0	0	0	0	16	9	0	4	12	0	47	
8:30 AM	0	0	0	0	0	8	0	6	0	0	25	9	0	3	13	0	64	
8:35 AM	0	0	0	0	0	8	0	1	0	0	22	11	0	4	7	0	53	
8:40 AM	0	0	0	0	0	6	0	2	0	0	15	13	0	6	8	0	50	
8:45 AM	0	0	0	0	0	12	0	6	0	0	23	9	0	3	10	0	63	
8:50 AM	0	0	0	0	0	7	0	5	0	0	18	16	0	3	13	0	62	
8:55 AM	0	0	0	0	0	9	0	1	0	0	10	15	0	2	9	0	46	
Count Total	0	0	0	0	0	159	0	91	0	0	480	285	0	86	179	0	1,280	
Peak Hour	0	0	0	0	0	78	0	39	0	0	260	126	0	43	105	0	651	

Location: 1 SW OREGON ST & SW TONQUIN RD AM

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	2	3	5	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	0	0	1	2	3	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	0	1	2	0	3	7:10 AM	0	1	1	0	2	7:10 AM	0	0	0	0	0
7:15 AM	0	2	3	0	5	7:15 AM	0	0	0	1	1	7:15 AM	0	0	0	0	0
7:20 AM	0	0	3	0	3	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	0	4	0	4	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	3	3	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	0	0	2	2	4	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	0	1	0	3	4	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	0	0	3	1	4	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	0	1	1	2	4	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	0	0	0	1	1	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	0	1	0	4	5	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	1	2	2	5	8:05 AM	0	1	0	0	1	8:05 AM	0	0	0	0	0
8:10 AM	0	1	2	1	4	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	0	2	1	2	5	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	0	0	1	1	2	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	0	0	1	1	2	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	0	2	0	1	3	8:35 AM	0	1	0	0	1	8:35 AM	0	0	0	0	0
8:40 AM	0	2	0	4	6	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	0	3	4	1	8	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	0	0	0	2	2	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	0	0	2	1	3	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	0	17	34	37	88	Count Total	0	3	1	1	5	Count Total	0	0	0	0	0
Peak Hour	0	7	13	20	40	Peak Hour	0	1	0	0	1	Peak Hour	0	0	0	0	0

Location: 2 SW OREGON ST & SW TUALATIN SHERWOOD RD AM



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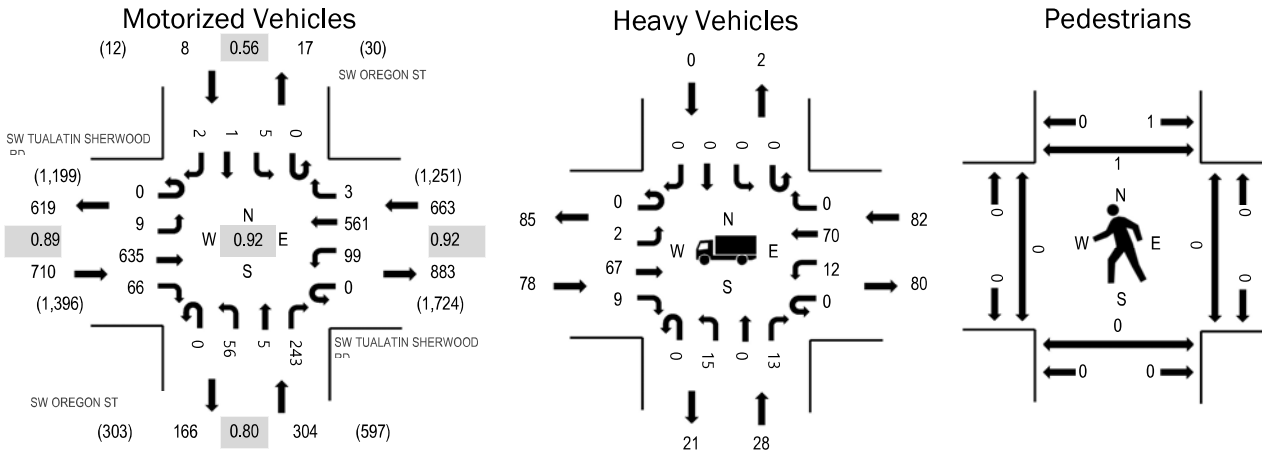
Location: 2 SW OREGON ST & SW TUALATIN SHERWOOD RD AM

Date: Tuesday, August 18, 2020

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:35 AM - 07:50 AM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	11.0%	0.89
WB	12.4%	0.92
NB	9.2%	0.80
SB	0.0%	0.56
All	11.2%	0.92

Traffic Counts - Motorized Vehicles

Interval Start Time	SW TUALATIN SHERWOOD Eastbound				SW TUALATIN SHERWOOD Westbound				SW OREGON ST Northbound				SW OREGON ST Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
7:00 AM	0	1	36	2	0	3	35	0	0	3	0	28	0	0	0	0	108	1,608
7:05 AM	0	0	63	4	0	0	39	0	0	2	0	19	0	0	0	0	127	1,644
7:10 AM	0	0	56	8	0	3	29	1	0	6	1	21	0	1	0	0	126	1,649
7:15 AM	0	0	54	6	0	4	36	0	0	8	0	22	0	0	0	0	130	1,621
7:20 AM	0	1	54	6	0	8	41	0	0	8	0	14	0	0	0	0	132	1,645
7:25 AM	0	0	40	8	0	3	36	0	0	10	0	11	0	0	0	0	108	1,659
7:30 AM	0	0	72	6	0	3	49	0	0	3	0	15	0	0	0	0	148	1,685
7:35 AM	0	0	52	7	0	7	53	2	0	4	0	34	0	2	0	0	161	1,682
7:40 AM	0	0	64	9	0	6	30	0	0	5	0	22	0	0	0	0	136	1,682
7:45 AM	0	0	55	7	0	8	53	1	0	6	1	29	0	0	0	0	160	1,682
7:50 AM	0	2	53	5	0	6	33	0	0	4	2	25	0	0	0	0	130	1,670
7:55 AM	0	2	59	5	0	7	52	0	0	3	1	13	0	0	0	0	142	1,670
8:00 AM	0	1	41	5	0	15	47	0	0	9	0	25	0	1	0	0	144	1,648
8:05 AM	0	0	51	3	0	7	50	0	0	4	0	16	0	0	1	0	132	
8:10 AM	0	3	29	0	0	7	35	0	0	2	1	19	0	0	0	2	98	
8:15 AM	0	1	64	2	0	14	48	0	0	7	0	17	0	1	0	0	154	
8:20 AM	0	0	58	8	0	6	54	0	0	5	0	14	0	1	0	0	146	
8:25 AM	0	0	37	9	0	13	57	0	0	4	0	14	0	0	0	0	134	
8:30 AM	0	0	55	5	0	5	48	1	0	9	0	22	0	0	0	0	145	
8:35 AM	0	0	70	6	0	8	54	1	0	1	0	20	0	1	0	0	161	
8:40 AM	0	1	55	4	0	8	46	1	0	5	1	15	0	0	0	0	136	
8:45 AM	0	2	49	7	0	12	49	0	0	8	0	20	0	1	0	0	148	
8:50 AM	0	0	41	4	0	13	46	1	0	8	0	17	0	0	0	0	130	
8:55 AM	0	0	45	3	0	7	49	1	0	4	0	10	0	1	0	0	120	
Count Total	0	14	1,253	129	0	173	1,069	9	0	128	7	462	0	9	1	2	3,256	
Peak Hour	0	9	635	66	0	99	561	3	0	56	5	243	0	5	1	2	1,685	

Location: 2 SW OREGON ST & SW TUALATIN SHERWOOD RD AM

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	3	5	5	0	13	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	5	2	6	0	13	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	6	2	3	1	12	7:10 AM	1	0	1	0	2	7:10 AM	0	0	0	0	0
7:15 AM	2	3	8	0	13	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	3	3	7	0	13	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	3	4	8	0	15	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	6	1	9	0	16	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	8	3	10	0	21	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	5	2	5	0	12	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	1	1
7:45 AM	4	2	7	0	13	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	9	1	6	0	16	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	7	2	10	0	19	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	7	2	4	0	13	8:00 AM	1	0	0	0	1	8:00 AM	0	0	0	0	0
8:05 AM	12	3	6	0	21	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	2	2	8	0	12	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	4	4	8	0	16	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	7	5	2	0	14	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	7	1	7	0	15	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	5	2	4	0	11	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	6	2	10	0	18	8:35 AM	0	1	0	0	1	8:35 AM	0	0	0	0	0
8:40 AM	5	0	7	0	12	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	1	1
8:45 AM	5	6	6	0	17	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	3	1	3	0	7	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	6	1	10	0	17	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	130	59	159	1	349	Count Total	2	1	1	0	4	Count Total	0	0	0	2	2
Peak Hour	78	28	82	0	188	Peak Hour	1	0	0	0	1	Peak Hour	0	0	0	1	1



Location: 3 SW MURDOCK RD & SW OREGON ST PM

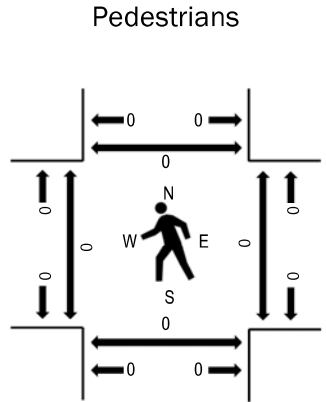
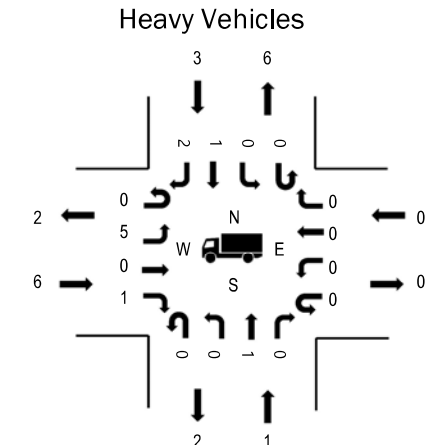
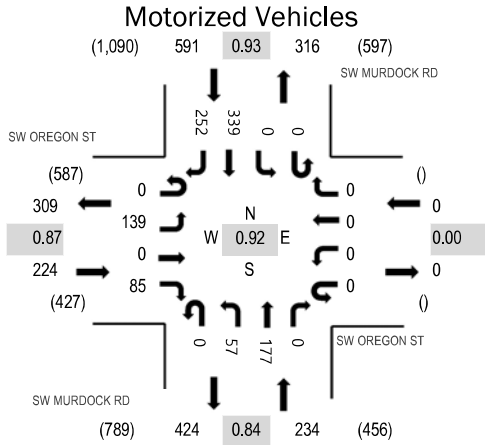
Date: Tuesday, August 18, 2020

Peak Hour: 04:35 PM - 05:35 PM

Peak 15-Minutes: 05:05 PM - 05:20 PM

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Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.7%	0.87
WB	0.0%	0.00
NB	0.4%	0.84
SB	0.5%	0.93
All	1.0%	0.92

Traffic Counts - Motorized Vehicles

Interval Start Time	SW OREGON ST Eastbound				SW OREGON ST Westbound				SW MURDOCK RD Northbound				SW MURDOCK RD Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	7	0	3	0	0	0	0	0	5	26	0	0	0	20	21	82	1,001
4:05 PM	0	9	0	12	0	0	0	0	0	6	13	0	0	0	27	14	81	999
4:10 PM	0	15	0	11	0	0	0	0	0	4	13	0	0	0	27	17	87	1,002
4:15 PM	0	9	0	4	0	0	0	0	0	5	14	0	0	0	25	19	76	1,018
4:20 PM	0	12	0	7	0	0	0	0	0	5	11	0	0	0	29	19	83	1,041
4:25 PM	0	9	0	6	0	0	0	0	0	5	13	0	0	0	21	21	75	1,036
4:30 PM	0	15	0	5	0	0	0	0	0	6	12	0	0	0	24	21	83	1,045
4:35 PM	0	11	0	9	0	0	0	0	0	4	18	0	0	0	20	30	92	1,049
4:40 PM	0	13	0	4	0	0	0	0	0	4	20	0	0	0	25	24	90	1,034
4:45 PM	0	8	0	8	0	0	0	0	0	9	18	0	0	0	27	27	97	1,015
4:50 PM	0	12	0	8	0	0	0	0	0	5	16	0	0	0	24	11	76	1,000
4:55 PM	0	10	0	8	0	0	0	0	0	4	9	0	0	0	27	21	79	984
5:00 PM	0	13	0	4	0	0	0	0	0	2	11	0	0	0	30	20	80	972
5:05 PM	0	22	0	7	0	0	0	0	0	3	12	0	0	0	26	14	84	
5:10 PM	0	12	0	8	0	0	0	0	0	8	19	0	0	0	29	27	103	
5:15 PM	0	7	0	9	0	0	0	0	0	7	20	0	0	0	37	19	99	
5:20 PM	0	7	0	7	0	0	0	0	0	3	14	0	0	0	31	16	78	
5:25 PM	0	12	0	6	0	0	0	0	0	6	7	0	0	0	33	20	84	
5:30 PM	0	12	0	7	0	0	0	0	0	2	13	0	0	0	30	23	87	
5:35 PM	0	9	0	6	0	0	0	0	0	4	11	0	0	0	26	21	77	
5:40 PM	0	10	0	8	0	0	0	0	0	2	16	0	0	0	19	16	71	
5:45 PM	0	14	0	6	0	0	0	0	0	8	8	0	0	0	26	20	82	
5:50 PM	0	8	0	5	0	0	0	0	0	8	9	0	0	0	21	9	60	
5:55 PM	0	5	0	8	0	0	0	0	0	5	13	0	0	0	19	17	67	
Count Total	0	261	0	166	0	0	0	0	0	120	336	0	0	0	623	467	1,973	
Peak Hour	0	139	0	85	0	0	0	0	0	57	177	0	0	0	339	252	1,049	

Location: 3 SW MURDOCK RD & SW OREGON ST PM

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	1	0	1	2	4:00 PM	0	1	0	0	1	4:00 PM	0	0	0	0	0
4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	2	0	1	3	4:10 PM	1	0	0	0	1	4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	1	0	0	0	1	4:25 PM	0	1	0	0	1	4:25 PM	0	0	0	2	2
4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0	4:30 PM	0	2	0	0	2
4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	1	0	0	2	3	5:00 PM	0	1	0	0	1	5:00 PM	0	0	0	0	0
5:05 PM	2	0	0	0	2	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	1	0	0	0	1	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	1	0	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	1	0	0	1	5:20 PM	1	0	0	0	1	5:20 PM	1	0	0	0	1
5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	1	1	5:25 PM	0	0	0	0	0
5:30 PM	1	0	0	1	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	2	2	5:40 PM	0	0	0	0	0
5:45 PM	0	1	0	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	1	0	2	3	5:55 PM	0	0	0	1	1	5:55 PM	0	0	0	0	0
Count Total	7	6	0	7	20	Count Total	2	3	0	4	9	Count Total	1	2	0	2	5
Peak Hour	6	1	0	3	10	Peak Hour	1	1	0	1	3	Peak Hour	1	0	0	0	1

Location: 1 SW OREGON ST & SW TONQUIN RD PM



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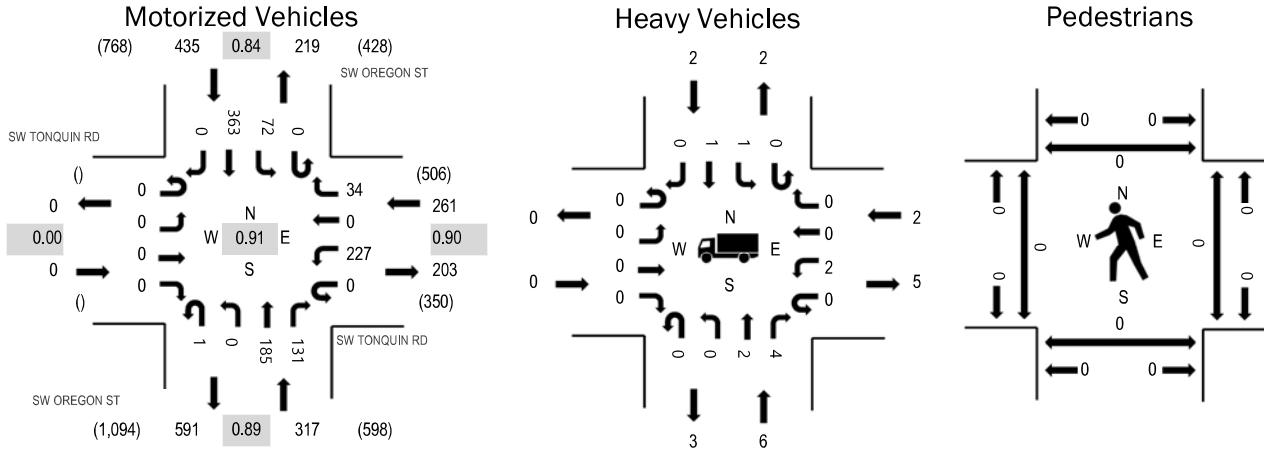
Location: 1 SW OREGON ST & SW TONQUIN RD PM

Date: Tuesday, August 18, 2020

Peak Hour: 04:35 PM - 05:35 PM

Peak 15-Minutes: 04:35 PM - 04:50 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.00
WB	0.8%	0.90
NB	1.9%	0.89
SB	0.5%	0.84
All	1.0%	0.91

Traffic Counts - Motorized Vehicles

Interval Start Time	SW TONQUIN RD Eastbound				SW TONQUIN RD Westbound				SW OREGON ST Northbound				SW OREGON ST Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	0	0	0	22	0	2	0	0	27	4	0	4	25	0	84	963
4:05 PM	0	0	0	0	0	14	0	3	0	0	13	7	0	11	29	0	77	957
4:10 PM	0	0	0	0	0	20	0	5	0	0	20	10	0	6	23	0	84	964
4:15 PM	0	0	0	0	0	13	0	0	0	0	16	5	0	6	28	0	68	969
4:20 PM	0	0	0	0	0	24	0	1	0	0	17	5	0	5	26	0	78	993
4:25 PM	0	0	0	0	0	23	0	2	0	0	16	10	0	4	21	0	76	992
4:30 PM	0	0	0	0	0	17	0	4	0	0	16	12	0	4	22	0	75	997
4:35 PM	0	0	0	0	0	17	0	5	0	0	14	12	0	7	36	0	91	1,013
4:40 PM	0	0	0	0	0	22	0	3	0	0	20	17	0	12	27	0	101	995
4:45 PM	0	0	0	0	0	27	0	1	0	0	13	10	0	5	29	0	85	960
4:50 PM	0	0	0	0	0	12	0	2	0	0	18	12	0	4	21	0	69	942
4:55 PM	0	0	0	0	0	24	0	3	0	0	9	8	0	6	25	0	75	926
5:00 PM	0	0	0	0	0	19	0	2	0	0	16	9	0	5	27	0	78	909
5:05 PM	0	0	0	0	0	14	0	2	0	0	18	15	0	4	31	0	84	
5:10 PM	0	0	0	0	0	21	0	2	0	0	19	13	0	4	30	0	89	
5:15 PM	0	0	0	0	0	22	0	2	0	0	21	5	0	5	37	0	92	
5:20 PM	0	0	0	0	0	9	0	3	1	0	11	10	0	8	35	0	77	
5:25 PM	0	0	0	0	0	16	0	3	0	0	10	8	0	10	34	0	81	
5:30 PM	0	0	0	0	0	24	0	6	0	0	16	12	0	2	31	0	91	
5:35 PM	0	0	0	0	0	25	0	1	0	0	12	6	0	2	27	0	73	
5:40 PM	0	0	0	0	0	14	0	3	0	0	17	8	0	2	22	0	66	
5:45 PM	0	0	0	0	0	20	0	1	0	0	11	11	0	1	23	0	67	
5:50 PM	0	0	0	0	0	12	0	2	0	0	10	9	0	2	18	0	53	
5:55 PM	0	0	0	0	0	17	0	0	0	0	10	9	0	4	18	0	58	
Count Total	0	0	0	0	0	448	0	58	1	0	370	227	0	123	645	0	1,872	
Peak Hour	0	0	0	0	0	227	0	34	1	0	185	131	0	72	363	0	1,013	

Location: 1 SW OREGON ST & SW TONQUIN RD PM

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	1	2	0	3	4:00 PM	0	1	0	0	1	4:00 PM	0	0	0	0	0
4:05 PM	0	0	1	2	3	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	2	3	0	5	4:10 PM	0	1	0	0	1	4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	2	2	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	0	0	1	1	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	1	0	1	2	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	1	2	0	3	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	1	0	0	1	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	1	0	0	1	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	1	0	1	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	1	0	0	1	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	1	0	1	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	1	1	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	0	0	0	0	5:40 PM	0	0	2	2	2	5:40 PM	0	0	0	0	0
5:45 PM	0	1	0	0	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	1	1	0	2	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	0	12	9	9	30	Count Total	0	2	2	0	4	Count Total	0	0	0	0	0
Peak Hour	0	6	2	2	10	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0

Location: 2 SW OREGON ST & SW TUALATIN SHERWOOD RD PM



(303) 216-2439
www.alltrafficdata.net

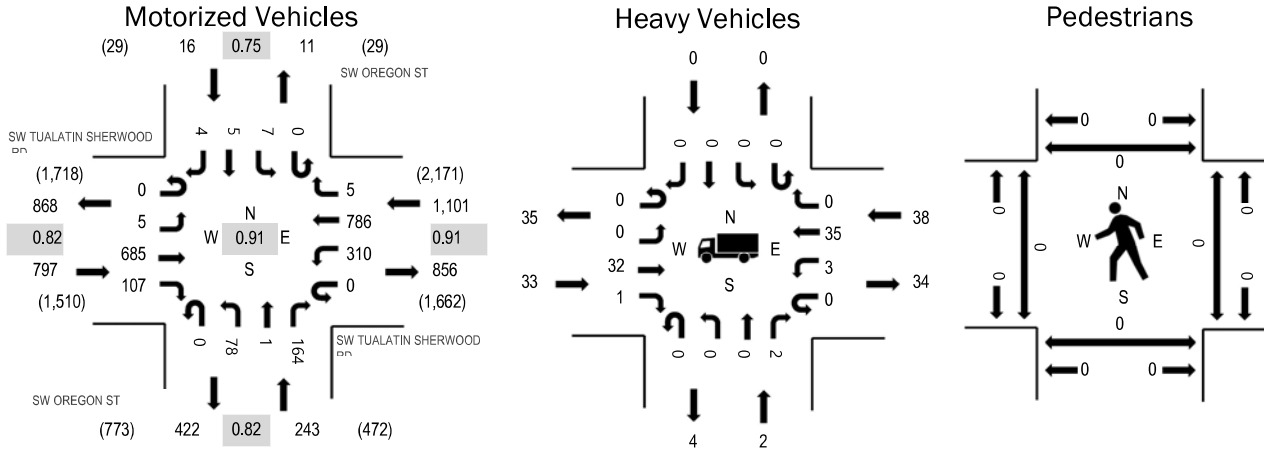
Location: 2 SW OREGON ST & SW TUALATIN SHERWOOD RD PM

Date: Tuesday, August 18, 2020

Peak Hour: 04:30 PM - 05:30 PM

Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.1%	0.82
WB	3.5%	0.91
NB	0.8%	0.82
SB	0.0%	0.75
All	3.4%	0.91

Traffic Counts - Motorized Vehicles

Interval Start Time	SW TUALATIN SHERWOOD Eastbound				SW TUALATIN SHERWOOD Westbound				SW OREGON ST Northbound				SW OREGON ST Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	54	14	0	25	71	2	0	7	0	24	0	2	0	0	199	2,142
4:05 PM	0	0	53	13	0	16	70	1	0	10	0	17	0	0	0	2	182	2,129
4:10 PM	0	1	59	7	0	23	76	0	0	5	0	14	0	1	1	1	188	2,102
4:15 PM	0	0	38	7	0	29	72	0	0	7	0	14	0	0	0	2	169	2,111
4:20 PM	0	0	55	6	0	21	70	0	0	1	0	16	0	1	1	0	171	2,121
4:25 PM	0	0	48	3	0	24	52	0	0	8	0	14	0	1	0	0	150	2,138
4:30 PM	0	0	73	8	0	20	75	0	0	8	0	11	0	0	0	0	195	2,157
4:35 PM	0	1	68	19	0	22	64	2	0	6	0	16	0	2	2	0	202	2,145
4:40 PM	0	1	61	11	0	27	70	0	0	5	0	17	0	0	0	1	193	2,108
4:45 PM	0	0	53	5	0	21	58	0	0	6	0	16	0	3	0	0	162	2,069
4:50 PM	0	0	55	5	0	21	69	0	0	5	0	11	0	1	1	1	169	2,089
4:55 PM	0	0	47	10	0	30	59	0	0	7	0	8	0	0	1	0	162	2,045
5:00 PM	0	0	61	13	0	16	72	0	0	6	0	17	0	0	1	0	186	2,040
5:05 PM	0	2	48	5	0	27	54	1	0	8	0	10	0	0	0	0	155	
5:10 PM	0	0	59	6	0	26	79	1	0	6	0	20	0	0	0	0	197	
5:15 PM	0	1	36	8	0	40	66	0	0	11	0	16	0	0	0	1	179	
5:20 PM	0	0	65	12	0	28	64	0	0	6	0	13	0	0	0	0	188	
5:25 PM	0	0	59	5	0	32	56	1	0	4	1	9	0	1	0	1	169	
5:30 PM	0	0	73	5	0	21	63	0	0	6	0	14	0	0	1	0	183	
5:35 PM	0	0	56	5	0	19	66	2	0	4	0	13	0	0	0	0	165	
5:40 PM	0	1	46	1	0	25	61	2	0	4	0	14	0	0	0	0	154	
5:45 PM	0	1	60	2	0	19	84	3	0	2	0	11	0	0	0	0	182	
5:50 PM	0	1	35	4	0	20	48	1	0	4	1	11	0	0	0	0	125	
5:55 PM	0	1	55	9	0	30	54	0	0	0	1	7	0	0	0	0	157	
Count Total	0	10	1,317	183	0	582	1,573	16	0	136	3	333	0	12	8	9	4,182	
Peak Hour	0	5	685	107	0	310	786	5	0	78	1	164	0	7	5	4	2,157	

Location: 2 SW OREGON ST & SW TUALATIN SHERWOOD RD PM

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	4	2	3	0	9	4:00 PM	0	0	1	0	1	4:00 PM	0	0	0	0	0
4:05 PM	2	2	2	0	6	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	1	4	5	0	10	4:10 PM	0	1	0	0	1	4:10 PM	0	0	0	0	0
4:15 PM	4	0	2	0	6	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	5	0	2	0	7	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	3	0	3	0	6	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	3	0	2	0	5	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	2	0	2	0	4	4:35 PM	1	0	0	0	1	4:35 PM	0	0	0	0	0
4:40 PM	5	0	5	0	10	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	3	0	3	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	2	0	5	0	7	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	3	0	3	0	6	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	3	0	3	0	6	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	5	0	3	0	8	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	1	0	3	0	4	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	2	1	3	0	6	5:15 PM	0	0	1	0	1	5:15 PM	0	0	0	0	0
5:20 PM	6	1	4	0	11	5:20 PM	0	0	1	0	1	5:20 PM	0	0	0	0	0
5:25 PM	1	0	2	0	3	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	5	0	0	0	5	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	2	0	2	0	4	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	2	0	1	0	3	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	3	1	6	0	10	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	2	0	2	0	4	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	2	0	4	0	6	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	68	11	70	0	149	Count Total	1	1	3	0	5	Count Total	0	0	0	0	0
Peak Hour	33	2	38	0	73	Peak Hour	1	0	2	0	3	Peak Hour	0	0	0	0	0

Appendix C

Trip Generation Worksheets





TRIP GENERATION CALCULATIONS

Land Use: General Light Industrial
Land Use Code: 110
Setting/Location: General Urban/Suburban
Variable: 1,000 Square Feet of Gross Floor Area
Variable Quantity: 115.170

AM PEAK HOUR

Trip Rate: 0.70

	Enter	Exit	Total
Directional Distribution	88%	12%	
Trip Ends	71	10	81

PM PEAK HOUR

Trip Rate: 0.63

	Enter	Exit	Total
Directional Distribution	13%	87%	
Trip Ends	9	64	73

WEEKDAY

Trip Rate: 4.96

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	286	286	572

SATURDAY

Trip Rate: 1.99

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	115	115	230



TRIP GENERATION CALCULATIONS

Land Use: General Light Industrial
Land Use Code: 110
Setting/Location: General Urban/Suburban
Variable: 1,000 Square Feet of Gross Floor Area
Variable Quantity: 120.815

AM PEAK HOUR

Trip Rate: 0.70

	Enter	Exit	Total
Directional Distribution	88%	12%	
Trip Ends	75	10	85

PM PEAK HOUR

Trip Rate: 0.63

	Enter	Exit	Total
Directional Distribution	13%	87%	
Trip Ends	10	66	76

WEEKDAY

Trip Rate: 4.96

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	300	300	600

SATURDAY

Trip Rate: 1.99

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	120	120	240

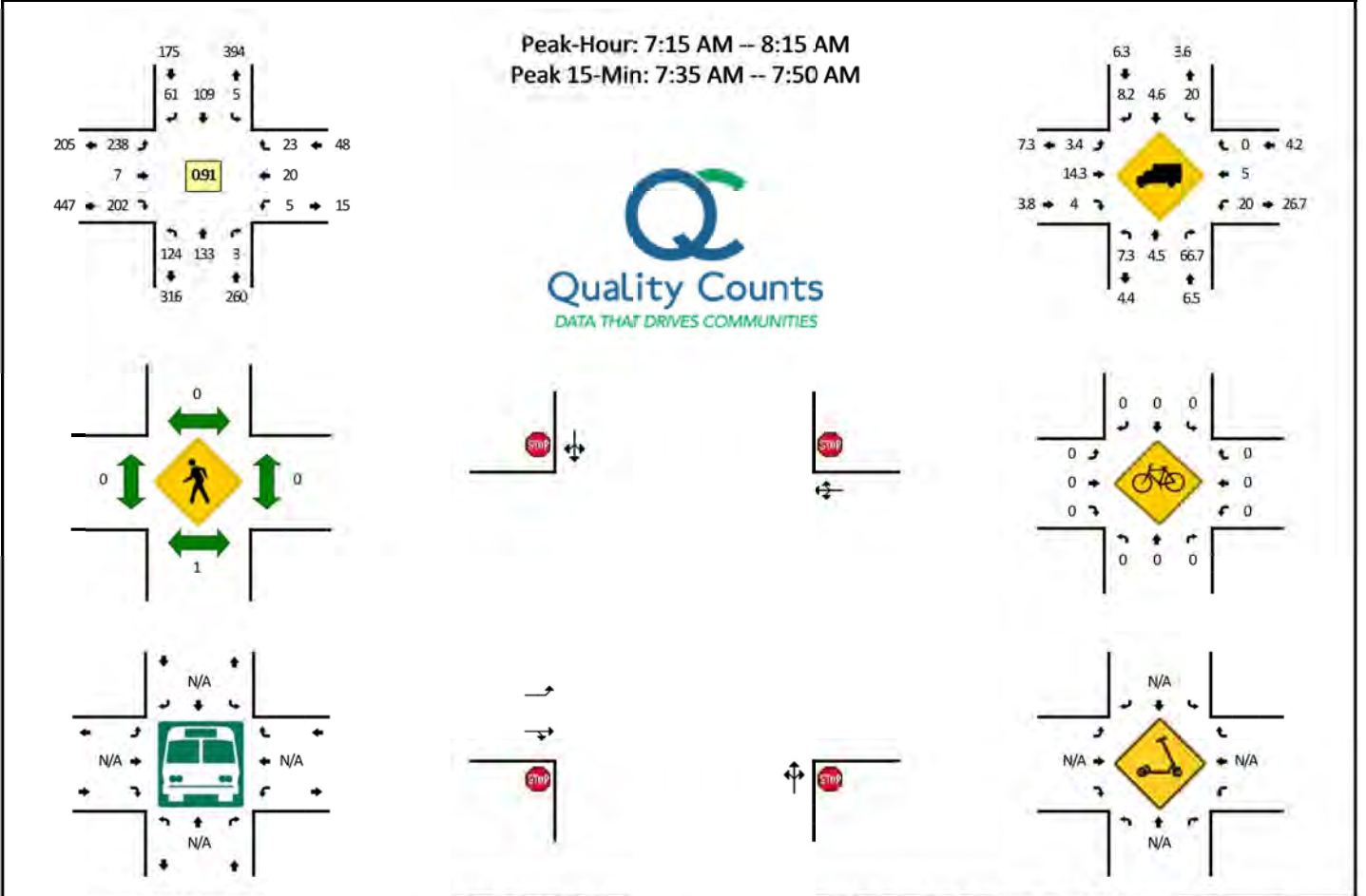
Appendix D

Historical Traffic Counts



LOCATION: SW Murdock Rd/SW Baker Rd -- SW Sunset Blvd/McKinley Dr
CITY/STATE: Sherwood, OR

QC JOB #: 14548501
DATE: Wed, Oct 25 2017

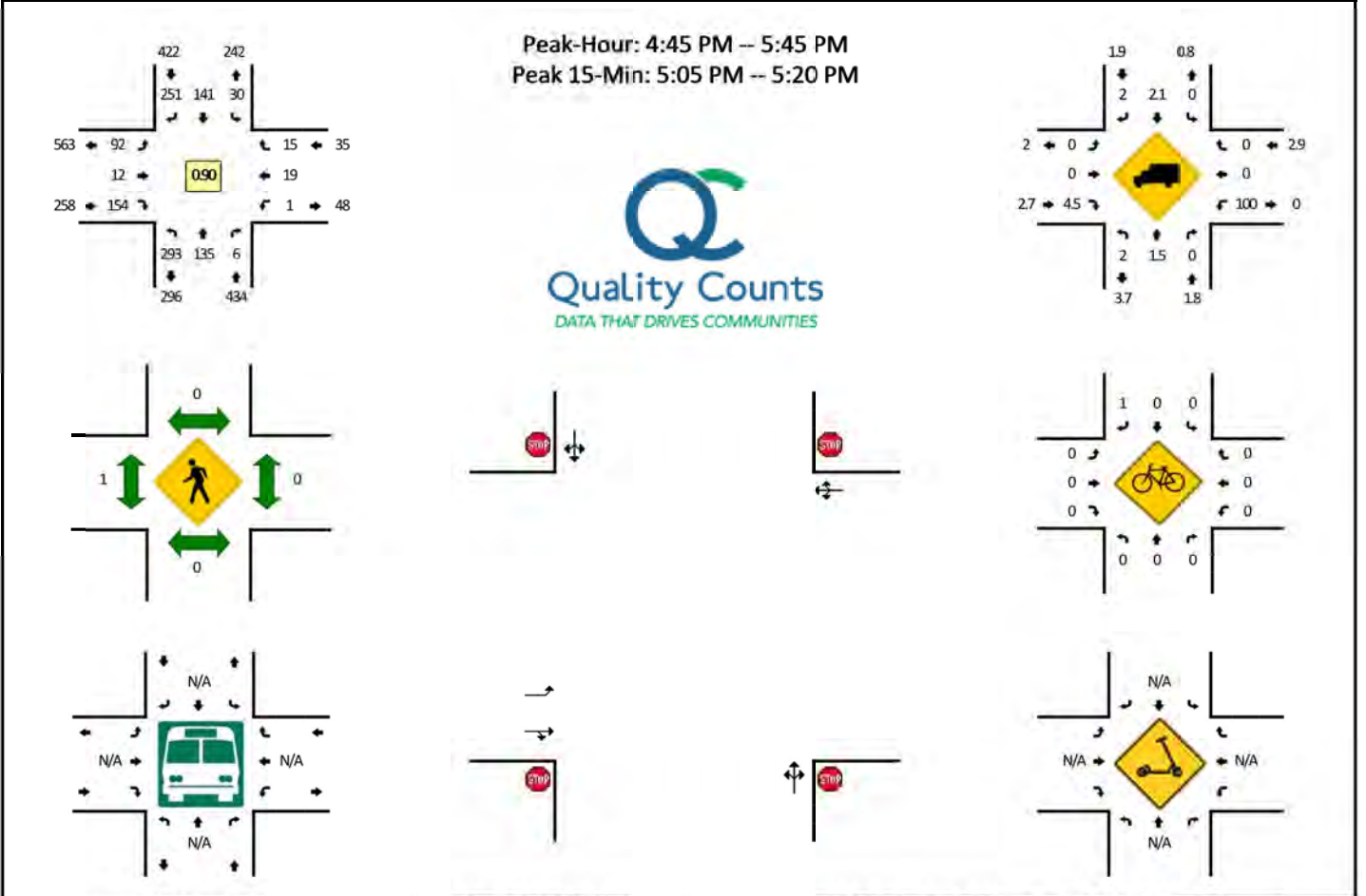


5-Min Count Period Beginning At	SW Murdock Rd/SW Baker Rd (Northbound)				SW Murdock Rd/SW Baker Rd (Southbound)				SW Sunset Blvd/McKinley Dr (Eastbound)				SW Sunset Blvd/McKinley Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	14	5	0	0	0	8	6	0	22	0	8	0	0	0	1	0	64	
7:05 AM	10	9	0	0	0	5	3	0	18	0	9	0	0	0	4	0	58	
7:10 AM	11	6	0	0	1	6	3	0	17	0	11	0	0	0	2	0	57	
7:15 AM	12	8	0	0	0	6	5	0	15	1	16	0	0	1	3	0	67	
7:20 AM	20	10	1	0	0	6	6	0	22	0	20	0	0	2	1	0	88	
7:25 AM	8	12	2	0	0	5	5	0	17	0	18	0	1	4	4	0	76	
7:30 AM	12	7	0	0	1	9	2	0	23	1	16	0	2	0	1	0	74	
7:35 AM	11	14	0	0	0	11	7	0	24	1	22	0	0	6	2	0	98	
7:40 AM	13	8	0	0	0	12	1	0	20	0	17	0	1	2	1	0	75	
7:45 AM	13	14	0	0	0	13	7	0	17	0	13	0	0	3	3	0	83	
7:50 AM	10	19	0	0	0	10	8	0	19	1	10	0	1	0	5	0	83	
7:55 AM	5	12	0	0	2	7	7	0	17	0	18	0	0	0	2	0	70	893
8:00 AM	2	6	0	0	1	11	4	0	25	1	20	0	0	1	0	0	71	900
8:05 AM	11	11	0	0	0	7	7	0	24	1	20	0	0	1	0	0	82	924
8:10 AM	7	12	0	0	1	12	2	0	15	1	12	0	0	0	1	0	63	930
8:15 AM	8	11	0	0	0	8	3	0	11	2	14	0	0	1	3	0	61	924
8:20 AM	9	9	0	0	0	7	6	0	9	0	16	0	0	1	2	0	59	895
8:25 AM	5	7	0	0	0	5	9	0	13	1	7	0	0	1	1	0	49	868
8:30 AM	3	10	0	0	2	5	3	0	17	0	13	0	0	0	0	0	53	847
8:35 AM	1	5	0	0	1	4	4	0	12	0	9	0	0	0	1	0	37	786
8:40 AM	4	7	0	0	0	6	6	0	21	0	13	0	0	1	2	0	60	771
8:45 AM	8	8	0	0	1	10	3	0	13	0	8	0	0	2	2	0	55	743
8:50 AM	6	12	0	0	1	7	6	0	17	0	15	0	0	0	0	0	64	724
8:55 AM	6	6	0	0	0	5	3	0	12	1	8	0	0	1	0	0	42	696
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	148	144	0	0	0	144	60	0	244	4	208	0	4	44	24	0	1024	
Heavy Trucks	4	4	0	0	0	4	4	0	4	0	0	0	0	0	0	0	20	
Buses																		
Pedestrians		4				0				0				0			4	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: SW Murdock Rd/SW Baker Rd -- SW Sunset Blvd/McKinley Dr
CITY/STATE: Sherwood, OR

QC JOB #: 14548502
DATE: Wed, Oct 25 2017

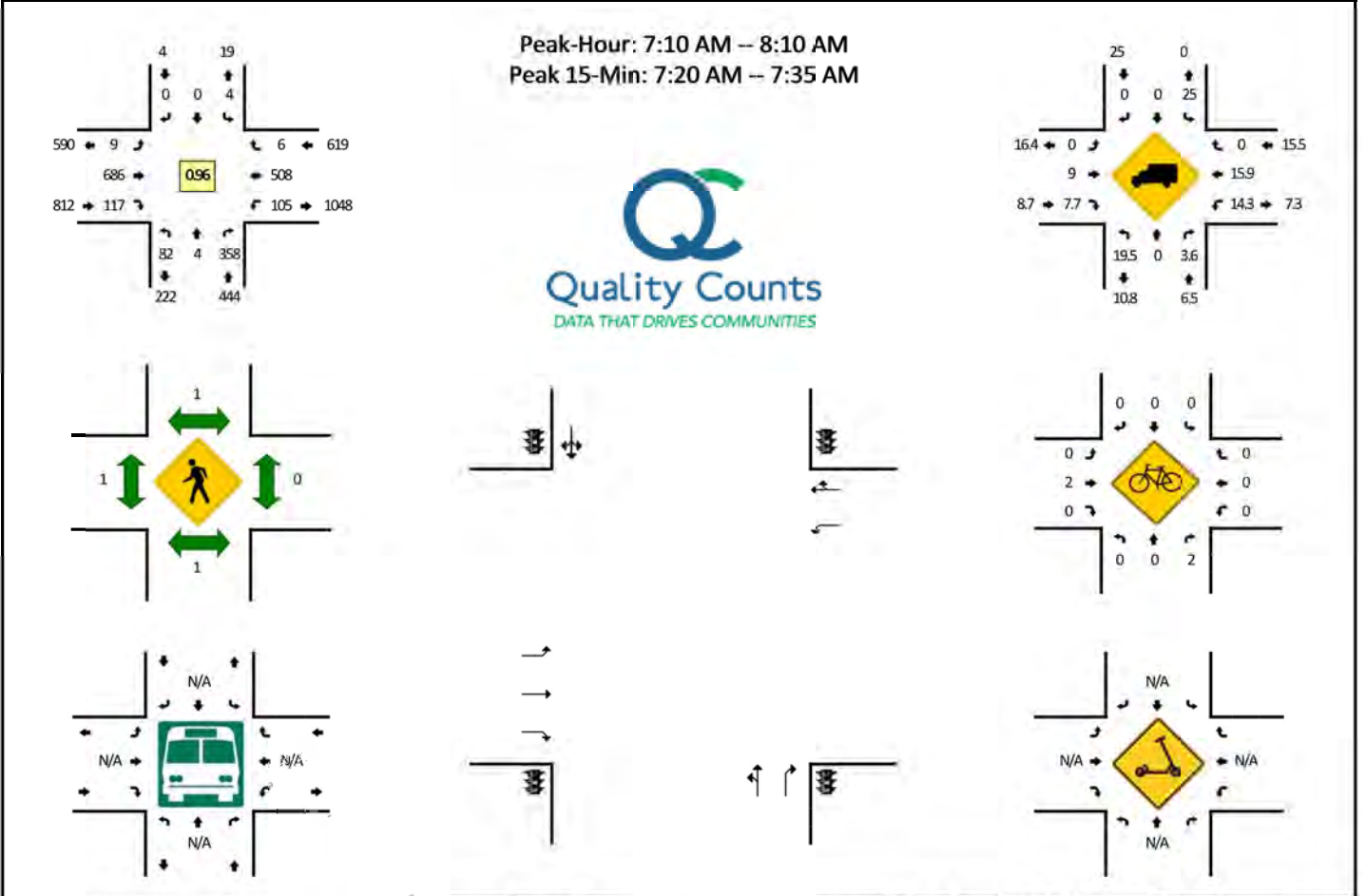


5-Min Count Period Beginning At	SW Murdock Rd/SW Baker Rd (Northbound)				SW Murdock Rd/SW Baker Rd (Southbound)				SW Sunset Blvd/McKinley Dr (Eastbound)				SW Sunset Blvd/McKinley Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	16	9	0	0	1	8	14	0	10	0	10	0	0	2	1	0	71	
4:05 PM	13	11	0	0	2	10	17	0	8	2	12	0	0	0	0	0	75	
4:10 PM	16	11	0	0	4	11	18	0	4	3	9	0	0	0	0	0	76	
4:15 PM	21	6	0	0	3	8	16	0	9	0	7	0	0	1	0	0	71	
4:20 PM	14	7	1	0	1	15	23	0	8	0	9	0	0	0	1	0	79	
4:25 PM	24	6	1	0	1	5	12	0	7	1	2	0	0	0	0	0	59	
4:30 PM	19	12	0	0	1	13	10	0	6	0	16	0	0	1	0	0	78	
4:35 PM	14	8	0	0	1	14	18	0	7	0	13	0	0	0	0	0	75	
4:40 PM	24	11	1	0	1	11	16	0	2	0	10	0	0	0	0	0	76	
4:45 PM	25	13	0	0	0	17	28	0	12	0	9	0	0	2	1	0	107	
4:50 PM	26	12	0	0	2	11	27	0	6	1	17	0	0	2	3	0	107	
4:55 PM	25	14	1	0	3	8	26	0	11	1	10	0	0	1	2	0	102	976
5:00 PM	14	9	1	0	1	12	14	0	5	0	11	0	0	1	3	0	71	976
5:05 PM	25	13	0	0	5	11	19	0	9	1	17	0	0	2	0	0	102	1003
5:10 PM	34	14	1	0	5	14	15	0	6	2	16	0	1	4	0	0	112	1039
5:15 PM	19	14	0	0	5	14	22	0	9	0	16	0	0	2	3	0	104	1072
5:20 PM	29	4	1	0	0	6	20	0	4	3	10	0	0	1	1	0	79	1072
5:25 PM	27	6	0	0	5	14	17	0	10	2	14	0	0	0	0	0	95	1108
5:30 PM	20	12	1	0	2	12	21	0	9	0	16	0	0	1	2	0	96	1126
5:35 PM	23	10	1	0	1	9	20	0	5	1	7	0	0	1	0	0	78	1129
5:40 PM	26	14	0	0	1	13	22	0	6	1	11	0	0	2	0	0	96	1149
5:45 PM	21	11	0	0	0	15	16	0	6	0	10	0	0	0	2	0	81	1123
5:50 PM	20	7	0	0	3	8	16	0	9	2	10	0	0	0	0	0	75	1091
5:55 PM	15	9	0	0	2	9	20	0	6	1	8	0	0	0	2	0	72	1061
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	312	164	4	0	60	156	224	0	96	12	196	0	4	32	12	0	1272	
Heavy Trucks	8	0	0	0	0	8	0	0	0	0	8	0	4	0	0	0	28	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	4		0	0	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: Oregon St -- Tualatin-Sherwood Rd
CITY/STATE: Washington, OR

QC JOB #: 14898001
DATE: Wed, Feb 13 2019

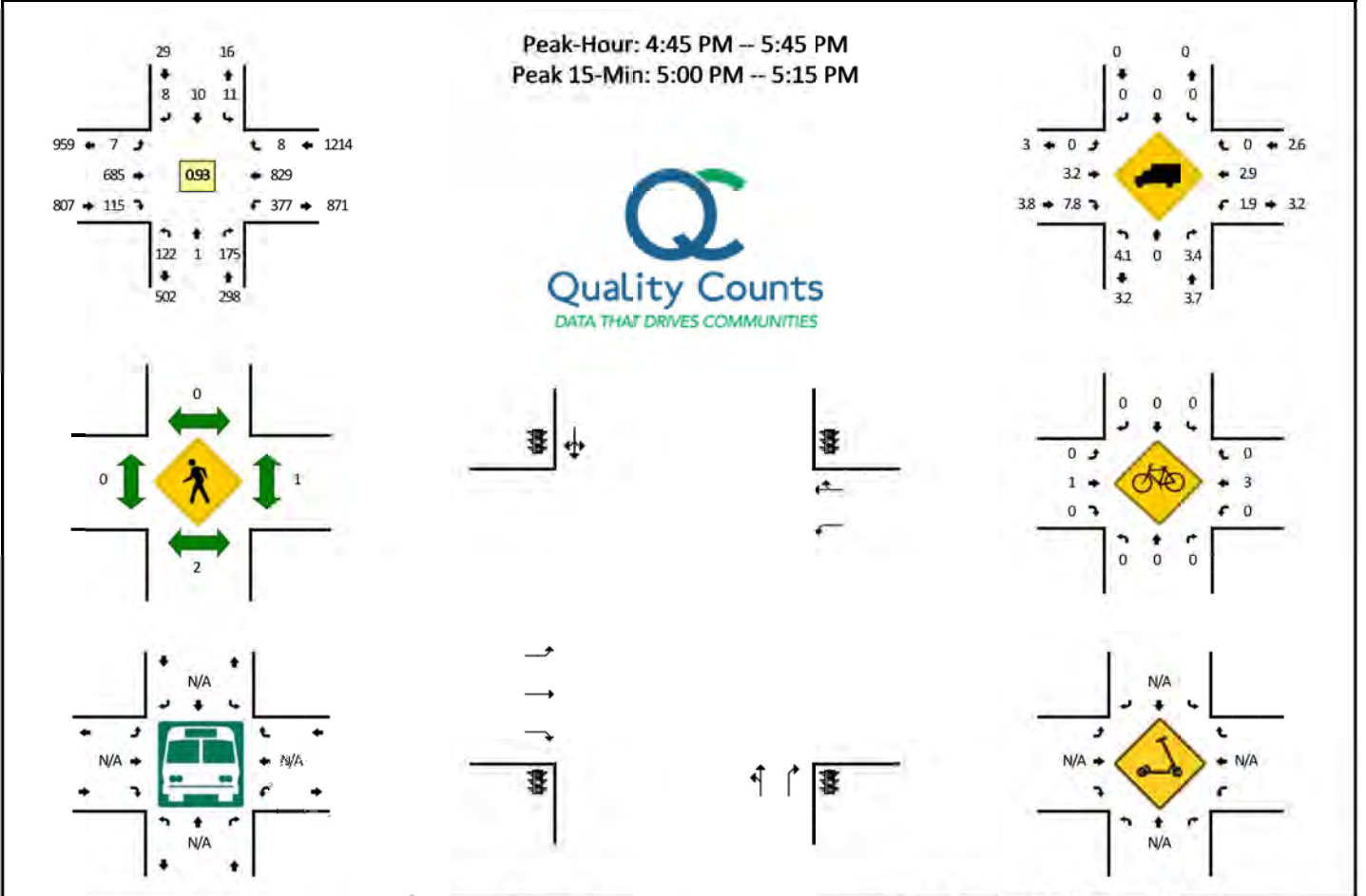


5-Min Count Period Beginning At	Oregon St (Northbound)				Oregon St (Southbound)				Tualatin-Sherwood Rd (Eastbound)				Tualatin-Sherwood Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	0	35	0	0	0	0	0	0	73	9	0	9	37	0	0	167	
7:05 AM	9	0	37	0	0	0	1	0	0	45	5	0	8	37	0	0	142	
7:10 AM	2	0	24	0	1	0	0	0	1	69	9	0	1	42	0	0	149	
7:15 AM	7	1	45	0	0	0	0	0	0	47	10	0	10	29	0	0	149	
7:20 AM	5	0	34	0	0	0	0	0	2	60	7	0	12	35	0	0	155	
7:25 AM	9	1	17	0	0	0	0	0	0	61	13	0	10	60	0	0	171	
7:30 AM	5	0	25	0	1	0	0	0	0	63	18	0	8	45	0	0	165	
7:35 AM	9	0	29	0	0	0	0	0	0	43	11	0	9	32	0	0	133	
7:40 AM	6	0	29	0	0	0	0	0	0	64	4	0	5	41	2	0	151	
7:45 AM	7	0	27	0	0	0	0	0	2	44	13	0	13	50	0	0	156	
7:50 AM	8	0	33	0	0	0	0	0	2	61	5	0	11	44	1	0	165	
7:55 AM	8	1	33	0	0	0	0	0	1	62	7	0	10	39	0	0	161	1864
8:00 AM	11	1	28	0	0	0	0	0	0	58	12	0	6	42	3	0	161	1858
8:05 AM	5	0	34	0	2	0	0	0	1	54	8	0	10	49	0	0	163	1879
8:10 AM	8	0	22	0	0	0	0	0	0	62	6	0	3	40	0	0	141	1871
8:15 AM	3	0	27	0	1	0	0	0	0	44	13	0	12	48	0	0	148	1870
8:20 AM	7	0	16	0	0	0	0	0	0	62	12	0	3	39	1	0	140	1855
8:25 AM	8	0	19	0	1	0	0	0	0	60	10	0	16	34	4	0	152	1836
8:30 AM	5	0	24	0	0	1	0	0	0	54	8	0	15	44	1	0	152	1823
8:35 AM	7	1	21	0	0	0	0	0	0	62	7	0	8	41	0	0	147	1837
8:40 AM	12	0	18	0	0	0	0	0	0	56	5	0	7	54	2	0	154	1840
8:45 AM	6	0	39	0	0	0	0	0	1	53	8	0	8	43	0	0	158	1842
8:50 AM	6	0	24	0	0	0	0	0	0	45	4	0	11	42	1	0	133	1810
8:55 AM	8	1	8	0	0	0	0	0	1	58	1	0	7	43	1	0	128	1777
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	76	4	304	0	4	0	0	0	8	736	152	0	120	560	0	0	1964	
Heavy Trucks	12	0	8		4	0	0		0	72	20		16	88	0		220	
Buses																		
Pedestrians		0				4				4				0			8	
Bicycles	0	0	4		0	0	0		0	4	0		0	0	0		8	
Scoters																		

Comments:

LOCATION: Oregon St -- Tualatin-Sherwood Rd
CITY/STATE: Washington, OR

QC JOB #: 14898002
DATE: Wed, Feb 13 2019

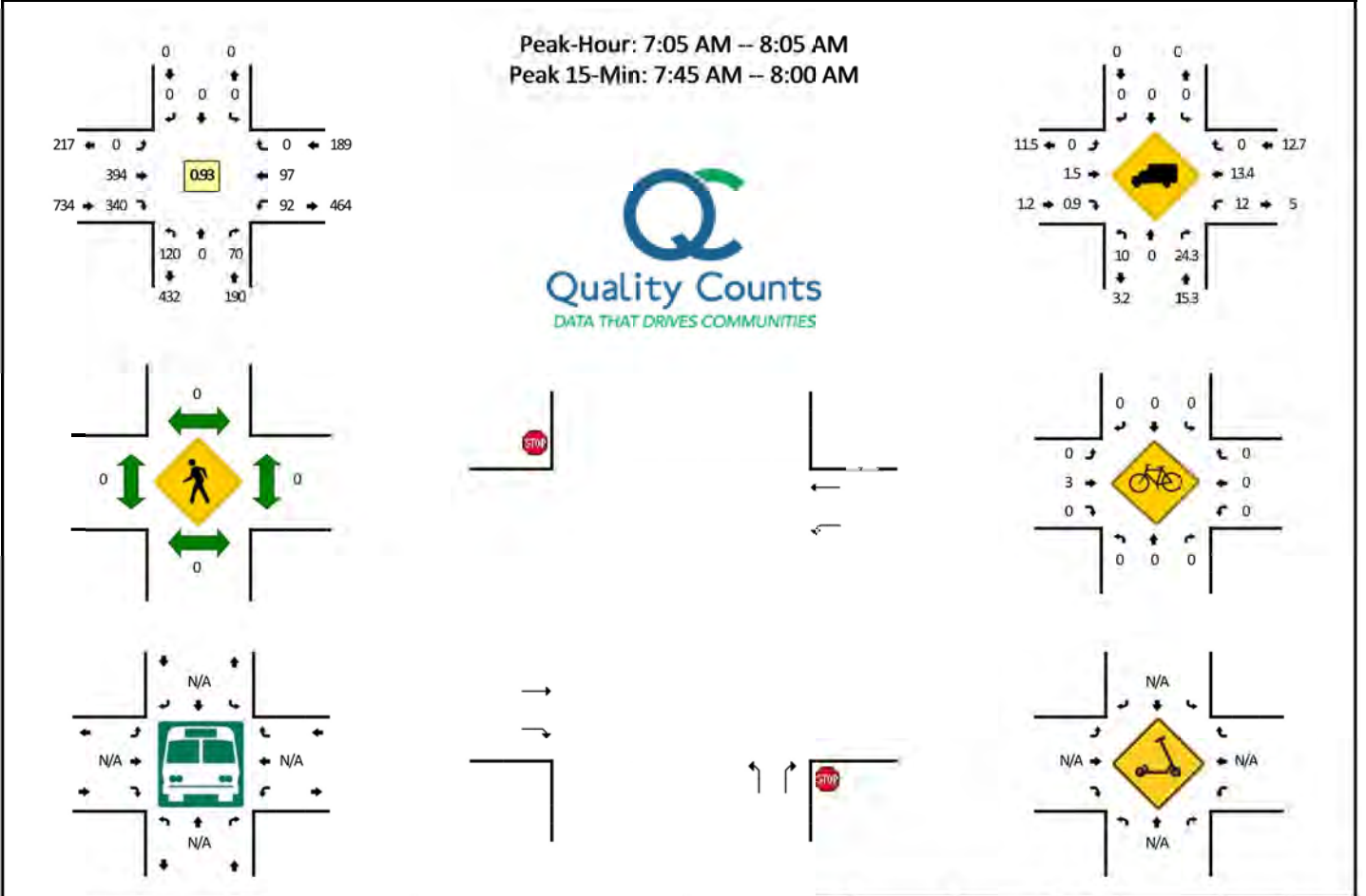


5-Min Count Period Beginning At	Oregon St (Northbound)				Oregon St (Southbound)				Tualatin-Sherwood Rd (Eastbound)				Tualatin-Sherwood Rd (Westbound)				Total	Hourly Totals	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
4:00 PM	5	0	11	0	0	0	1	0	0	0	62	11	0	25	70	0	0	185	
4:05 PM	12	0	15	0	0	1	0	0	0	0	58	11	0	20	55	0	0	172	
4:10 PM	12	0	22	0	3	1	0	0	0	0	49	8	0	29	65	0	0	189	
4:15 PM	6	0	7	0	2	0	0	0	0	1	64	7	0	24	63	0	0	174	
4:20 PM	9	0	14	0	1	0	0	0	0	0	42	13	0	29	68	0	0	176	
4:25 PM	6	1	9	0	0	1	2	0	0	0	43	11	0	26	62	2	0	163	
4:30 PM	6	0	7	0	1	0	0	0	0	0	57	9	0	33	78	0	0	191	
4:35 PM	11	0	12	0	0	0	0	0	0	0	62	13	0	22	55	0	0	175	
4:40 PM	6	1	13	0	1	0	1	0	0	1	46	9	0	36	77	0	0	191	
4:45 PM	12	0	20	0	1	0	0	0	0	0	46	11	0	25	64	1	0	180	
4:50 PM	13	0	8	0	1	0	0	0	0	0	54	12	0	31	70	0	0	189	
4:55 PM	13	0	14	0	1	1	0	0	0	0	58	7	0	29	61	0	0	184	2169
5:00 PM	5	0	12	0	4	2	0	0	0	0	64	12	0	28	67	0	0	194	2178
5:05 PM	10	0	23	0	0	1	1	0	0	0	74	17	0	27	62	2	0	217	2223
5:10 PM	10	0	22	0	3	4	2	0	0	1	68	9	0	28	74	1	0	222	2256
5:15 PM	10	0	19	0	0	0	1	0	0	1	58	7	0	32	59	0	0	187	2269
5:20 PM	8	0	11	0	0	0	1	0	0	0	52	9	0	37	79	1	0	198	2291
5:25 PM	9	0	8	0	0	0	0	0	0	1	50	9	0	31	76	0	0	184	2312
5:30 PM	10	1	15	0	1	2	1	0	0	1	50	12	0	35	66	3	0	197	2318
5:35 PM	16	0	11	0	0	0	1	0	0	1	54	7	0	34	69	0	0	193	2336
5:40 PM	6	0	12	0	0	0	1	0	0	2	57	3	0	40	82	0	0	203	2348
5:45 PM	5	0	13	0	0	0	0	0	0	0	46	6	0	32	66	1	0	169	2337
5:50 PM	11	0	13	0	1	0	0	0	0	0	45	4	0	27	64	1	0	166	2314
5:55 PM	7	0	14	0	1	0	0	0	0	1	52	6	0	17	74	1	0	173	2303
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total		
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U			
All Vehicles	100	0	228	0	28	28	12	0	4	824	152	0	332	812	12	0	2532		
Heavy Trucks	4	0	8		0	0	0		0	40	20		4	8	0		84		
Buses																			
Pedestrians		0				0				0				0			0		
Bicycles	0	0	0		0	0	0		0	4	0		0	0	0		4		
Scoters																			

Comments:

LOCATION: Tonquin Rd -- Oregon St
CITY/STATE: Washington, OR

QC JOB #: 14898023
DATE: Wed, Feb 13 2019

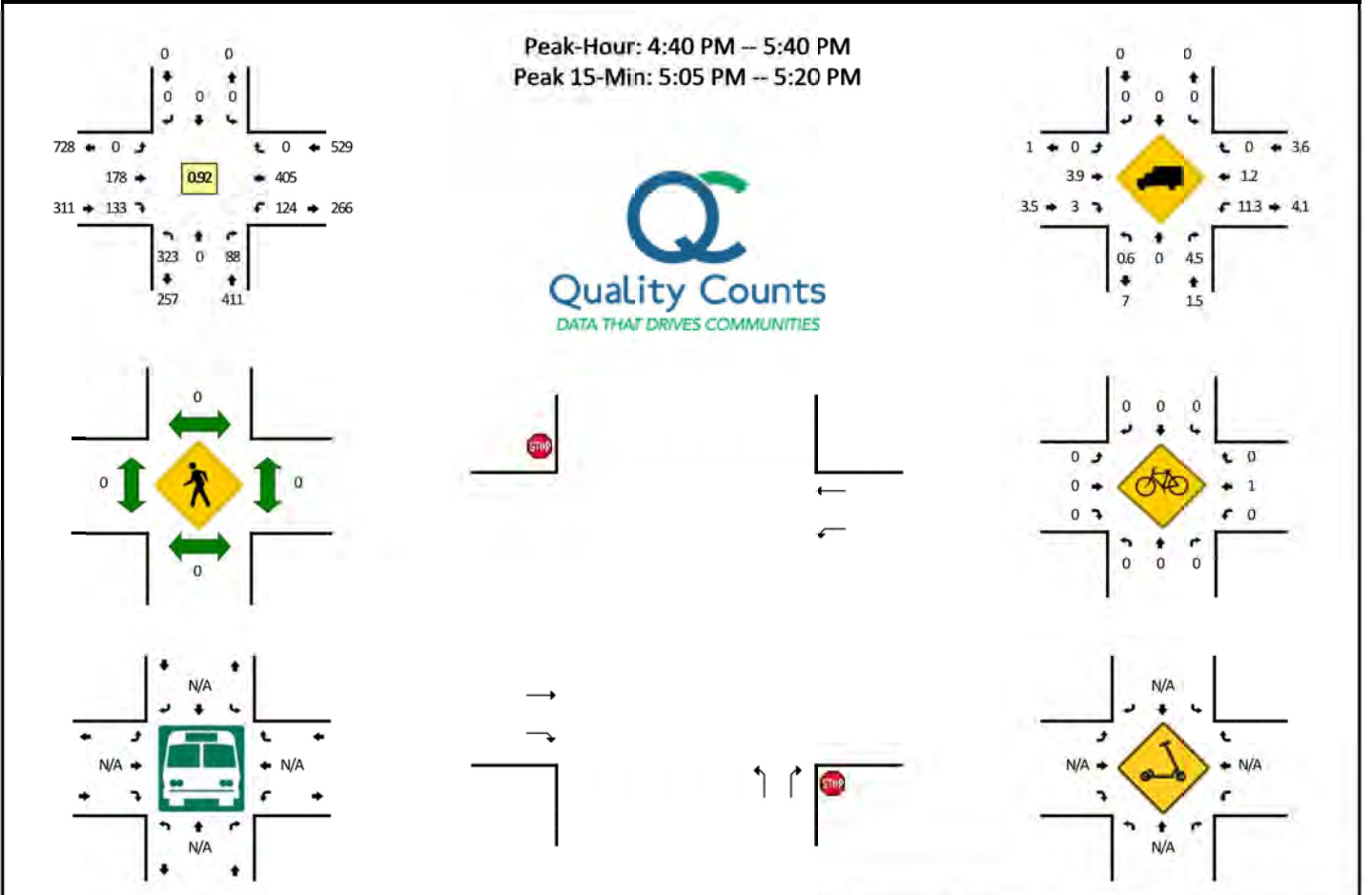


5-Min Count Period Beginning At	Tonquin Rd (Northbound)				Tonquin Rd (Southbound)				Oregon St (Eastbound)				Oregon St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	0	6	0	0	0	0	0	0	36	25	0	6	4	0	0	80	
7:05 AM	9	0	7	0	0	0	0	0	0	30	23	0	9	5	0	0	83	
7:10 AM	8	0	3	0	0	0	0	0	0	37	27	0	5	4	0	0	84	
7:15 AM	9	0	7	0	0	0	0	0	0	40	24	0	10	6	0	0	96	
7:20 AM	11	0	5	0	0	0	0	0	0	26	33	0	9	6	0	0	90	
7:25 AM	13	0	3	0	0	0	0	0	0	29	35	0	10	14	0	0	104	
7:30 AM	12	0	7	0	0	0	0	0	0	31	24	0	14	8	0	0	96	
7:35 AM	5	0	2	0	0	0	0	0	0	25	36	0	8	7	0	0	83	
7:40 AM	7	0	7	0	0	0	0	0	0	28	25	0	6	7	0	0	80	
7:45 AM	18	0	8	0	0	0	0	0	0	36	25	0	10	12	0	0	109	
7:50 AM	5	0	7	0	0	0	0	0	0	39	24	0	4	10	0	0	89	
7:55 AM	13	0	9	0	0	0	0	0	0	43	27	0	1	9	0	0	102	1096
8:00 AM	10	0	5	0	0	0	0	0	0	30	37	0	6	9	0	0	97	1113
8:05 AM	10	0	5	0	0	0	0	0	0	25	17	0	11	6	0	0	74	1104
8:10 AM	5	0	9	0	0	0	0	0	0	26	13	0	7	4	0	0	64	1084
8:15 AM	7	0	7	0	0	0	0	0	0	22	11	0	11	7	0	0	65	1053
8:20 AM	11	0	4	0	0	0	0	0	0	19	21	0	7	12	0	0	74	1037
8:25 AM	5	0	5	0	0	0	0	0	0	28	11	0	6	14	0	0	69	1002
8:30 AM	7	0	5	0	0	0	0	0	0	19	16	0	11	14	0	0	72	978
8:35 AM	8	0	6	0	0	0	0	0	0	21	8	0	3	11	0	0	57	952
8:40 AM	4	0	10	0	0	0	0	0	0	30	10	0	7	7	0	0	68	940
8:45 AM	13	0	6	0	0	0	0	0	0	31	11	0	5	9	0	0	75	906
8:50 AM	8	0	7	0	0	0	0	0	0	22	9	0	4	9	0	0	59	876
8:55 AM	9	0	7	0	0	0	0	0	0	10	2	0	0	10	0	1	39	813
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
All Vehicles	144	0	96	0	0	0	0	0	0	472	304	0	60	124	0	0	1200	
Heavy Trucks	16	0	32		0	0	0		0	4	4		4	16	0		76	
Buses																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	4	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: Tonquin Rd -- Oregon St
CITY/STATE: Washington, OR

QC JOB #: 14898024
DATE: Wed, Feb 13 2019

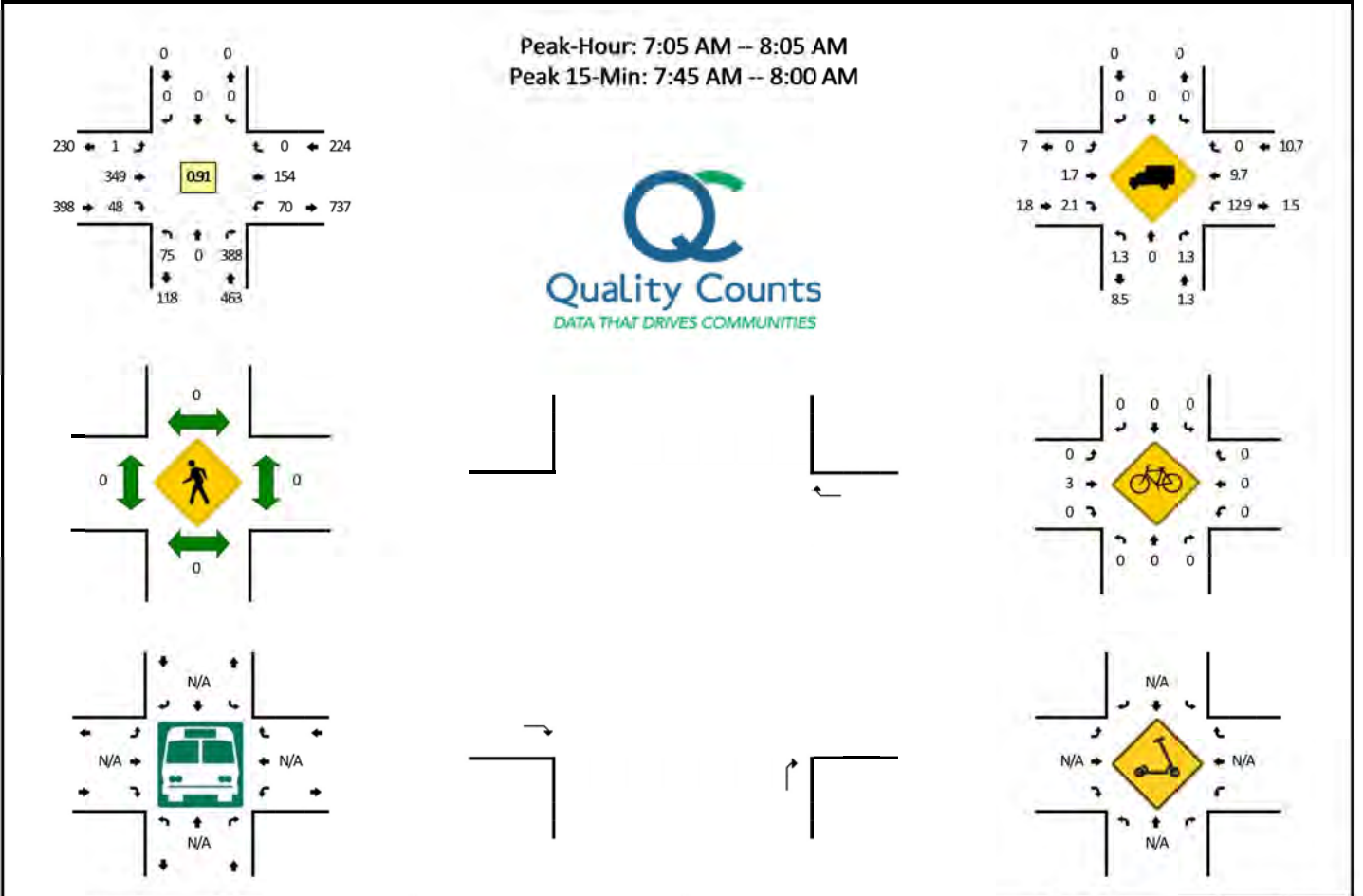


5-Min Count Period Beginning At	Tonquin Rd (Northbound)				Tonquin Rd (Southbound)				Oregon St (Eastbound)				Oregon St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	21	0	9	0	0	0	0	0	0	10	13	0	13	24	0	0	90	
4:05 PM	20	0	7	0	0	0	0	0	0	13	10	0	10	28	0	0	88	
4:10 PM	25	0	7	0	0	0	0	0	0	19	10	0	10	28	0	0	99	
4:15 PM	21	0	7	0	0	0	0	0	0	12	11	0	11	23	0	0	85	
4:20 PM	31	0	6	0	0	0	0	0	0	8	8	0	10	34	0	0	97	
4:25 PM	31	0	4	0	0	0	0	0	0	12	16	0	9	20	0	0	92	
4:30 PM	25	0	10	0	0	0	0	0	0	7	14	0	12	30	0	0	98	
4:35 PM	23	0	5	0	0	0	0	0	0	16	18	0	6	26	0	0	94	
4:40 PM	16	0	8	0	0	0	0	0	0	14	12	0	7	44	0	0	101	
4:45 PM	26	0	4	0	0	0	0	0	0	10	8	0	11	31	0	0	90	
4:50 PM	42	0	9	0	0	0	0	0	0	13	10	0	10	23	0	0	107	
4:55 PM	23	0	13	0	0	0	0	0	0	10	9	0	10	34	0	0	99	1140
5:00 PM	27	0	2	0	0	0	0	0	0	17	5	0	13	29	0	0	93	1143
5:05 PM	19	0	7	0	0	0	0	0	0	23	16	0	17	28	0	0	110	1165
5:10 PM	25	0	8	0	0	0	0	0	0	24	8	0	15	44	0	0	124	1190
5:15 PM	35	0	7	0	0	0	0	0	0	12	12	0	8	31	0	0	105	1210
5:20 PM	27	0	9	0	0	0	0	0	0	14	15	0	7	32	0	0	104	1217
5:25 PM	26	0	4	0	0	0	0	0	0	10	8	0	10	37	0	0	95	1220
5:30 PM	24	0	8	0	0	0	0	0	0	17	18	0	10	34	0	0	111	1233
5:35 PM	33	0	9	0	0	0	0	0	0	14	12	0	6	38	0	0	112	1251
5:40 PM	26	0	3	0	0	0	0	0	0	15	11	0	2	38	0	0	95	1245
5:45 PM	14	0	5	0	0	0	0	0	0	13	7	0	6	38	0	0	83	1238
5:50 PM	24	0	9	0	0	0	0	0	0	16	7	0	2	27	0	0	85	1216
5:55 PM	25	0	5	0	0	0	0	0	0	15	11	0	9	22	0	0	87	1204
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	316	0	88	0	0	0	0	0	0	236	144	0	160	412	0	0	1356	
Heavy Trucks	0	0	4		0	0	0		0	0	4		12	4	0		24	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

LOCATION: Murdock Rd -- Oregon St
CITY/STATE: Washington, OR

QC JOB #: 14898025
DATE: Wed, Feb 13 2019

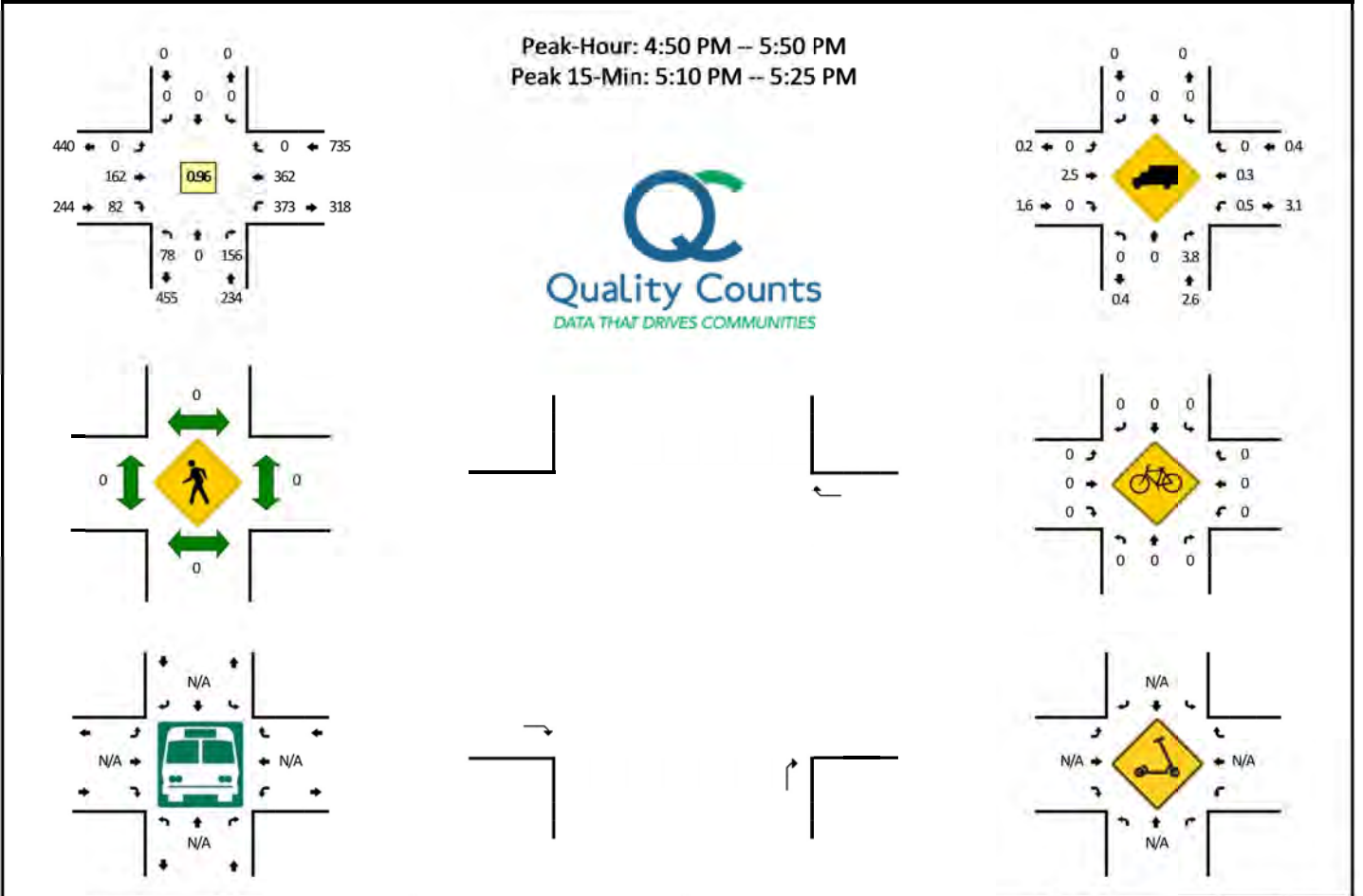


5-Min Count Period Beginning At	Murdock Rd (Northbound)				Murdock Rd (Southbound)				Oregon St (Eastbound)				Oregon St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	3	0	35	0	0	0	0	0	0	29	2	0	4	4	0	0	77	
7:05 AM	4	0	29	0	0	0	0	0	0	21	2	0	3	10	0	0	69	
7:10 AM	3	0	38	0	0	0	0	0	0	27	5	0	4	9	0	0	86	
7:15 AM	3	0	38	0	0	0	0	0	0	26	3	0	3	11	0	0	84	
7:20 AM	6	0	27	0	0	0	0	0	0	32	2	0	3	15	0	0	85	
7:25 AM	6	0	31	0	0	0	0	0	0	36	2	0	13	15	0	0	103	
7:30 AM	12	0	32	0	0	0	0	0	0	24	4	0	6	19	0	0	97	
7:35 AM	14	0	26	0	0	0	0	0	0	33	5	0	6	7	0	0	91	
7:40 AM	7	0	30	0	0	0	0	0	0	25	5	0	1	12	0	0	80	
7:45 AM	6	0	29	0	0	0	0	0	0	32	5	0	8	19	0	0	99	
7:50 AM	3	0	35	0	0	0	0	0	0	27	7	1	6	14	0	0	93	
7:55 AM	4	0	40	0	0	0	0	0	0	34	7	0	9	11	0	0	105	1069
8:00 AM	7	0	33	0	0	0	0	0	0	32	1	0	8	12	0	0	93	1085
8:05 AM	1	0	22	0	0	0	0	0	0	19	5	0	8	9	0	0	64	1080
8:10 AM	1	0	26	0	0	0	0	0	0	11	7	0	4	5	0	0	54	1048
8:15 AM	1	0	17	0	0	0	0	0	0	16	1	0	7	6	0	0	48	1012
8:20 AM	2	0	19	0	0	0	0	0	0	22	3	0	10	12	0	0	68	995
8:25 AM	7	0	25	0	0	0	0	0	0	13	1	0	11	9	0	0	66	958
8:30 AM	1	0	21	0	0	0	0	0	0	13	4	0	12	7	0	1	59	920
8:35 AM	5	0	18	0	0	0	0	0	0	10	2	0	13	6	0	0	54	883
8:40 AM	4	0	25	1	0	0	0	0	0	15	5	0	5	9	0	0	64	867
8:45 AM	2	0	30	0	0	0	0	0	0	11	2	0	12	10	0	0	67	835
8:50 AM	2	0	21	0	0	0	0	0	0	10	1	0	8	9	0	0	51	793
8:55 AM	8	0	8	0	0	0	0	0	0	2	2	0	8	10	0	0	38	726
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	52	0	416	0	0	0	0	0	0	372	76	4	92	176	0	0	1188	
Heavy Trucks	4	0	4		0	0	0		0	4	4		16	16	0		48	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	4	0		0	0	0		4	
Scoters																		

Comments:

LOCATION: Murdock Rd -- Oregon St
CITY/STATE: Washington, OR

QC JOB #: 14898026
DATE: Wed, Feb 13 2019



5-Min Count Period Beginning At	Murdock Rd (Northbound)				Murdock Rd (Southbound)				Oregon St (Eastbound)				Oregon St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	6	0	12	0	0	0	0	0	0	10	4	0	27	21	0	0	80	
4:05 PM	4	0	12	0	0	0	0	0	0	10	5	0	13	34	0	0	78	
4:10 PM	1	0	17	0	0	0	0	0	0	12	2	0	32	22	0	0	86	
4:15 PM	3	0	14	0	0	0	0	0	0	9	13	0	28	17	0	0	84	
4:20 PM	5	0	8	0	0	0	0	0	0	8	17	0	30	34	0	0	102	
4:25 PM	3	0	11	0	0	0	0	0	0	17	9	0	23	31	0	0	94	
4:30 PM	1	0	12	0	0	0	0	0	0	10	8	0	31	24	0	0	86	
4:35 PM	2	0	13	0	0	0	0	0	0	19	4	0	21	30	0	0	89	
4:40 PM	5	0	10	0	0	0	0	0	0	16	11	0	32	25	0	0	99	
4:45 PM	7	0	10	0	0	0	0	0	0	8	6	0	27	32	0	0	90	
4:50 PM	5	0	14	0	0	0	0	0	0	11	5	0	30	40	0	0	105	
4:55 PM	10	0	10	0	0	0	0	0	0	7	8	0	28	28	0	0	91	1084
5:00 PM	18	0	14	0	0	0	0	0	0	8	9	0	25	34	0	0	108	1112
5:05 PM	4	0	17	0	0	0	0	0	0	21	4	0	23	21	0	0	90	1124
5:10 PM	9	0	14	0	0	0	0	0	0	18	5	0	38	32	0	0	116	1154
5:15 PM	2	0	7	0	0	0	0	0	0	21	10	0	36	31	0	0	107	1177
5:20 PM	4	0	15	0	0	0	0	0	0	13	7	0	29	26	0	0	94	1169
5:25 PM	5	0	7	0	0	0	0	0	0	13	3	0	31	34	0	0	93	1168
5:30 PM	10	0	16	0	0	0	0	0	0	16	8	0	32	28	0	0	110	1192
5:35 PM	7	0	14	0	0	0	0	0	0	11	5	0	37	34	0	0	108	1211
5:40 PM	0	0	10	0	0	0	0	0	0	15	6	0	34	28	0	0	93	1205
5:45 PM	4	0	18	0	0	0	0	0	0	8	12	0	30	26	0	0	98	1213
5:50 PM	1	0	17	0	0	0	0	0	0	7	3	0	22	26	0	0	76	1184
5:55 PM	3	0	10	0	0	0	0	0	0	17	11	0	21	30	0	0	92	1185
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	60	0	144	0	0	0	0	0	0	208	88	0	412	356	0	0	1268	
Heavy Trucks	0	0	4		0	0	0		0	12	0		4	0	0		20	
Buses																		
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																		

Comments:

Appendix E

ODOT Crash Data Reports



1. Oregon & T-S Road

SW OREGON ST	2302	SW TUALATIN-SHERWOOD	1	INTER	9	CN	4	3-LEG	0	0	TRF SIGNAL	0	0	0	CLD	WET	DAY	ANGL-OTH	TURN	PDO		
SW OREGON ST	2302	SW TUALATIN-SHERWOOD	1	INTER	9	CN	4	3-LEG	0	0	TRF SIGNAL	0	0	0	RAIN	WET	DAY	ANGL-OTH	TURN	PDO		
SW OREGON ST	2302	SW TUALATIN-SHERWOOD	1	INTER	9	CN	4	3-LEG	0	0	TRF SIGNAL	0	0	0	RAIN	WET	DAY	ANGL-OTH	TURN	PDO		
SW OREGON ST	2302	SW TUALATIN-SHERWOOD	1	INTER	9	CN	4	3-LEG	0	0	TRF SIGNAL	0	0	0	CLR	DRY	DAY	S-OTHER	TURN	PDO		
SW OREGON ST	2302	SW TUALATIN-SHERWOOD	1	INTER	9	CN	4	3-LEG	0	0	TRF SIGNAL	0	0	0	CLR	DRY	DAY	S-OTHER	TURN	PDO		
SW OREGON ST	2302	SW TUALATIN-SHERWOOD	1	INTER	9	CN	4	3-LEG	0	0	TRF SIGNAL	0	0	0	CLR	DRY	DAY	ANGL-OTH	TURN	PDO		
SW OREGON ST	2302	SW TUALATIN-SHERWOOD	1	INTER	9	CN	4	3-LEG	0	0	TRF SIGNAL	0	0	0	CLR	DRY	DAY	ANGL-OTH	TURN	PDO		
SW OREGON ST	2302	SW TUALATIN-SHERWOOD	1	INTER	9	CN	4	3-LEG	0	0	TRF SIGNAL	0	0	0	CLR	DRY	DUSK	ANGL-OTH	TURN	PDO		
SW OREGON ST	2302	SW TUALATIN-SHERWOOD	1	INTER	9	CN	4	3-LEG	0	0	TRF SIGNAL	0	0	0	CLR	DRY	DUSK	ANGL-OTH	TURN	PDO		

1. Oregon & T-S Road

	2		45	22	5.83	45.36828611	-122	48	58.75	-122.8163194	3194951	0	2	PSNGR CAR	NONE	9	N/A	STRGHT	W	E	0					0
	2		45	22	5.83	45.36828611	-122	48	58.75	-122.8163194	3303294	1	1	SEMI TOW	NONE	9	N/A	STRGHT	W	E	0					0
	2		45	22	5.83	45.36828611	-122	48	58.75	-122.8163194	3303295	0	2	PSNGR CAR	NONE	9	N/A	TURN-R	S	E	0					0
	8		45	22	5.83	45.36828611	-122	48	58.75	-122.8163194	3304246	1	1	SEMI TOW	NONE	9	N/A	TURN-R	S	E	0					0
	8		45	22	5.83	45.36828611	-122	48	58.75	-122.8163194	3304247	0	2	PSNGR CAR	NONE	9	N/A	TURN-R	S	E	0					0
	2		45	22	5.83	45.36828611	-122	48	58.75	-122.8163194	3320947	1	1	PSNGR CAR	NONE	9	N/A	TURN-R	S	E	0					0
	2		45	22	5.83	45.36828611	-122	48	58.75	-122.8163194	3320948	0	2	SEMI TOW	NONE	9	N/A	STRGHT	W	E	0					0
	2		45	22	5.83	45.36828611	-122	48	58.75	-122.8163194	3320965	1	1	PSNGR CAR	NONE	9	N/A	TURN-R	S	E	0					0
	2		45	22	5.83	45.36828611	-122	48	58.75	-122.8163194	3320966	0	2	SEMI TOW	NONE	9	N/A	STRGHT	W	E	0					0

1. Oregon & T-S Road

PARTIC_I D	STRIK_P ARTIC_FLG	PARTIC_VH CL_SEQ	PARTIC_T NO_YP_CD	PARTIC_TYP SC	PARTIC_MVM SHORT_DE	PARTIC_CMPSS_D NT_SHORT_D	PARTIC_CMPSS IR_FROM_SHORT DESC	INJ_SVRTY_ SHORT_DES	AGE_VA L	SEX_CD ESC	DRVR_LIC_ST AT_SHORT_D	DRVR_RES_ SHORT_DES	NON_MOTRST PARTIC_A	PARTIC_E LOC_SHORT_ RR_1_CD	PARTIC_E RR_2_CD	PARTIC_E RR_3_CD	PARTIC_E VNT_1_CD	PARTIC_E VNT_2_CD	PARTIC_E VNT_3_CD	PARTIC_C D	PARTIC_C AUSE_1_C	PARTIC_C AUSE_2_C	PARTIC_C AUSE_3_C	TOTAL_C D	TOTAL_R RASHES	TOTAL_O OWS
3647325	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	0	0	0	320	788	
3647326	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	0	0	0	320	788	
3775180	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	0	0	0	320	788	
3775181	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	0	0	0	320	788	
3407052	0	1	1	DRVR				NONE	42	2	OR-Y	OR<25	0	52	14	26				32			320	788		
3407053	0	1	1	DRVR				NONE	56	2	OR-Y	OR<25	0	0						0			320	788		
3407054	0	1	1	DRVR				NONE	53	1	OR-Y	OR<25	0	0						0			320	788		
3464551	0	1	1	DRVR				NONE	21	2	OR-Y	OR<25	0	42						7			320	788		
3464552	0	1	1	DRVR				NONE	23	1	OR-Y	OR<25	0	0						0			320	788		
3464553	0	1	1	DRVR				INJB	58	2	OR-Y	OR<25	0	0						0			320	788		
3605376	0	1	1	DRVR				INJC	75	1	OR-Y	OR<25	0	20						4			320	788		
3605377	0	1	1	DRVR				INJC	48	1	OR-Y	OR<25	0	0						0			320	788		
3605378	0	1	1	DRVR				NONE	22	2	OR-Y	OR<25	0	0						0			320	788		
3667908	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0						0			320	788		
3667909	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0						0			320	788		
3717392	0	1	1	DRVR				NONE	21	2	OR-Y	OR<25	0	43						7			320	788		
3717393	0	1	1	DRVR				INJC	21	1	OR-Y	OR<25	0	0						0			320	788		
3717394	0	1	1	DRVR				NONE	32	1	OR-Y	OR<25	0	0						0			320	788		
3811189	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	26						29			320	788		
3811190	0	1	1	DRVR				INJC	70	2	OR-Y	OR>25	0	0						0			320	788		
3912517	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0						0			320	788		
3912518	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0						0			320	788		
3521189	0	1	1	DRVR				NONE	33	1	SUSP	OR<25	0	26						29			320	788		
3521190	0	1	1	DRVR				NONE	57	2	OR-Y	OR<25	0	0						0			320	788		
3532612	0	1	1	DRVR				NONE	22	1	OR-Y	OR<25	0	43						7			320	788		
3532613	0	1	1	DRVR				NONE	23	2	OTH-Y	OR<25	0	0						0			320	788		
3371995	0	1	1	DRVR				NONE	36	1	SUSP	OR<25	0	52	43	26				32	7		320	788		
3371996	0	1	1	DRVR				NONE	22	2	OR-Y	OR<25	0	0						0			320	788		
3582186	0	1	1	DRVR				NONE	41	2	OR-Y	OR<25	0	43						7			320	788		
3582187	0	1	1	DRVR				INJC	59	2	OR-Y	OR<25	0	0						0			320	788		
3631658	0	1	1	DRVR				NONE	40	1	OR-Y	OR<25	0	43						7			320	788		
3631659	0	1	1	DRVR				INJC	47	2	OR-Y	OR<25	0	0						0			320	788		
3631660	0	1	1	DRVR				NONE	50	1	OR-Y	OR<25	0	0						0			320	788		
3693647	0	1	1	DRVR				NONE	24	1	OR-Y	OR<25	0	16	26	52	93			27	29	32	320	788		
3693648	0	1	1	DRVR				INJC	21	2	OR-Y	OR<25	0	0						0			320	788		
3693649	0	2	2	PSNG				NO<5	1	1			0	0						0			320	788		
3693650	0	1	1	DRVR				INJC	30	2	OR-Y	OR<25	0	0						0			320	788		
3693651	0	1	1	DRVR				NONE	47	1	OR-Y	OR<25	0	0						0			320	788		
3723562	0	1	1	DRVR				NONE	23	1	OR-Y	OR<25	0	43						7			320	788		
3723563	0	1	1	DRVR				NONE	31	1	OR-Y	OR<25	0	0						0			320	788		
3723564	0	2	2	PSNG				INJB	35	2			0	0						0			320	788		
3769650	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0						0			320	788		
3769651	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0						0			320	788		
3772709	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0						0			320	788		
3772710	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0						0			320	788		
3435670	0	1	1	DRVR				NONE	46	1	OR-Y	OR<25	0	0						0			320	788		
3435671	0	2	2	PSNG				INJC	42	2			0	0						0			320	788		
3435672	0	3	2	PSNG				INJC	13	2			0	0						0			320	788		
3435673	0	4	2	PSNG				INJC	9	1			0	0						0			320	788		
3435674	0	1	1	DRVR				INJB	70	1	OR-Y	OR<25	0	4	28					2			320	788		
3435675	0	1	1	DRVR				NONE	52	2	OR-Y	OR<25	0	0						0			320	788		
3472237	0	1	1	DRVR				INJB	70	2	OR-Y	OR<25	0	0						0			320	788		
3472238	0	2	2	PSNG				INJB	63	1			0	0						0			320	788		
3472239	0	1	1	DRVR				INJC	31	1	OR-Y	OR<25	0	4	28					2			320	788		
3472240	0	2	2	PSNG				INJC	30	2			0	0						0			320	788		
3509259	0	1	1	DRVR				INJC	26	1	OR-Y	OR<25	0	0						0			320	788		
3509260	0	1	1	DRVR				NONE	45	1	OR-Y	OR<25	0	4	28					2			320	788		
3595510	0	1	1	DRVR				INJB	48	1	OR-Y	OR<25	0	4	20					4			320	788		
3595511	0	1	1	DRVR				INJC	39	2	OR-Y	OR<25	0	0						0			320	788		
3595512	0	1	1	DRVR				NONE	42	1	OTH-Y	N-RES	0	0						0			320	788		
3621932	0	1	1	DRVR				NONE	60	2	OR-Y	OR<25	0	4	28					2			320	788		
3621933	0	1	1	DRVR				INJB	47	1	OR-Y	OR<25	0	0						0			320	788		
3626906	0	1	1	DRVR				INJC	57	1	OR-Y	OR<25	0	0						0			320	788		
3626907	0	1	1	DRVR				NONE	38	1	OR-Y	OR<25	0	4	28					2			320	788		
3659390	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0						0			320	788		
3659391	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0						0			320	788		
3728748	0	1	1	DRVR				NONE	41	1	OR-Y	OR>25	0	0						0			320	788		

1. Oregon & T-S Road

3464552	0	1	1	DRVR	NONE	23	1	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3464553	0	1	1	DRVR	INJB	58	2	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3605376	0	1	1	DRVR	INJC	75	1	OR-Y	OR<25	0	20	4	0	0	0	0	0	51	120
3605377	0	1	1	DRVR	INJC	48	1	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3605378	0	1	1	DRVR	NONE	22	2	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3667908	0	1	1	DRVR	NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	51	120
3667909	0	1	1	DRVR	NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	51	120
3717392	0	1	1	DRVR	NONE	21	2	OR-Y	OR<25	0	43	7	0	0	0	0	0	51	120
3717393	0	1	1	DRVR	INJC	21	1	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3717394	0	1	1	DRVR	NONE	32	1	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3811189	0	1	1	DRVR	NONE	0	9	UNK	UNK	0	26	29	0	0	0	0	0	51	120
3811190	0	1	1	DRVR	INJC	70	2	OR-Y	OR>25	0	0	0	0	0	0	0	0	51	120
3912517	0	1	1	DRVR	NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	51	120
3912518	0	1	1	DRVR	NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	51	120
3521189	0	1	1	DRVR	NONE	33	1	SUSP	OR<25	0	26	29	0	0	0	0	0	51	120
3521190	0	1	1	DRVR	NONE	57	2	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3532612	0	1	1	DRVR	NONE	22	1	OR-Y	OR<25	0	43	7	0	0	0	0	0	51	120
3532613	0	1	1	DRVR	NONE	23	2	OTH-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3371995	0	1	1	DRVR	NONE	36	1	SUSP	OR<25	0	52	43	26	32	7	0	0	51	120
3371996	0	1	1	DRVR	NONE	22	2	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3582186	0	1	1	DRVR	NONE	41	2	OR-Y	OR<25	0	43	7	0	0	0	0	0	51	120
3582187	0	1	1	DRVR	INJC	59	2	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3631658	0	1	1	DRVR	NONE	40	1	OR-Y	OR<25	0	43	7	0	0	0	0	0	51	120
3631659	0	1	1	DRVR	INJC	47	2	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3631660	0	1	1	DRVR	NONE	50	1	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3693647	0	1	1	DRVR	NONE	24	1	OR-Y	OR<25	0	16	26	52	93	27	29	32	51	120
3693648	0	1	1	DRVR	INJC	21	2	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3693649	0	2	2	PSNG	NO<5	1	1			0	0	0	0	0	0	0	0	51	120
3693650	0	1	1	DRVR	INJC	30	2	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3693651	0	1	1	DRVR	NONE	47	1	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3723562	0	1	1	DRVR	NONE	23	1	OR-Y	OR<25	0	43	7	0	0	0	0	0	51	120
3723563	0	1	1	DRVR	NONE	31	1	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3723564	0	2	2	PSNG	INJB	35	2			0	0	0	0	0	0	0	0	51	120
3769650	0	1	1	DRVR	NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	51	120
3769651	0	1	1	DRVR	NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	51	120
3772709	0	1	1	DRVR	NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	51	120
3772710	0	1	1	DRVR	NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	51	120
3435670	0	1	1	DRVR	NONE	46	1	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3435671	0	2	2	PSNG	INJC	42	2			0	0	0	0	0	0	0	0	51	120
3435672	0	3	2	PSNG	INJC	13	2			0	0	0	0	0	0	0	0	51	120
3435673	0	4	2	PSNG	INJC	9	1			0	0	0	0	0	0	0	0	51	120
3435674	0	1	1	DRVR	INJB	70	1	OR-Y	OR<25	0	4	28	2	0	0	0	0	51	120
3435675	0	1	1	DRVR	NONE	52	2	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3472237	0	1	1	DRVR	INJB	70	2	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3472238	0	2	2	PSNG	INJB	63	1			0	0	0	0	0	0	0	0	51	120
3472239	0	1	1	DRVR	INJC	31	1	OR-Y	OR<25	0	4	28	2	0	0	0	0	51	120
3472240	0	2	2	PSNG	INJC	30	2			0	0	0	0	0	0	0	0	51	120
3509259	0	1	1	DRVR	INJC	26	1	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3509260	0	1	1	DRVR	NONE	45	1	OR-Y	OR<25	0	4	28	2	0	0	0	0	51	120
3595510	0	1	1	DRVR	INJB	48	1	OR-Y	OR<25	0	4	20	4	0	0	0	0	51	120
3595511	0	1	1	DRVR	INJC	39	2	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3595512	0	1	1	DRVR	NONE	42	1	OTH-Y	N-RES	0	0	0	0	0	0	0	0	51	120
3621932	0	1	1	DRVR	NONE	60	2	OR-Y	OR<25	0	4	28	2	0	0	0	0	51	120
3621933	0	1	1	DRVR	INJB	47	1	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3626906	0	1	1	DRVR	INJC	57	1	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3626907	0	1	1	DRVR	NONE	38	1	OR-Y	OR<25	0	4	28	2	0	0	0	0	51	120
3659390	0	1	1	DRVR	NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	51	120
3659391	0	1	1	DRVR	NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	51	120
3728748	0	1	1	DRVR	NONE	41	1	OR-Y	OR>25	0	0	0	0	0	0	0	0	51	120
3728749	0	2	2	PSNG	INJC	38	1			0	0	0	0	0	0	0	0	51	120
3728750	0	1	1	DRVR	INJB	55	1	OR-Y	OR<25	0	28	2	0	0	0	0	0	51	120
3729143	0	1	1	DRVR	INJC	40	2	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3729144	0	1	1	DRVR	NONE	47	1	OR-Y	OR<25	0	20	4	0	0	0	0	0	51	120
3732848	0	1	1	DRVR	INJB	24	1	OTH-Y	OR<25	0	20	4	0	0	0	0	0	51	120
3732849	0	1	1	DRVR	INJB	33	2	OR-Y	OR<25	0	0	0	0	0	0	0	0	51	120
3732850	0	2	2	PSNG	INJB	12	2			0	0	0	0	0	0	0	0	51	120
3732851	0	3	2	PSNG	INJB	11	2			0	0	0	0	0	0	0	0	51	120
3789349	0	1	1	DRVR	NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	51	120
3789350	0	1	1	DRVR	NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	51	120
3648129	0	1	1	DRVR	NONE	0	9	UNK	UNK	0	0	0	0	0	0	0	0	51	120

1. Oregon & T-S Road

3648130	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0					0	51	120
3769039	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0					0	51	120
3769040	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0					0	51	120
3769980	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0					0	51	120
3769981	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0					0	51	120
3786303	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0					0	51	120
3786304	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0					0	51	120
3786320	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0					0	51	120
3786321	0	1	1	DRVR				NONE	0	9	UNK	UNK	0	0					0	51	120

2. Oregon & Tonquin

CRASH_ID	INVSTG_AGY CRASH_SPEE										CRASH_HR		HWY_COMPN															
	INT_ID	SER_NO	C	G	VLV_FLG	VLV_FLG	V_FLG	NE_IND	NE_IND	FLG	UNLOCT	CRASH_DT	CRASH_W	CRASH_C	CNTY_NM	CITY_SECT	URB_AREA_SHOR	RDWY_N	FC_CD	MPNT_CD	SC	P_CD	NO	LRS_VAL	MP_NO	ST_NO		
1652449	2	7158	COUNTY		0	0	0		0	N	FALSE	11/25/2015	4	3P	Washington	Sherwood	PORTLAND UA									16	1803	
1652449	2	7158	COUNTY		0	0	0		0	N	FALSE	11/25/2015	4	3P	Washington	Sherwood	PORTLAND UA										16	1803
1764832	2	7780	CITY		0	0	0		0	N	FALSE	12/6/2017	4	1P	Washington	Sherwood	PORTLAND UA										16	1803
1764832	2	7780	CITY		0	0	0		0	N	FALSE	12/6/2017	4	1P	Washington	Sherwood	PORTLAND UA										16	1803
1823390	2	5509	NONE		0	0	0		0	N	FALSE	10/16/2018	3	4P	Washington	Sherwood	PORTLAND UA										16	1803
1823390	2	5509	NONE		0	0	0		0	N	FALSE	10/16/2018	3	4P	Washington	Sherwood	PORTLAND UA										16	1803
1718125	2	1128	CITY		0	0	0		0	N	FALSE	2/27/2017	2	4P	Washington	Sherwood	PORTLAND UA										16	1803
1718125	2	1128	CITY		0	0	0		0	N	FALSE	2/27/2017	2	4P	Washington	Sherwood	PORTLAND UA										16	1803
1718125	2	1128	CITY		0	0	0		0	N	FALSE	2/27/2017	2	4P	Washington	Sherwood	PORTLAND UA										16	1803
1823519	2	6949	CITY		0	0	0		0	N	FALSE	12/18/2018	3	5P	Washington	Sherwood	PORTLAND UA										16	1803
1823519	2	6949	CITY		0	0	0		0	N	FALSE	12/18/2018	3	5P	Washington	Sherwood	PORTLAND UA										16	1803
1652449	2	7158	COUNTY		0	0	0		0	N	FALSE	11/25/2015	4	3P	Washington	Sherwood	PORTLAND UA										16	1803
1652449	2	7158	COUNTY		0	0	0		0	N	FALSE	11/25/2015	4	3P	Washington	Sherwood	PORTLAND UA										16	1803
1764832	2	7780	CITY		0	0	0		0	N	FALSE	12/6/2017	4	1P	Washington	Sherwood	PORTLAND UA										16	1803
1764832	2	7780	CITY		0	0	0		0	N	FALSE	12/6/2017	4	1P	Washington	Sherwood	PORTLAND UA										16	1803
1823390	2	5509	NONE		0	0	0		0	N	FALSE	10/16/2018	3	4P	Washington	Sherwood	PORTLAND UA										16	1803
1823390	2	5509	NONE		0	0	0		0	N	FALSE	10/16/2018	3	4P	Washington	Sherwood	PORTLAND UA										16	1803
1718125	2	1128	CITY		0	0	0		0	N	FALSE	2/27/2017	2	4P	Washington	Sherwood	PORTLAND UA										16	1803
1718125	2	1128	CITY		0	0	0		0	N	FALSE	2/27/2017	2	4P	Washington	Sherwood	PORTLAND UA										16	1803
1718125	2	1128	CITY		0	0	0		0	N	FALSE	2/27/2017	2	4P	Washington	Sherwood	PORTLAND UA										16	1803
1823519	2	6949	CITY		0	0	0		0	N	FALSE	12/18/2018	3	5P	Washington	Sherwood	PORTLAND UA										16	1803
1823519	2	6949	CITY		0	0	0		0	N	FALSE	12/18/2018	3	5P	Washington	Sherwood	PORTLAND UA										16	1803
1820129	2	6043	NONE		0	0	0		0	N	FALSE	11/7/2018	4	3P	Washington		PORTLAND UA										16	1848
1820129	2	6043	NONE		0	0	0		0	N	FALSE	11/7/2018	4	3P	Washington		PORTLAND UA										16	1848
1820129	2	6043	NONE		0	0	0		0	N	FALSE	11/7/2018	4	3P	Washington		PORTLAND UA										16	1848
1820129	2	6043	NONE		0	0	0		0	N	FALSE	11/7/2018	4	3P	Washington		PORTLAND UA										16	1848
1616443	2	6290	NONE		0	0	0		0	N	FALSE	10/26/2015	2	3P	Washington		PORTLAND UA										16	2324
1616443	2	6290	NONE		0	0	0		0	N	FALSE	10/26/2015	2	3P	Washington		PORTLAND UA										16	2324

2. Oregon & Tonquin

ST_NM	ISECT_ST_NO	ISECT_ST_NM	RD_CHAR		CMPSS_DIR	CMPSS_DIR	CMPSS_DIR	IMPCT_L	ISECT_TYP	MEDN_TYP	TURNQ_L	LN_QTY	L_FLG	TRAF_CNTRL_DE			WTHR_COND			RD_SURF_S	LGT_COND	COLLIS_TYP	CRASH_SVRT	CRASH_E	CRASH_E
			R_CD	C										ESC	WY_FLG	REL_FLG	C	C	SHORT_DESC						
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	1	3-LEG		0		0	STOP SIGN	0	0	0	CLR	DRY	DAY	S-1STOP	REAR	PDO		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	1	3-LEG		0		0	STOP SIGN	0	0	0	CLR	DRY	DAY	S-1STOP	REAR	PDO		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	1	3-LEG		0		0	STOP SIGN	0	0	0	CLR	DRY	DAY	ANGL-OTH	TURN	PDO		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	1	3-LEG		0		0	STOP SIGN	0	0	0	CLR	DRY	DAY	ANGL-OTH	TURN	PDO		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	1	3-LEG		0		0	STOP SIGN	0	0	0	CLR	DRY	DAY	ANGL-OTH	TURN	PDO		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	2	3-LEG		0		0	STOP SIGN	0	0	0	CLD	DRY	DAY	ANGL-OTH	TURN	INJ		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	2	3-LEG		0		0	STOP SIGN	0	0	0	CLD	DRY	DAY	ANGL-OTH	TURN	INJ		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	2	3-LEG		1		0	STOP SIGN	0	0	0	RAIN	WET	DLIT	ANGL-OTH	TURN	PDO		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	2	3-LEG		1		0	STOP SIGN	0	0	0	RAIN	WET	DLIT	ANGL-OTH	TURN	PDO		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	1	3-LEG		0		0	STOP SIGN	0	0	0	CLR	DRY	DAY	S-1STOP	REAR	PDO		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	1	3-LEG		0		0	STOP SIGN	0	0	0	CLR	DRY	DAY	S-1STOP	REAR	PDO		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	1	3-LEG		0		0	STOP SIGN	0	0	0	CLR	DRY	DAY	ANGL-OTH	TURN	PDO		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	1	3-LEG		0		0	STOP SIGN	0	0	0	CLR	DRY	DAY	ANGL-OTH	TURN	PDO		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	2	3-LEG		0		0	STOP SIGN	0	0	0	CLD	DRY	DAY	ANGL-OTH	TURN	INJ		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	2	3-LEG		0		0	STOP SIGN	0	0	0	CLD	DRY	DAY	ANGL-OTH	TURN	INJ		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	2	3-LEG		1		0	STOP SIGN	0	0	0	RAIN	WET	DLIT	ANGL-OTH	TURN	PDO		
SW OREGON ST	2303	SW TONQUIN RD	1	INTER	9		CN	2	3-LEG		1		0	STOP SIGN	0	0	0	RAIN	WET	DLIT	ANGL-OTH	TURN	PDO		
SW OREGON ST	2324	SW TONQUIN RD	1	INTER	9		CN	2	3-LEG		0		0	STOP SIGN	0	0	0	CLR	DRY	DAY	ANGL-OTH	TURN	PDO		
SW OREGON ST	2324	SW TONQUIN RD	1	INTER	9		CN	2	3-LEG		0		0	STOP SIGN	0	0	0	CLR	DRY	DAY	ANGL-OTH	TURN	PDO		
SW OREGON ST	2324	SW TONQUIN RD	1	INTER	9		CN	2	3-LEG		0		0	STOP SIGN	0	0	0	CLR	DRY	DAY	ANGL-OTH	TURN	PDO		
SW OREGON ST	2324	SW TONQUIN RD	1	INTER	9		CN	2	3-LEG		0		0	STOP SIGN	0	0	0	CLR	DRY	DAY	ANGL-OTH	TURN	PDO		
SW TONQUIN RD	1848	SW OREGON ST	3	STRGHT	4		SE	3		NONE		2		UNKNOWN	0	0	0	RAIN	WET	DAY	S-1STOP	REAR	INJ		
SW TONQUIN RD	1848	SW OREGON ST	3	STRGHT	4		SE	3		NONE		2		UNKNOWN	0	0	0	RAIN	WET	DAY	S-1STOP	REAR	INJ		

2. Oregon & Tonquin

CRASH_E VNT_3_C D	CRASH_CA USE_1_CD	CRASH_CA USE_2_CD	CRASH_CA USE_3_CD	CRASH_CA DEG NO	LAT NO	LAT LAT SEC NO	LAT LAT	LONGTD DEG NO	LONGTD MINUTE NO	LONGTD SEC NO	LONG LONG	VHCL_ID	VHCL_COD ED_SEQ_N HCL_FLG	VHCL_TYP_SH O	VHCL_DESC O	VHCL_USE_ SHORT_DES C	VHCL_OWNS TRLR_QT Y	VHCL_MVMN HP_SHORT_D ESC	VHCL_CMPSS_DI R_FROM_SHORT DESC	VHCL_CMPSS_D IR_TO_SHORT_ DESC	VHCL_AC TN_CD	VHCL_EV NT_1_CD	VHCL_EV NT_2_CD	VHCL_EV NT_3_CD	VHCL_CA USE_1_CD	VHCL_CA USE_2_CD	VHCL_CA USE_3_CD		
7				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3119981	1	1	PSNGR CAR	NONE	0	PRVTE	STRGHT	NE	SW	0							0
7				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3119982	0	2	PSNGR CAR	NONE	0	PRVTE	STOP	NE	SW	12							0
3				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3327638	1	1	PSNGR CAR	NONE	9	N/A	TURN-L	SE	SW	0							0
3				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3327639	0	2	PSNGR CAR	NONE	9	N/A	STRGHT	NE	SW	0							0
2				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3434193	1	1	PSNGR CAR	NONE	9	N/A	TURN-L	SE	SW	0							0
2				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3434194	0	2	PSNGR CAR	NONE	9	N/A	STRGHT	NE	SW	0							0
3				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3241030	1	1	PSNGR CAR	NONE	0	PRVTE	STRGHT	SW	NE	0							0
3				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3241031	0	2	PSNGR CAR	NONE	0	PRVTE	TURN-L	SE	SW	0							0
3				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3241031	0	2	PSNGR CAR	NONE	0	PRVTE	TURN-L	SE	SW	0							0
2				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3434418	1	1	PSNGR CAR	NONE	9	N/A	TURN-L	SE	SW	0							0
2				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3434419	0	2	PSNGR CAR	NONE	9	N/A	STRGHT	SW	NE	0							0
7				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3119981	1	1	PSNGR CAR	NONE	0	PRVTE	STRGHT	NE	SW	0							0
7				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3119982	0	2	PSNGR CAR	NONE	0	PRVTE	STOP	NE	SW	12							0
3				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3327638	1	1	PSNGR CAR	NONE	9	N/A	TURN-L	SE	SW	0							0
3				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3327639	0	2	PSNGR CAR	NONE	9	N/A	STRGHT	NE	SW	0							0
2				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3434193	1	1	PSNGR CAR	NONE	9	N/A	TURN-L	SE	SW	0							0
2				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3434194	0	2	PSNGR CAR	NONE	9	N/A	STRGHT	NE	SW	0							0
3				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3241030	1	1	PSNGR CAR	NONE	0	PRVTE	STRGHT	SW	NE	0							0
3				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3241031	0	2	PSNGR CAR	NONE	0	PRVTE	TURN-L	SE	SW	0							0
3				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3241031	0	2	PSNGR CAR	NONE	0	PRVTE	TURN-L	SE	SW	0							0
2				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3434418	1	1	PSNGR CAR	NONE	9	N/A	TURN-L	SE	SW	0							0
2				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3434419	0	2	PSNGR CAR	NONE	9	N/A	STRGHT	SW	NE	0							0
2				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3428375	1	1	PSNGR CAR	NONE	9	N/A	TURN-L	SE	SW	0							0
2				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3428376	0	2	PSNGR CAR	NONE	9	N/A	STRGHT	SW	NE	0							0
2				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3428375	1	1	PSNGR CAR	NONE	9	N/A	TURN-L	SE	SW	0							0
2				45	21	40.38	45.36121667	-122	49	25.92	-122.8238667	3428376	0	2	PSNGR CAR	NONE	9	N/A	STRGHT	SW	NE	0							0
29				45	21	39.01	45.36083611	-122	49	24.42	-122.82345	3053045	1	1	PSNGR CAR	NONE	0	PRVTE	STRGHT	NW	SE	0							0
29				45	21	39.01	45.36083611	-122	49	24.42	-122.82345	3053046	0	2	PSNGR CAR	NONE	0	PRVTE	STOP	NW	SE	11							0

2. Oregon & Tonquin

PARTIC_I D	STRIK_P ARTIC_FLG	PARTIC_VH CL_SEQ	PARTIC_T NO_YP_CD	PARTIC_TYP SC	PARTIC_MVM SHORT_DE	PARTIC_CMPSS_D NT_SHORT_D	PARTIC_CMPSS IR_FROM_SHORT	INJ_SVRTY_ DIR_TO_SHORT_ DESC	SHORT_DES C	AGE_VA L	SEX_CD	DRVR_LIC_ST AT_SHORT_D	DRVR_RES_ SHORT_DES	NON_MOTRST PARTIC_A LOC_SHORT_ DESC	PARTIC_E RR_1_CD	PARTIC_E RR_2_CD	PARTIC_E RR_3_CD	PARTIC_E VNT_1_CD	PARTIC_E VNT_2_CD	PARTIC_E VNT_3_CD	PARTIC_C D	PARTIC_C AUSE_1_C	PARTIC_C AUSE_2_C	PARTIC_C AUSE_3_C	TOTAL_C RASHES	TOTAL_R OWS
3558801	0	1	1	DRVR				NONE	17	1	OR-Y	OR<25	0		43	26						7			51	120
3558802	0	1	1	DRVR				NONE	48	1	OR-Y	OR<25	0		0							0			51	120
3792851	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			51	120
3792852	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			51	120
3911912	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			51	120
3911913	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			51	120
3693539	0	1	1	DRVR				INJC	34	1	OR-Y	OR<25	0		0							0			51	120
3693540	0	1	1	DRVR				NONE	78	1	OR-Y	OR<25	0		20							3			51	120
3693541	0	2	2	PSNG				INJC	50	2			0		0							0			51	120
3912123	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			51	120
3912124	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			51	120
3558801	0	1	1	DRVR				NONE	17	1	OR-Y	OR<25	0		43	26						7			6	12
3558802	0	1	1	DRVR				NONE	48	1	OR-Y	OR<25	0		0							0			6	12
3792851	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			6	12
3792852	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			6	12
3911912	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			6	12
3911913	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			6	12
3693539	0	1	1	DRVR				INJC	34	1	OR-Y	OR<25	0		0							0			6	12
3693540	0	1	1	DRVR				NONE	78	1	OR-Y	OR<25	0		20							3			6	12
3693541	0	2	2	PSNG				INJC	50	2			0		0							0			6	12
3912123	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			6	12
3912124	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			6	12
3906398	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			1	2
3906399	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			1	2
3906398	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			57	98
3906399	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0							0			57	98
3485770	0	1	1	DRVR				NONE	48	1	OR-Y	OR<25	0		26							29			57	98
3485771	0	1	1	DRVR				INJC	70	2	OR-Y	OR<25	0		0							0			57	98

3. Oregon & Murdock

CRASH_I D	INVSTG_AGY CRASH_SPEE										CRASH_HR				HWY_COMPN																							
	INT_ID	SER_NO	C	SHORT_DES	D	INVLV_FL	ALCHL_IN	DRUG_IN	MJ_INVL	SCHL_ZO	WRK_ZO	DPRT	CRASH	UNLOCT	CRASH_DT	K_DAY_CD	C	SHORT_DES	CNTY_NM	CITY_SECT	URB_AREA_SHOR	T_NM	HWY_NO	HWY_MED_NM	RDWY_N	O	FC_CD	MPNT_CD	SC	T_SHORT_DE	MLGE_TY	RD_CON	P_CD	NO	LRS VAL	MP_NO	ST_NO	
1584675	3	3681	NONE		0	0	0			0	N	FALSE	7/1/2014	3	6A	Washington	Sherwood	PORTLAND UA							16												1503	
1584675	3	3681	NONE		0	0	0			0	N	FALSE	7/1/2014	3	6A	Washington	Sherwood	PORTLAND UA							16													1503
1775624	3	228	CITY		0	0	0			0	N	FALSE	1/15/2018	2	2A	Washington	Sherwood	PORTLAND UA							16												1503	
1785942	3	1756	CITY		0	0	0			0	N	FALSE	4/10/2018	3	5P	Washington	Sherwood	PORTLAND UA							16												1503	
1785942	3	1756	CITY		0	0	0			0	N	FALSE	4/10/2018	3	5P	Washington	Sherwood	PORTLAND UA							16												1503	
1584675	3	3681	NONE		0	0	0			0	N	FALSE	7/1/2014	3	6A	Washington	Sherwood	PORTLAND UA							16												1503	
1584675	3	3681	NONE		0	0	0			0	N	FALSE	7/1/2014	3	6A	Washington	Sherwood	PORTLAND UA							16												1503	
1775624	3	228	CITY		0	0	0			0	N	FALSE	1/15/2018	2	2A	Washington	Sherwood	PORTLAND UA							16												1503	
1785942	3	1756	CITY		0	0	0			0	N	FALSE	4/10/2018	3	5P	Washington	Sherwood	PORTLAND UA							16												1503	
1785942	3	1756	CITY		0	0	0			0	N	FALSE	4/10/2018	3	5P	Washington	Sherwood	PORTLAND UA							16												1503	

3. Oregon & Murdock

ST_NM	ISECT_ST_		RD_CHAR			CMPSS_DIR			ISECT_TYP		MEDN_TYP		TRAF_CNTL_DE				WTHR_COND			RD_SURF_S			LGT_COND		COLLIS_TYP		CRASH_SVRT		CRASH_E	
	NO	ISECT_ST_NM	RD_CHA	SHORT_DES	CMPSS	CMPSS_DIR	SHORT_DE	IMPCT_L	SHORT_DES	SHORT_DE	TURNG_L	LN_QTY	ISECT_RE	VICE_SHORT_D	OFF_RD	RNDABT	DRVWVY	SHORT_DES	HORT_DES	SHORT_DES	CRASH_TYP	SHORT_DE	Y_SHORT_DE	VNT_1_C	VNT_2_C	D	D	D	D	
SW MURDOCK RD	1803	SW OREGON ST	1	INTER	5	S		6	3-LEG		0	0	YIELD		0	1	0	CLR	DRY	DAY	S-1STOP	REAR	PDO							
SW MURDOCK RD	1803	SW OREGON ST	1	INTER	5	S		6	3-LEG		0	0	YIELD		0	1	0	CLR	DRY	DAY	S-1STOP	REAR	PDO							
SW MURDOCK RD	1803	SW OREGON ST	1	INTER	9	CN		2	3-LEG		0	0	UNKNOWN		1	1	0	CLR	DRY	DLIT	FIX OBJ	FIX	INJ	50						
SW MURDOCK RD	1803	SW OREGON ST	1	INTER	9	CN		2	3-LEG		0	0	YIELD		0	1	0	CLD	DRY	DAY	ANGL-OTH	ANGL	INJ							
SW MURDOCK RD	1803	SW OREGON ST	1	INTER	9	CN		2	3-LEG		0	0	YIELD		0	1	0	CLD	DRY	DAY	ANGL-OTH	ANGL	INJ							
SW MURDOCK RD	1803	SW OREGON ST	1	INTER	5	S		6	3-LEG		0	0	YIELD		0	1	0	CLR	DRY	DAY	S-1STOP	REAR	PDO							
SW MURDOCK RD	1803	SW OREGON ST	1	INTER	5	S		6	3-LEG		0	0	YIELD		0	1	0	CLR	DRY	DAY	S-1STOP	REAR	PDO							
SW MURDOCK RD	1803	SW OREGON ST	1	INTER	9	CN		2	3-LEG		0	0	UNKNOWN		1	1	0	CLR	DRY	DLIT	FIX OBJ	FIX	INJ	50						
SW MURDOCK RD	1803	SW OREGON ST	1	INTER	9	CN		2	3-LEG		0	0	YIELD		0	1	0	CLD	DRY	DAY	ANGL-OTH	ANGL	INJ							
SW MURDOCK RD	1803	SW OREGON ST	1	INTER	9	CN		2	3-LEG		0	0	YIELD		0	1	0	CLD	DRY	DAY	ANGL-OTH	ANGL	INJ							

3. Oregon & Murdock

CRASH_E	LAT			LAT			VHCL_COD			VHCL_USE		VHCL_OWNS		VHCL_MVMN		VHCL_CMPSS_D		VHCL_CMPSS_D		VHCL_EV			VHCL_CA												
VNT_3_C	CRASH_CA	CRASH_CA	CRASH_CA	DEG	MINUTE	LONGTD			LONGTD			STRIK_V	ED_SEQ_N	VHCL_TYP_SH	SHORT_DES	TRLR_QT	HP_SHORT_D	T_SHORT_DE	R_FROM_SHORT	IR_TO_SHORT	VHCL_AC	VHCL_EV	VHCL_EV	VHCL_EV	VHCL_CA	VHCL_CA	VHCL_CA								
D	USE_1_CD	USE_2_CD	USE_3_CD	NO	NO	LAT	SEC NO	LAT	DEG NO	MINUTE	NO	SEC NO	LONG	VHCL_ID	HCL_FLG	O	ORT_DESC	C	Y	ESC	SC	DESC	DESC	DESC	TN_CD	NT_1_CD	NT_2_CD	NT_3_CD	USE_1_CD	USE_2_CD	USE_3_CD				
	7			45	21	37.46	45.36040556	-122	49	30.64	-122.8251778	2992811	1	1	PSNGR CAR	NONE	0	PRVTE	STRGHT	S	N		0												
	7			45	21	37.46	45.36040556	-122	49	30.64	-122.8251778	2992812	0	2	PSNGR CAR	NONE	0	PRVTE	STOP	S	N		11												
	16	32		45	21	37.46	45.36040556	-122	49	30.64	-122.8251778	3346553	1	1	PSNGR CAR	NONE	0	PRVTE	STRGHT	E	W		0	50											
	2			45	21	37.46	45.36040556	-122	49	30.64	-122.8251778	3365953	1	1	PSNGR CAR	NONE	0	PRVTE	STRGHT	S	N		0												
	2			45	21	37.46	45.36040556	-122	49	30.64	-122.8251778	3365954	0	2	PSNGR CAR	NONE	0	RENTL	STRGHT	E	W		0												
	7			45	21	37.46	45.36040556	-122	49	30.64	-122.8251778	2992811	1	1	PSNGR CAR	NONE	0	PRVTE	STRGHT	S	N		0												
	7			45	21	37.46	45.36040556	-122	49	30.64	-122.8251778	2992812	0	2	PSNGR CAR	NONE	0	PRVTE	STOP	S	N		11												
	16	32		45	21	37.46	45.36040556	-122	49	30.64	-122.8251778	3346553	1	1	PSNGR CAR	NONE	0	PRVTE	STRGHT	E	W		0	50											
	2			45	21	37.46	45.36040556	-122	49	30.64	-122.8251778	3365953	1	1	PSNGR CAR	NONE	0	PRVTE	STRGHT	S	N		0												
	2			45	21	37.46	45.36040556	-122	49	30.64	-122.8251778	3365954	0	2	PSNGR CAR	NONE	0	RENTL	STRGHT	E	W		0												

3. Oregon & Murdock

PARTIC_I D	STRIK_P ARTIC_FLG	PARTIC_VH CL_SEQ_NO	PARTIC_T YP_CD	PARTIC_TYP SC	PARTIC_MVM ESC	PARTIC_CMPSS_D NT_SHORT_D	PARTIC_CMPSS_D IR_FROM_SHORT_DESC	PARTIC_CMPSS_D DIR_TO_SHORT_DESC	INJ_SVRTY_ C	AGE_VA L	SEX_CD	DRVR_LIC_ST AT_SHORT_D	DRVR_RES_ SHORT_DES	NON_MOTRST CTN_CD	PARTIC_A LOC_SHORT_ DESC	PARTIC_E RR_1_CD	PARTIC_E RR_2_CD	PARTIC_E RR_3_CD	PARTIC_E VNT_1_CD	PARTIC_E VNT_2_CD	PARTIC_E VNT_3_CD	PARTIC_C D	PARTIC_C AUSE_1_C D	PARTIC_C AUSE_2_C D	PARTIC_C AUSE_3_C D	TOTAL_C RASHES	TOTAL_R OWS
3414839	0	1	1	DRVR					NONE	50	2	OR-Y	OR<25	0									7			51	120
3414840	0	1	1	DRVR					NONE	39	2	OR-Y	OR<25	0									0			51	120
3811482	0	1	1	DRVR					INJC	19	2	OR-Y	OR<25	25	81	52							16	32		51	120
3835956	0	1	1	DRVR					INJC	22	2	OR-Y	OR<25	0									0			51	120
3835957	0	1	1	DRVR					NONE	21	1	OR-Y	OR>25	0									2			51	120
3414839	0	1	1	DRVR					NONE	50	2	OR-Y	OR<25	0									7			9	19
3414840	0	1	1	DRVR					NONE	39	2	OR-Y	OR<25	0									0			9	19
3811482	0	1	1	DRVR					INJC	19	2	OR-Y	OR<25	25	81	52							16	32		9	19
3835956	0	1	1	DRVR					INJC	22	2	OR-Y	OR<25	0									0			9	19
3835957	0	1	1	DRVR					NONE	21	1	OR-Y	OR>25	0									2			9	19

4. Sunset & Murdock

CRASH_ID	INVSTG_AGY CRASH_SPEE										CRASH_HR				HWY_COMPN																
	INT_ID	SER_NO	C	SHORT_DES	D_INVLV_FL	ALCHL_IN	DRUG_IN	MJ_INVL	SCHL_ZO	WRK_ZO	DPRT	CRASH	UNLOCT	CRASH_DT	K_DAY	CD	CNTY_NM	CITY_SECT	URB_AREA_SHOR	RDWY_N	FC_CD	MPNT_CD	SC	T_SHORT_DE	MLGE_TY	RD_CON	P_CD	NO	LRS_VAL	MP_NO	ST_NO
1732159	4	3869	CITY		0	0	0		0	N		FALSE	6/27/2017	3	4P	Washington	Sherwood	PORTLAND UA													1503
1732159	4	3869	CITY		0	0	0		0	N		FALSE	6/27/2017	3	4P	Washington	Sherwood	PORTLAND UA													1503
1732159	4	3869	CITY		0	0	0		0	N		FALSE	6/27/2017	3	4P	Washington	Sherwood	PORTLAND UA													1503
1732159	4	3869	CITY		0	0	0		0	N		FALSE	6/27/2017	3	4P	Washington	Sherwood	PORTLAND UA													1503
1750127	4	6072	CITY		0	0	0		0	N		FALSE	9/30/2017	7	1P	Washington	Sherwood	PORTLAND UA													1503
1750127	4	6072	CITY		0	0	0		0	N		FALSE	9/30/2017	7	1P	Washington	Sherwood	PORTLAND UA													1503
1732159	4	3869	CITY		0	0	0		0	N		FALSE	6/27/2017	3	4P	Washington	Sherwood	PORTLAND UA													1503
1732159	4	3869	CITY		0	0	0		0	N		FALSE	6/27/2017	3	4P	Washington	Sherwood	PORTLAND UA													1503
1732159	4	3869	CITY		0	0	0		0	N		FALSE	6/27/2017	3	4P	Washington	Sherwood	PORTLAND UA													1503
1732159	4	3869	CITY		0	0	0		0	N		FALSE	6/27/2017	3	4P	Washington	Sherwood	PORTLAND UA													1503
1750127	4	6072	CITY		0	0	0		0	N		FALSE	9/30/2017	7	1P	Washington	Sherwood	PORTLAND UA													1503
1750127	4	6072	CITY		0	0	0		0	N		FALSE	9/30/2017	7	1P	Washington	Sherwood	PORTLAND UA													1503

4. Sunset & Murdock

ST_NM	ISECT_ST		RD_CHAR				CMPSS_DIR			ISECT_TYP		MEDN_TYP		TRAF_CNTRL_DE				WTHR_COND			RD_SURF_S_LGT_COND			COLLIS_TYP		CRASH_SVRT		CRASH_E	
	NO	ISECT_ST_NM	RD_CHA_R_CD	SHORT_DES_C	CMPSS_DIR_CD	CMPSS_DIR_FROM_CD	CMPSS_DIR_SHORT_DE_SC	IMPACT_OC_CD	SHORT_DES_C	SHORT_DE_SC	EG_QTY	LN_QTY	ISECT_RE_L_FLG	ESC	VICE_SHORT_D	OFF_RD_WY_FLG	RNDABT_FLG	DRVWVY_REL_FLG	SHORT_DES_C	HORT_DES_C	SHORT_DES_C	SHORT_DESC	SC	SHORT_DE	Y_SHORT_DE	SC	D	D	
MURDOCK RD	2205	SUNSET BLVD	1	INTER	1		N	6	CROSS		0		0	0	0	0	0	0	CLR	DRY	DAY	S-1STOP	REAR	INI					
MURDOCK RD	2205	SUNSET BLVD	1	INTER	1		N	6	CROSS		0		0	0	0	0	0	0	CLR	DRY	DAY	S-1STOP	REAR	INI					
MURDOCK RD	2205	SUNSET BLVD	1	INTER	1		N	6	CROSS		0		0	0	0	0	0	0	CLR	DRY	DAY	S-1STOP	REAR	INI					
MURDOCK RD	2205	SUNSET BLVD	1	INTER	1		N	6	CROSS		0		0	0	0	0	0	0	CLR	DRY	DAY	S-1STOP	REAR	INI					
MURDOCK RD	2205	SUNSET BLVD	1	INTER	1		N	6	CROSS		0		0	0	0	0	0	0	CLR	DRY	DAY	S-1STOP	REAR	INI					
MURDOCK RD	2205	SUNSET BLVD	1	INTER	1		N	6	CROSS		0		0	0	0	0	0	0	CLD	WET	DAY	S-1STOP	REAR	PDO					
MURDOCK RD	2205	SUNSET BLVD	1	INTER	1		N	6	CROSS		0		0	0	0	0	0	0	CLD	WET	DAY	S-1STOP	REAR	PDO					
MURDOCK RD	2205	SUNSET BLVD	1	INTER	1		N	6	CROSS		0		0	0	0	0	0	0	CLR	DRY	DAY	S-1STOP	REAR	INI					
MURDOCK RD	2205	SUNSET BLVD	1	INTER	1		N	6	CROSS		0		0	0	0	0	0	0	CLR	DRY	DAY	S-1STOP	REAR	INI					
MURDOCK RD	2205	SUNSET BLVD	1	INTER	1		N	6	CROSS		0		0	0	0	0	0	0	CLR	DRY	DAY	S-1STOP	REAR	INI					
MURDOCK RD	2205	SUNSET BLVD	1	INTER	1		N	6	CROSS		0		0	0	0	0	0	0	CLD	WET	DAY	S-1STOP	REAR	PDO					
MURDOCK RD	2205	SUNSET BLVD	1	INTER	1		N	6	CROSS		0		0	0	0	0	0	0	CLD	WET	DAY	S-1STOP	REAR	PDO					

4. Sunset & Murdock

CRASH_E	LAT			LAT	LONGTD			VHCL_COD		VHCL_USE		VHCL_OWNS		VHCL_MVMN		VHCL_CMPSS_D		VHCL_CMPSS_D			VHCL_EV			VHCL_CA														
VNT_3_C	CRASH_CA	CRASH_CA	CRASH_CA	DEG	MINUTE	LONGTD	LONGTD	LONGTD	STRIK_V	ED_SEQ_N	VHCL_TYP_SH	SHORT_DES	TRLR_QT	HP_SHORT_D	T_SHORT_DE	R_FROM_SHORT	IR_TO_SHORT	VHCL_AC	VHCL_EV	VHCL_EV	VHCL_EV	VHCL_CA	VHCL_CA	VHCL_CA	VHCL_CA	VHCL_CA	VHCL_CA	VHCL_CA										
D	USE_1_CD	USE_2_CD	USE_3_CD	NO	NO	LAT	SEC NO	LAT	DEG NO	MINUTE	NO	SEC NO	LONG	VHCL_ID	HCL_FLG	O	ORT_DESC	C	Y	ESC	SC	DESC	DESC	DESC	TN_CD	NT_1_CD	NT_2_CD	NT_3_CD	USE_1_CD	USE_2_CD	USE_3_CD							
	7			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3267662	1	1	PSNGR CAR	NONE	0	PRVTE	STRGHT	N	S		0															
	7			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3267663	0	2	PSNGR CAR	NONE	0	PRVTE	STOP	N	S		11															
	7			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3267663	0	2	PSNGR CAR	NONE	0	PRVTE	STOP	N	S		11															
	7			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3267663	0	2	PSNGR CAR	NONE	0	PRVTE	STOP	N	S		11															
	7			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3267663	0	2	PSNGR CAR	NONE	0	PRVTE	STOP	N	S		11															
	29			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3301472	1	1	PSNGR CAR	NONE	9	N/A	STRGHT	N	S		0															
	29			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3301473	0	2	TRUCK	NONE	9	N/A	STOP	N	S		11															
	7			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3267662	1	1	PSNGR CAR	NONE	0	PRVTE	STRGHT	N	S		0															
	7			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3267663	0	2	PSNGR CAR	NONE	0	PRVTE	STOP	N	S		11															
	7			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3267663	0	2	PSNGR CAR	NONE	0	PRVTE	STOP	N	S		11															
	7			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3267663	0	2	PSNGR CAR	NONE	0	PRVTE	STOP	N	S		11															
	7			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3267663	0	2	PSNGR CAR	NONE	0	PRVTE	STOP	N	S		11															
	7			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3267663	0	2	PSNGR CAR	NONE	0	PRVTE	STOP	N	S		11															
	29			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3301472	1	1	PSNGR CAR	NONE	9	N/A	STRGHT	N	S		0															
	29			45	20	58.65	45.349625	-122	49	36.96	-122.8269333	3301473	0	2	TRUCK	NONE	9	N/A	STOP	N	S		11															

4. Sunset & Murdock

PARTIC_I D	STRIK_P ARTIC_FLG	PARTIC_VH CL_SEQ_NO	PARTIC_T YP_CD	PARTIC_TYP SC	PARTIC_MVM SHORT_DE	PARTIC_CMPSS_D NT_SHORT_D	PARTIC_CMPSS IR_FROM_SHORT DESC	INJ_SVRTY_ SHORT_DES	AGE_VA L	SEX_CD	DRVR_LIC_ST AT_SHORT_D	DRVR_RES_ SHORT_DES	NON_MOTRST PARTIC_A CTN_CD	LOC_SHORT_ DESC	PARTIC_E RR_1_CD	PARTIC_E RR_2_CD	PARTIC_E RR_3_CD	PARTIC_E VNT_1_CD	PARTIC_E VNT_2_CD	PARTIC_E VNT_3_CD	PARTIC_C AUSE_1_C D	PARTIC_C AUSE_2_C D	PARTIC_C AUSE_3_C D	TOTAL_C RASHES	TOTAL_R OWS
3725574	0	1	1	DRVR				NONE	19	2	OR-Y	OR<25	0		43						7			9	19
3725575	0	1	1	DRVR				INJC	29	2	OR-Y	OR<25	0		0						0			9	19
3725576	0	2	2	PSNG				INJC	1	1			0		0						0			9	19
3725577	0	3	2	PSNG				INJC	5	2			0		0						0			9	19
3725578	0	4	2	PSNG				INJC	3	1			0		0						0			9	19
3767260	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0						0			9	19
3767261	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0						0			9	19
3725574	0	1	1	DRVR				NONE	19	2	OR-Y	OR<25	0		43						7			55	127
3725575	0	1	1	DRVR				INJC	29	2	OR-Y	OR<25	0		0						0			55	127
3725576	0	2	2	PSNG				INJC	1	1			0		0						0			55	127
3725577	0	3	2	PSNG				INJC	5	2			0		0						0			55	127
3725578	0	4	2	PSNG				INJC	3	1			0		0						0			55	127
3767260	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0						0			55	127
3767261	0	1	1	DRVR				NONE	0	9	UNK	UNK	0		0						0			55	127

Appendix F

Signal Warrant Worksheets



Traffic Signal Warrant Analysis



Project: 20092 - Polley Industrial TIS
 Date: 5/23/2022
 Scenario: Year 2023 Buildout Conditions

Major Street:	SW Oregon Street	Minor Street:	SW Tonquin Road
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	1062	PM Peak Hour Volumes:	416

Warrant Used:

 x 100 percent of standard warrants used
 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
Major St.	Minor St.	100% Warrants	70% Warrants	100% Warrants	70% Warrants
WARRANT 1, CONDITION A					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
<i>Warrant 1</i>			
<i>Condition A: Minimum Vehicular Volume</i>			
Major Street	10,620	8,850	
Minor Street*	4,160	2,650	Yes
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	10,620	13,300	
Minor Street*	4,160	1,350	No
<i>Combination Warrant</i>			
Major Street	10,620	10,640	
Minor Street*	4,160	2,120	No

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis



Project: 20092 - Polley Industrial TIS
 Date: 5/23/2022
 Scenario: Year 2023 Buildout Conditions

Major Street:	SW Murdock Road	Minor Street:	SW Sunset Boulevard
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	973	PM Peak Hour Volumes:	247

Warrant Used:
 100 percent of standard warrants used
 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
Major St.	Minor St.	100% Warrants	70% Warrants	100% Warrants	70% Warrants
WARRANT 1, CONDITION A					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
<i>Warrant 1</i>			
<i>Condition A: Minimum Vehicular Volume</i>			
Major Street	9,730	8,850	
Minor Street*	2,470	2,650	No
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	9,730	13,300	
Minor Street*	2,470	1,350	No
<i>Combination Warrant</i>			
Major Street	9,730	10,640	
Minor Street*	2,470	2,120	No

* Minor street right-turning traffic volumes reduced by 25%

Traffic Signal Warrant Analysis



Project: 20092 - Polley Industrial TIS
 Date: 5/23/2022
 Scenario: Year 2023 Buildout Conditions

Major Street:	SW Oregon Street	Minor Street:	Site Access
Number of Lanes:	1	Number of Lanes:	1
PM Peak Hour Volumes:	981	PM Peak Hour Volumes:	57

Warrant Used:
 X 100 percent of standard warrants used
 70 percent of standard warrants used due to 85th percentile speed in excess of 40 mph or isolated community with population less than 10,000.

Number of Lanes for Moving Traffic on Each Approach:		ADT on Major St. (total of both approaches)		ADT on Minor St. (higher-volume approach)	
Major St.	Minor St.	100% Warrants	70% Warrants	100% Warrants	70% Warrants
WARRANT 1, CONDITION A					
1	1	8,850	6,200	2,650	1,850
2 or more	1	10,600	7,400	2,650	1,850
2 or more	2 or more	10,600	7,400	3,550	2,500
1	2 or more	8,850	6,200	3,550	2,500
WARRANT 1, CONDITION B					
1	1	13,300	9,300	1,350	950
2 or more	1	15,900	11,100	1,350	950
2 or more	2 or more	15,900	11,100	1,750	1,250
1	2 or more	13,300	9,300	1,750	1,250

Note: ADT volumes assume 8th highest hour is 5.6% of the daily volume

	Approach Volumes	Minimum Volumes	Is Signal Warrant Met?
<i>Warrant 1</i>			
<i>Condition A: Minimum Vehicular Volume</i>			
Major Street	9,810	8,850	
Minor Street*	570	2,650	No
<i>Condition B: Interruption of Continuous Traffic</i>			
Major Street	9,810	13,300	
Minor Street*	570	1,350	No
<i>Combination Warrant</i>			
Major Street	9,810	10,640	
Minor Street*	570	2,120	No

* Minor street right-turning traffic volumes reduced by 25%

Appendix G

Left Turn Lane Warrant Worksheets



Left-Turn Lane Warrant Analysis



Project: 20092 - Polley Industrial TIS
 Intersection: 5. SW Oregon Street & Site Access
 Date: 5/23/2022
 Scenario: Year 2023 Buildout Conditions - AM Peak Hour (WB)

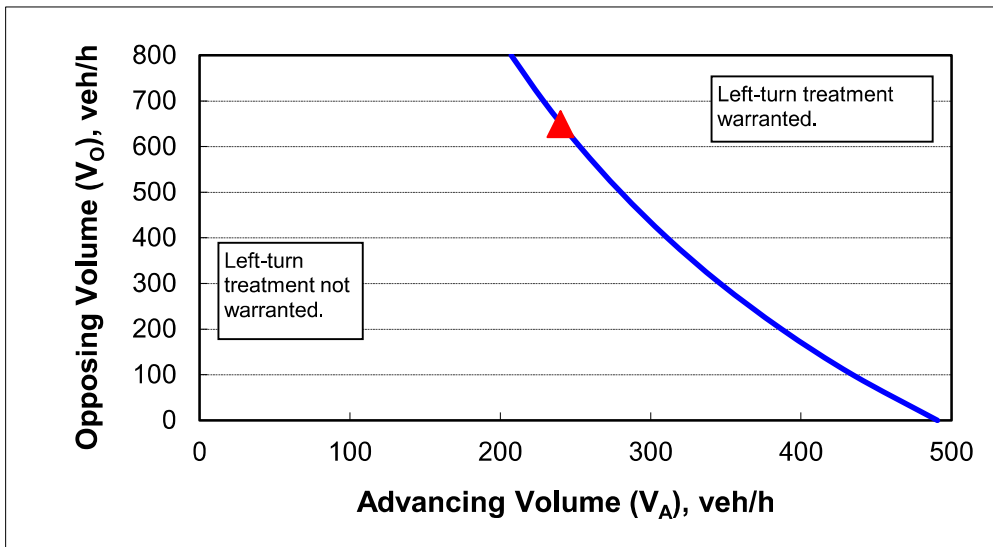
2-lane roadway (English)

INPUT

Variable	Value
85 th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	17%
Advancing volume (V_A), veh/h:	240
Opposing volume (V_O), veh/h:	649

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	241
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Left-Turn Lane Warrant Analysis



Project: 20092 - Polley Industrial TIS
 Intersection: 5. SW Oregon Street & Site Access
 Date: 5/23/2022
 Scenario: Year 2023 Buildout Conditions - PM Peak Hour (WB)

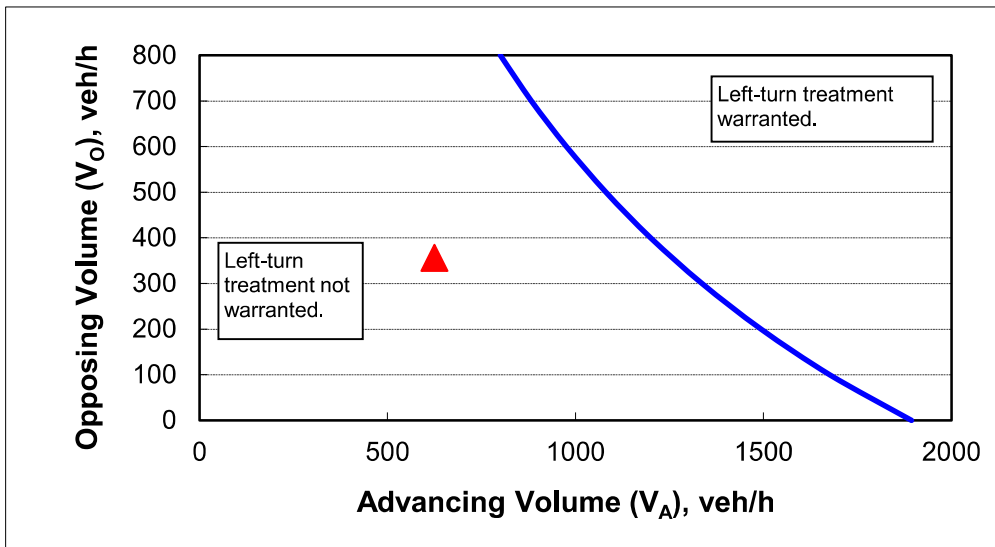
2-lane roadway (English)

INPUT

Variable	Value
85 th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	1%
Advancing volume (V_A), veh/h:	625
Opposing volume (V_O), veh/h:	356

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	1258
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9

Appendix H

LOS Definition





LEVEL OF SERVICE

Level of service is used to describe the quality of traffic flow. Levels of service A to C are considered good, and rural roads are usually designed for level of service C. Urban streets and signalized intersections are typically designed for level of service D. Level of service E is considered to be the limit of acceptable delay. For unsignalized intersections, level of service E is generally considered acceptable. Here is a more complete description of levels of service:

Level of service A: Very low delay at intersections, with all traffic signal cycles clearing and no vehicles waiting through more than one signal cycle. On highways, low volume and high speeds, with speeds not restricted by other vehicles.

Level of service B: Operating speeds beginning to be affected by other traffic; short traffic delays at intersections. Higher average intersection delay than for level of service A resulting from more vehicles stopping.

Level of service C: Operating speeds and maneuverability closely controlled by other traffic; higher delays at intersections than for level of service B due to a significant number of vehicles stopping. Not all signal cycles clear the waiting vehicles. This is the recommended design standard for rural highways.

Level of service D: Tolerable operating speeds; long traffic delays occur at intersections. The influence of congestion is noticeable. At traffic signals many vehicles stop, and the proportion of vehicles not stopping declines. The number of signal cycle failures, for which vehicles must wait through more than one signal cycle, are noticeable. This is typically the design level for urban signalized intersections.

Level of service E: Restricted speeds, very long traffic delays at traffic signals, and traffic volumes near capacity. Flow is unstable so that any interruption, no matter how minor, will cause queues to form and service to deteriorate to level of service F. Traffic signal cycle failures are frequent occurrences. For unsignalized intersections, level of service E or better is generally considered acceptable.

Level of service F: Extreme delays, resulting in long queues which may interfere with other traffic movements. There may be stoppages of long duration, and speeds may drop to zero. There may be frequent signal cycle failures. Level of service F will typically result when vehicle arrival rates are greater than capacity. It is considered unacceptable by most drivers.



*LEVEL OF SERVICE CRITERIA
FOR SIGNALIZED INTERSECTIONS*

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (Seconds)
A	<10
B	10-20
C	20-35
D	35-55
E	55-80
F	>80

*LEVEL OF SERVICE CRITERIA
FOR UNSIGNALIZED INTERSECTIONS*

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (Seconds)
A	<10
B	10-15
C	15-25
D	25-35
E	35-50
F	>50






















Appendix I

Capacity Worksheets



HCM 6th Signalized Intersection Summary
 1: SW Oregon Road & SW Tualatin-Sherwood Road

05/28/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	766	158	125	583	0	79	4	316	4	0	0
Future Volume (veh/h)	8	766	158	125	583	0	79	4	316	4	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1663	1663	1663	1796	1796	1796	1530	1530	1530
Adj Flow Rate, veh/h	8	798	165	130	607	0	82	4	329	4	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	9	9	16	16	16	7	7	7	25	25	25
Cap, veh/h	372	934	792	265	964	0	401	17	438	253	0	0
Arrive On Green	0.01	0.53	0.53	0.06	0.58	0.00	0.23	0.23	0.23	0.23	0.00	0.00
Sat Flow, veh/h	1682	1767	1497	1584	1663	0	1367	77	1522	702	0	0
Grp Volume(v), veh/h	8	798	165	130	607	0	86	0	329	4	0	0
Grp Sat Flow(s),veh/h/ln	1682	1767	1497	1584	1663	0	1444	0	1522	702	0	0
Q Serve(g_s), s	0.2	29.6	4.4	2.6	18.4	0.0	0.0	0.0	15.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.2	29.6	4.4	2.6	18.4	0.0	3.1	0.0	15.0	3.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.95		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	372	934	792	265	964	0	419	0	438	253	0	0
V/C Ratio(X)	0.02	0.85	0.21	0.49	0.63	0.00	0.21	0.00	0.75	0.02	0.00	0.00
Avail Cap(c_a), veh/h	487	1612	1366	812	1735	0	478	0	503	290	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.5	15.4	9.5	14.8	10.6	0.0	24.0	0.0	24.7	25.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.8	0.2	0.5	0.8	0.0	0.1	0.0	4.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	10.1	1.2	0.9	5.3	0.0	1.2	0.0	5.5	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.5	18.3	9.7	15.4	11.4	0.0	24.1	0.0	29.0	25.4	0.0	0.0
LnGrp LOS	A	B	A	B	B	A	C	A	C	C	A	A
Approach Vol, veh/h		971			737			415				4
Approach Delay, s/veh		16.7			12.1			28.0				25.4
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	45.8		21.7	4.8	49.7		21.7				
Change Period (Y+Rc), s	4.0	5.5		4.5	4.0	5.5		4.5				
Max Green Setting (Gmax), s	31.0	69.5		20.5	6.0	79.5		20.5				
Max Q Clear Time (g_c+l1), s	4.6	31.6		5.4	2.2	20.4		17.0				
Green Ext Time (p_c), s	0.1	8.7		0.0	0.0	5.3		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				17.3								
HCM 6th LOS				B								
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 6th TWSC
2: SW Tonquin Road & SW Oregon Road

05/28/2021

Intersection						
Int Delay, s/veh	4.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	491	316	62	129	150	100
Future Vol, veh/h	491	316	62	129	150	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	215	190	-	0	210
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	13	13	15	15
Mvmt Flow	528	340	67	139	161	108

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	528	0	801
Stage 1	-	-	-	-	528
Stage 2	-	-	-	-	273
Critical Hdwy	-	-	4.23	-	6.55
Critical Hdwy Stg 1	-	-	-	-	5.55
Critical Hdwy Stg 2	-	-	-	-	5.55
Follow-up Hdwy	-	-	2.317	-	3.635
Pot Cap-1 Maneuver	-	-	985	-	336
Stage 1	-	-	-	-	566
Stage 2	-	-	-	-	744
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	985	-	313
Mov Cap-2 Maneuver	-	-	-	-	313
Stage 1	-	-	-	-	566
Stage 2	-	-	-	-	693

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	22.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	313	526	-	-	985	-
HCM Lane V/C Ratio	0.515	0.204	-	-	0.068	-
HCM Control Delay (s)	28.1	13.6	-	-	8.9	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	2.8	0.8	-	-	0.2	-

HCM 6th Roundabout
 3: SW Murdock Road & SW Oregon Road

05/28/2021

Intersection			
Intersection Delay, s/veh	9.2		
Intersection LOS	A		
Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	519	306	535
Demand Flow Rate, veh/h	530	309	541
Vehicles Circulating, veh/h	106	60	441
Vehicles Exiting, veh/h	263	922	195
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	7.3	4.9	13.6
Approach LOS	A	A	B
Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	530	309	541
Cap Entry Lane, veh/h	1238	1298	880
Entry HV Adj Factor	0.980	0.990	0.989
Flow Entry, veh/h	519	306	535
Cap Entry, veh/h	1214	1285	870
V/C Ratio	0.428	0.238	0.615
Control Delay, s/veh	7.3	4.9	13.6
LOS	A	A	B
95th %tile Queue, veh	2	1	4

Intersection

Intersection Delay, s/veh	14
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	258	7	218	5	22	25	134	144	3	5	118	66
Future Vol, veh/h	258	7	218	5	22	25	134	144	3	5	118	66
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	4	4	4	7	7	7	6	6	6
Mvmt Flow	284	8	240	5	24	27	147	158	3	5	130	73
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	14.4	10	15.3	12
HCM LOS	B	A	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	48%	100%	0%	10%	3%
Vol Thru, %	51%	0%	3%	42%	62%
Vol Right, %	1%	0%	97%	48%	35%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	281	258	225	52	189
LT Vol	134	258	0	5	5
Through Vol	144	0	7	22	118
RT Vol	3	0	218	25	66
Lane Flow Rate	309	284	247	57	208
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.515	0.528	0.379	0.099	0.34
Departure Headway (Hd)	6.004	6.71	5.513	6.254	5.902
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	599	536	650	569	606
Service Time	4.057	4.459	3.262	4.332	3.963
HCM Lane V/C Ratio	0.516	0.53	0.38	0.1	0.343
HCM Control Delay	15.3	16.8	11.6	10	12
HCM Lane LOS	C	C	B	A	B
HCM 95th-tile Q	2.9	3.1	1.8	0.3	1.5

HCM 6th TWSC
5: Site Access & SW Oregon Road

05/28/2021

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑	↘	
Traffic Vol, veh/h	591	0	0	191	0	0
Future Vol, veh/h	591	0	0	191	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	13	13	2	2
Mvmt Flow	642	0	0	208	0	0






















Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	642	0	850 321
Stage 1	-	-	-	-	642 -
Stage 2	-	-	-	-	208 -
Critical Hdwy	-	-	4.295	-	6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	-	-	2.3235	-	3.519 3.319
Pot Cap-1 Maneuver	-	-	880	-	315 675
Stage 1	-	-	-	-	487 -
Stage 2	-	-	-	-	826 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	880	-	315 675
Mov Cap-2 Maneuver	-	-	-	-	315 -
Stage 1	-	-	-	-	487 -
Stage 2	-	-	-	-	826 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	880	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

HCM 6th Signalized Intersection Summary
 1: SW Oregon Road & SW Tualatin-Sherwood Road

05/28/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	857	158	345	845	12	104	0	237	29	29	12
Future Volume (veh/h)	4	857	158	345	845	12	104	0	237	29	29	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1841	1841	1841	1900	1900	1900
Adj Flow Rate, veh/h	4	922	170	371	909	13	112	0	255	31	31	13
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	0	0	0
Cap, veh/h	317	1001	849	399	1283	18	212	0	516	68	61	17
Arrive On Green	0.01	0.54	0.54	0.16	0.70	0.70	0.17	0.00	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1753	1841	1560	1767	1825	26	888	0	1560	133	364	104
Grp Volume(v), veh/h	4	922	170	371	0	922	112	0	255	75	0	0
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1767	0	1851	888	0	1560	601	0	0
Q Serve(g_s), s	0.1	51.2	6.2	16.1	0.0	32.9	0.0	0.0	14.6	2.1	0.0	0.0
Cycle Q Clear(g_c), s	0.1	51.2	6.2	16.1	0.0	32.9	14.5	0.0	14.6	16.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.41		0.17
Lane Grp Cap(c), veh/h	317	1001	849	399	0	1301	212	0	516	145	0	0
V/C Ratio(X)	0.01	0.92	0.20	0.93	0.00	0.71	0.53	0.00	0.49	0.52	0.00	0.00
Avail Cap(c_a), veh/h	402	1144	970	599	0	1316	235	0	542	170	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.4	23.3	13.0	33.9	0.0	9.8	44.9	0.0	29.9	44.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	11.3	0.1	12.7	0.0	1.8	0.8	0.0	0.3	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	22.7	2.1	11.0	0.0	11.1	3.0	0.0	5.4	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.4	34.6	13.2	46.6	0.0	11.7	45.6	0.0	30.2	45.2	0.0	0.0
LnGrp LOS	B	C	B	D	A	B	D	A	C	D	A	A
Approach Vol, veh/h		1096			1293			367				75
Approach Delay, s/veh		31.2			21.7			34.9				45.2
Approach LOS		C			C			C				D
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	22.4	66.3		23.1	4.6	84.1		23.1				
Change Period (Y+Rc), s	4.0	5.5		4.5	4.0	5.5		4.5				
Max Green Setting (Gmax), s	31.0	69.5		20.5	6.0	79.5		20.5				
Max Q Clear Time (g_c+l1), s	18.1	53.2		18.6	2.1	34.9		16.6				
Green Ext Time (p_c), s	0.3	7.7		0.0	0.0	10.3		0.3				

Intersection Summary

HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th TWSC
2: SW Tonquin Road & SW Oregon Road

05/28/2021

Intersection						
Int Delay, s/veh	94.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	246	150	166	429	329	92
Future Vol, veh/h	246	150	166	429	329	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	215	190	-	0	210
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	267	163	180	466	358	100

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	267	0	1093
Stage 1	-	-	-	-	267
Stage 2	-	-	-	-	826
Critical Hdwy	-	-	4.14	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.236	-	3.518
Pot Cap-1 Maneuver	-	-	1285	-	~ 237
Stage 1	-	-	-	-	778
Stage 2	-	-	-	-	430
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1285	-	~ 204
Mov Cap-2 Maneuver	-	-	-	-	~ 204
Stage 1	-	-	-	-	778
Stage 2	-	-	-	-	370

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	\$ 313.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	204	772	-	-	1285	-
HCM Lane V/C Ratio	1.753	0.13	-	-	0.14	-
HCM Control Delay (s)	\$ 398.5	10.4	-	-	8.3	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	24.6	0.4	-	-	0.5	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Roundabout
 3: SW Murdock Road & SW Oregon Road

05/28/2021

Intersection			
Intersection Delay, s/veh	9.6		
Intersection LOS	A		
Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	321	832	221
Demand Flow Rate, veh/h	328	840	228
Vehicles Circulating, veh/h	451	67	229
Vehicles Exiting, veh/h	456	390	549
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	8.6	11.2	5.3
Approach LOS	A	B	A
Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	328	840	228
Cap Entry Lane, veh/h	871	1289	1092
Entry HV Adj Factor	0.980	0.991	0.969
Flow Entry, veh/h	321	832	221
Cap Entry, veh/h	854	1277	1059
V/C Ratio	0.377	0.652	0.209
Control Delay, s/veh	8.6	11.2	5.3
LOS	A	B	A
95th %tile Queue, veh	2	5	1

Intersection

Intersection Delay, s/veh 29.2

Intersection LOS D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	100	12	166	1	21	17	317	146	6	32	153	272
Future Vol, veh/h	100	12	166	1	21	17	317	146	6	32	153	272
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	111	13	184	1	23	19	352	162	7	36	170	302
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	13.6	11.7	40	29
HCM LOS	B	B	E	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	68%	100%	0%	3%	7%
Vol Thru, %	31%	0%	7%	54%	33%
Vol Right, %	1%	0%	93%	44%	60%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	469	100	178	39	457
LT Vol	317	100	0	1	32
Through Vol	146	0	12	21	153
RT Vol	6	0	166	17	272
Lane Flow Rate	521	111	198	43	508
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.89	0.248	0.377	0.094	0.812
Departure Headway (Hd)	6.149	8.049	6.862	7.775	5.758
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	589	447	524	459	630
Service Time	4.19	5.8	4.613	5.855	3.8
HCM Lane V/C Ratio	0.885	0.248	0.378	0.094	0.806
HCM Control Delay	40	13.5	13.7	11.7	29
HCM Lane LOS	E	B	B	B	D
HCM 95th-tile Q	10.5	1	1.7	0.3	8.3

HCM 6th TWSC
5: Site Access & SW Oregon Road

05/28/2021

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑	↑	
Traffic Vol, veh/h	338	0	0	595	0	0
Future Vol, veh/h	338	0	0	595	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	367	0	0	647	0	0






















Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	367	0	1014	184
Stage 1	-	-	-	-	367	-
Stage 2	-	-	-	-	647	-
Critical Hdwy	-	-	4.16	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.238	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1177	-	249	828
Stage 1	-	-	-	-	672	-
Stage 2	-	-	-	-	520	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1177	-	249	828
Mov Cap-2 Maneuver	-	-	-	-	249	-
Stage 1	-	-	-	-	672	-
Stage 2	-	-	-	-	520	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1177	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

HCM 6th Signalized Intersection Summary
 1: SW Oregon Road & SW Tualatin-Sherwood Road

05/28/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	797	164	130	607	0	82	4	329	4	0	0
Future Volume (veh/h)	8	797	164	130	607	0	82	4	329	4	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1663	1663	1663	1796	1796	1796	1530	1530	1530
Adj Flow Rate, veh/h	8	830	171	135	632	0	85	4	343	4	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	9	9	16	16	16	7	7	7	25	25	25
Cap, veh/h	356	955	809	246	978	0	403	17	442	248	0	0
Arrive On Green	0.01	0.54	0.54	0.06	0.59	0.00	0.23	0.23	0.23	0.23	0.00	0.00
Sat Flow, veh/h	1682	1767	1497	1584	1663	0	1370	73	1522	693	0	0
Grp Volume(v), veh/h	8	830	171	135	632	0	89	0	343	4	0	0
Grp Sat Flow(s),veh/h/ln	1682	1767	1497	1584	1663	0	1443	0	1522	693	0	0
Q Serve(g_s), s	0.2	33.7	4.9	2.9	20.9	0.0	0.0	0.0	17.1	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.2	33.7	4.9	2.9	20.9	0.0	3.5	0.0	17.1	3.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.96		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	356	955	809	246	978	0	420	0	442	248	0	0
V/C Ratio(X)	0.02	0.87	0.21	0.55	0.65	0.00	0.21	0.00	0.78	0.02	0.00	0.00
Avail Cap(c_a), veh/h	461	1484	1258	747	1598	0	442	0	465	261	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.1	16.5	9.9	16.9	11.3	0.0	25.7	0.0	26.9	27.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.1	0.2	0.7	0.9	0.0	0.1	0.0	6.9	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	12.0	1.4	1.2	6.2	0.0	1.4	0.0	6.7	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.1	20.5	10.0	17.6	12.2	0.0	25.8	0.0	33.8	27.3	0.0	0.0
LnGrp LOS	B	C	B	B	B	A	C	A	C	C	A	A
Approach Vol, veh/h		1009			767			432				4
Approach Delay, s/veh		18.7			13.1			32.1				27.3
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	50.2		23.7	4.8	54.2		23.7				
Change Period (Y+Rc), s	4.0	5.5		4.5	4.0	5.5		4.5				
Max Green Setting (Gmax), s	31.0	69.5		20.5	6.0	79.5		20.5				
Max Q Clear Time (g_c+l1), s	4.9	35.7		5.8	2.2	22.9		19.1				
Green Ext Time (p_c), s	0.1	9.1		0.0	0.0	5.6		0.1				

Intersection Summary

HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th TWSC
2: SW Tonquin Road & SW Oregon Road

05/28/2021

Intersection						
Int Delay, s/veh	5.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	511	329	65	134	156	104
Future Vol, veh/h	511	329	65	134	156	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	215	190	-	0	210
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	13	13	15	15
Mvmt Flow	549	354	70	144	168	112

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	549	0	833
Stage 1	-	-	-	-	549
Stage 2	-	-	-	-	284
Critical Hdwy	-	-	4.23	-	6.55
Critical Hdwy Stg 1	-	-	-	-	5.55
Critical Hdwy Stg 2	-	-	-	-	5.55
Follow-up Hdwy	-	-	2.317	-	3.635
Pot Cap-1 Maneuver	-	-	968	-	322
Stage 1	-	-	-	-	553
Stage 2	-	-	-	-	735
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	968	-	299
Mov Cap-2 Maneuver	-	-	-	-	299
Stage 1	-	-	-	-	553
Stage 2	-	-	-	-	682

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	24.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	299	511	-	-	968	-
HCM Lane V/C Ratio	0.561	0.219	-	-	0.072	-
HCM Control Delay (s)	31.4	14	-	-	9	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	3.2	0.8	-	-	0.2	-

HCM 6th Roundabout
3: SW Murdock Road & SW Oregon Road

05/28/2021

Intersection			
Intersection Delay, s/veh	9.9		
Intersection LOS	A		
Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	539	319	557
Demand Flow Rate, veh/h	550	322	563
Vehicles Circulating, veh/h	111	63	458
Vehicles Exiting, veh/h	274	958	203
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	7.6	5.0	15.0
Approach LOS	A	A	B
Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	550	322	563
Cap Entry Lane, veh/h	1232	1294	865
Entry HV Adj Factor	0.980	0.990	0.989
Flow Entry, veh/h	539	319	557
Cap Entry, veh/h	1208	1282	856
V/C Ratio	0.446	0.249	0.651
Control Delay, s/veh	7.6	5.0	15.0
LOS	A	A	B
95th %tile Queue, veh	2	1	5

Intersection

Intersection Delay, s/veh 14.7

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	268	7	227	5	23	26	139	150	3	5	123	69
Future Vol, veh/h	268	7	227	5	23	26	139	150	3	5	123	69
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	4	4	4	7	7	7	6	6	6
Mvmt Flow	295	8	249	5	25	29	153	165	3	5	135	76
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	15.1	10.2	16.2	12.5
HCM LOS	C	B	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	48%	100%	0%	9%	3%
Vol Thru, %	51%	0%	3%	43%	62%
Vol Right, %	1%	0%	97%	48%	35%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	292	268	234	54	197
LT Vol	139	268	0	5	5
Through Vol	150	0	7	23	123
RT Vol	3	0	227	26	69
Lane Flow Rate	321	295	257	59	216
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.543	0.556	0.4	0.105	0.361
Departure Headway (Hd)	6.089	6.794	5.596	6.387	5.999
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	590	530	640	557	597
Service Time	4.15	4.553	3.354	4.48	4.068
HCM Lane V/C Ratio	0.544	0.557	0.402	0.106	0.362
HCM Control Delay	16.2	17.8	12.1	10.2	12.5
HCM Lane LOS	C	C	B	B	B
HCM 95th-tile Q	3.2	3.4	1.9	0.3	1.6

HCM 6th TWSC
5: Site Access & SW Oregon Road

05/28/2021

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑	↘	
Traffic Vol, veh/h	615	0	0	199	0	0
Future Vol, veh/h	615	0	0	199	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	13	13	2	2
Mvmt Flow	668	0	0	216	0	0

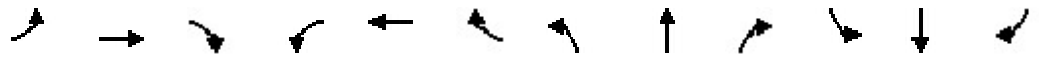
Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	668	0	884 334
Stage 1	-	-	-	-	668 -
Stage 2	-	-	-	-	216 -
Critical Hdwy	-	-	4.295	-	6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	-	-	2.3235	-	3.519 3.319
Pot Cap-1 Maneuver	-	-	860	-	300 663
Stage 1	-	-	-	-	472 -
Stage 2	-	-	-	-	819 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	860	-	300 663
Mov Cap-2 Maneuver	-	-	-	-	300 -
Stage 1	-	-	-	-	472 -
Stage 2	-	-	-	-	819 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	860	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

HCM 6th Signalized Intersection Summary
 1: SW Oregon Road & SW Tualatin-Sherwood Road

05/28/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	892	164	359	879	12	108	0	247	30	30	12
Future Volume (veh/h)	4	892	164	359	879	12	108	0	247	30	30	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1841	1841	1841	1900	1900	1900
Adj Flow Rate, veh/h	4	959	176	386	945	13	116	0	266	32	32	13
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	0	0	0
Cap, veh/h	311	991	840	410	1320	18	186	0	548	52	46	12
Arrive On Green	0.01	0.54	0.54	0.19	0.72	0.72	0.16	0.00	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1753	1841	1560	1767	1826	25	803	0	1560	74	283	73
Grp Volume(v), veh/h	4	959	176	386	0	958	116	0	266	77	0	0
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1767	0	1851	803	0	1560	430	0	0
Q Serve(g_s), s	0.1	63.8	7.5	21.9	0.0	37.7	0.0	0.0	16.9	2.5	0.0	0.0
Cycle Q Clear(g_c), s	0.1	63.8	7.5	21.9	0.0	37.7	18.0	0.0	16.9	20.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.42		0.17
Lane Grp Cap(c), veh/h	311	991	840	410	0	1338	186	0	548	110	0	0
V/C Ratio(X)	0.01	0.97	0.21	0.94	0.00	0.72	0.62	0.00	0.49	0.70	0.00	0.00
Avail Cap(c_a), veh/h	385	1008	854	506	0	1338	186	0	548	110	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.1	28.3	15.3	42.0	0.0	10.1	52.2	0.0	32.2	52.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	20.8	0.1	21.7	0.0	1.9	4.7	0.0	0.2	15.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	31.2	2.6	14.1	0.0	13.0	3.8	0.0	6.4	3.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.1	49.1	15.4	63.7	0.0	12.0	56.9	0.0	32.4	68.7	0.0	0.0
LnGrp LOS	B	D	B	E	A	B	E	A	C	E	A	A
Approach Vol, veh/h		1139			1344			382				77
Approach Delay, s/veh		43.8			26.9			39.9				68.7
Approach LOS		D			C			D				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.1	73.8		25.0	4.7	97.3		25.0				
Change Period (Y+Rc), s	4.0	5.5		4.5	4.0	5.5		4.5				
Max Green Setting (Gmax), s	31.0	69.5		20.5	6.0	79.5		20.5				
Max Q Clear Time (g_c+l1), s	23.9	65.8		22.5	2.1	39.7		20.0				
Green Ext Time (p_c), s	0.2	2.6		0.0	0.0	10.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	36.2
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th TWSC
2: SW Tonquin Road & SW Oregon Road

05/28/2021

Intersection						
Int Delay, s/veh	115.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	256	156	173	446	342	96
Future Vol, veh/h	256	156	173	446	342	96
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	215	190	-	0	210
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	278	170	188	485	372	104

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	278	0	1139	278
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	861	-
Critical Hdwy	-	-	4.14	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.236	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1273	-	~ 223	761
Stage 1	-	-	-	-	769	-
Stage 2	-	-	-	-	414	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1273	-	~ 190	761
Mov Cap-2 Maneuver	-	-	-	-	~ 190	-
Stage 1	-	-	-	-	769	-
Stage 2	-	-	-	-	~ 353	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	\$ 385.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	190	761	-	-	1273	-
HCM Lane V/C Ratio	1.957	0.137	-	-	0.148	-
HCM Control Delay (s)	\$ 490.2	10.5	-	-	8.3	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	27.7	0.5	-	-	0.5	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Roundabout
 3: SW Murdock Road & SW Oregon Road

05/28/2021

Intersection			
Intersection Delay, s/veh	10.3		
Intersection LOS	B		
Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	334	866	231
Demand Flow Rate, veh/h	341	875	238
Vehicles Circulating, veh/h	470	70	239
Vehicles Exiting, veh/h	475	407	572
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	9.1	12.0	5.5
Approach LOS	A	B	A
Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	341	875	238
Cap Entry Lane, veh/h	854	1285	1081
Entry HV Adj Factor	0.980	0.990	0.971
Flow Entry, veh/h	334	866	231
Cap Entry, veh/h	838	1272	1050
V/C Ratio	0.399	0.681	0.220
Control Delay, s/veh	9.1	12.0	5.5
LOS	A	B	A
95th %tile Queue, veh	2	6	1

Intersection

Intersection Delay, s/veh35.8

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	104	12	173	1	22	18	330	152	6	33	159	283
Future Vol, veh/h	104	12	173	1	22	18	330	152	6	33	159	283
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	116	13	192	1	24	20	367	169	7	37	177	314
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	14.3	12.1	50.7	35.5
HCM LOS	B	B	F	E

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	68%	100%	0%	2%	7%
Vol Thru, %	31%	0%	6%	54%	33%
Vol Right, %	1%	0%	94%	44%	60%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	488	104	185	41	475
LT Vol	330	104	0	1	33
Through Vol	152	0	12	22	159
RT Vol	6	0	173	18	283
Lane Flow Rate	542	116	206	46	528
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.947	0.264	0.401	0.103	0.865
Departure Headway (Hd)	6.286	8.215	7.025	8.145	5.901
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	575	437	512	443	612
Service Time	4.339	5.978	4.787	6.145	3.954
HCM Lane V/C Ratio	0.943	0.265	0.402	0.104	0.863
HCM Control Delay	50.7	13.9	14.5	12.1	35.5
HCM Lane LOS	F	B	B	B	E
HCM 95th-tile Q	12.4	1	1.9	0.3	9.8

HCM 6th TWSC
 5: Site Access & SW Oregon Road

05/28/2021

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑	↑	
Traffic Vol, veh/h	352	0	0	619	0	0
Future Vol, veh/h	352	0	0	619	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	383	0	0	673	0	0

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	383	0	1056	192
Stage 1	-	-	-	-	383	-
Stage 2	-	-	-	-	673	-
Critical Hdwy	-	-	4.16	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.238	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1161	-	235	818
Stage 1	-	-	-	-	660	-
Stage 2	-	-	-	-	506	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1161	-	235	818
Mov Cap-2 Maneuver	-	-	-	-	235	-
Stage 1	-	-	-	-	660	-
Stage 2	-	-	-	-	506	-

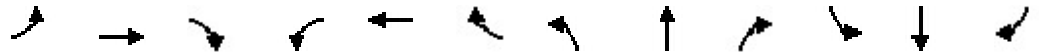
Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1161	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

HCM 6th Signalized Intersection Summary

1: SW Oregon Road & SW Tualatin-Sherwood Road

05/28/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	797	186	149	607	0	85	4	332	4	0	0
Future Volume (veh/h)	8	797	186	149	607	0	85	4	332	4	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1767	1767	1663	1663	1663	1796	1796	1796	1530	1530	1530
Adj Flow Rate, veh/h	8	830	194	155	632	0	89	4	346	4	0	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	9	9	9	16	16	16	7	7	7	25	25	25
Cap, veh/h	360	953	808	250	986	0	402	16	450	243	0	0
Arrive On Green	0.01	0.54	0.54	0.06	0.59	0.00	0.23	0.23	0.23	0.23	0.00	0.00
Sat Flow, veh/h	1682	1767	1497	1584	1663	0	1376	70	1522	683	0	0
Grp Volume(v), veh/h	8	830	194	155	632	0	93	0	346	4	0	0
Grp Sat Flow(s),veh/h/ln	1682	1767	1497	1584	1663	0	1446	0	1522	683	0	0
Q Serve(g_s), s	0.2	34.6	5.8	3.4	21.2	0.0	0.0	0.0	17.6	0.3	0.0	0.0
Cycle Q Clear(g_c), s	0.2	34.6	5.8	3.4	21.2	0.0	3.7	0.0	17.6	4.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	0.96		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	360	953	808	250	986	0	418	0	450	243	0	0
V/C Ratio(X)	0.02	0.87	0.24	0.62	0.64	0.00	0.22	0.00	0.77	0.02	0.00	0.00
Avail Cap(c_a), veh/h	462	1447	1227	728	1558	0	432	0	465	252	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.3	17.0	10.3	17.7	11.3	0.0	26.5	0.0	27.2	28.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.4	0.2	0.9	0.8	0.0	0.1	0.0	6.6	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	12.6	1.7	1.6	6.4	0.0	1.5	0.0	6.9	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.3	21.4	10.5	18.6	12.2	0.0	26.6	0.0	33.9	28.1	0.0	0.0
LnGrp LOS	B	C	B	B	B	A	C	A	C	C	A	A
Approach Vol, veh/h		1032			787			439				4
Approach Delay, s/veh		19.2			13.4			32.3				28.1
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	51.3		24.2	4.9	55.8		24.2				
Change Period (Y+Rc), s	4.0	5.5		4.5	4.0	5.5		4.5				
Max Green Setting (Gmax), s	31.0	69.5		20.5	6.0	79.5		20.5				
Max Q Clear Time (g_c+l1), s	5.4	36.6		6.1	2.2	23.2		19.6				
Green Ext Time (p_c), s	0.1	9.1		0.0	0.0	5.6		0.1				

Intersection Summary

HCM 6th Ctrl Delay	19.8
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th TWSC
2: SW Tonquin Road & SW Oregon Road

05/28/2021

Intersection						
Int Delay, s/veh	5.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	522	329	68	135	156	127
Future Vol, veh/h	522	329	68	135	156	127
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	215	190	-	0	210
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	13	13	15	15
Mvmt Flow	561	354	73	145	168	137

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	561	0	852
Stage 1	-	-	-	-	561
Stage 2	-	-	-	-	291
Critical Hdwy	-	-	4.23	-	6.55
Critical Hdwy Stg 1	-	-	-	-	5.55
Critical Hdwy Stg 2	-	-	-	-	5.55
Follow-up Hdwy	-	-	2.317	-	3.635
Pot Cap-1 Maneuver	-	-	958	-	313
Stage 1	-	-	-	-	546
Stage 2	-	-	-	-	730
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	958	-	289
Mov Cap-2 Maneuver	-	-	-	-	289
Stage 1	-	-	-	-	546
Stage 2	-	-	-	-	675

Approach	EB	WB	NB
HCM Control Delay, s	0	3	25.1
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	289	503	-	-	958	-
HCM Lane V/C Ratio	0.58	0.271	-	-	0.076	-
HCM Control Delay (s)	33.4	14.8	-	-	9.1	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	3.4	1.1	-	-	0.2	-

HCM 6th Roundabout
 3: SW Murdock Road & SW Oregon Road

05/28/2021

Intersection			
Intersection Delay, s/veh	10.1		
Intersection LOS	B		
Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	539	320	569
Demand Flow Rate, veh/h	550	323	575
Vehicles Circulating, veh/h	112	63	458
Vehicles Exiting, veh/h	274	970	204
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	7.6	5.0	15.5
Approach LOS	A	A	C
Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	550	323	575
Cap Entry Lane, veh/h	1231	1294	865
Entry HV Adj Factor	0.980	0.990	0.990
Flow Entry, veh/h	539	320	569
Cap Entry, veh/h	1206	1282	856
V/C Ratio	0.447	0.250	0.665
Control Delay, s/veh	7.6	5.0	15.5
LOS	A	A	C
95th %tile Queue, veh	2	1	5

Intersection

Intersection Delay, s/veh	15
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	279	7	227	5	23	26	139	150	3	5	123	70
Future Vol, veh/h	279	7	227	5	23	26	139	150	3	5	123	70
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	4	4	4	4	4	4	7	7	7	6	6	6
Mvmt Flow	307	8	249	5	25	29	153	165	3	5	135	77
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	15.6	10.3	16.4	12.6
HCM LOS	C	B	C	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	48%	100%	0%	9%	3%
Vol Thru, %	51%	0%	3%	43%	62%
Vol Right, %	1%	0%	97%	48%	35%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	292	279	234	54	198
LT Vol	139	279	0	5	5
Through Vol	150	0	7	23	123
RT Vol	3	0	227	26	70
Lane Flow Rate	321	307	257	59	218
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.546	0.58	0.401	0.106	0.365
Departure Headway (Hd)	6.126	6.807	5.609	6.424	6.034
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	587	530	640	553	594
Service Time	4.188	4.566	3.367	4.517	4.104
HCM Lane V/C Ratio	0.547	0.579	0.402	0.107	0.367
HCM Control Delay	16.4	18.6	12.1	10.3	12.6
HCM Lane LOS	C	C	B	B	B
HCM 95th-tile Q	3.3	3.7	1.9	0.4	1.7

HCM 6th TWSC
5: Site Access & SW Oregon Road

05/28/2021

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑	↘	
Traffic Vol, veh/h	615	34	41	199	4	6
Future Vol, veh/h	615	34	41	199	4	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	13	13	2	2
Mvmt Flow	668	37	45	216	4	7

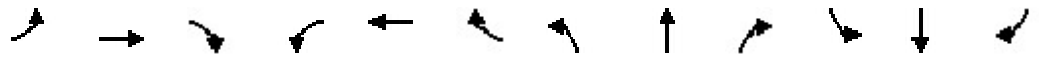
Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	705	0	993 353
Stage 1	-	-	-	-	687 -
Stage 2	-	-	-	-	306 -
Critical Hdwy	-	-	4.295	-	6.63 6.93
Critical Hdwy Stg 1	-	-	-	-	5.83 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	-	-	2.3235	-	3.519 3.319
Pot Cap-1 Maneuver	-	-	832	-	257 644
Stage 1	-	-	-	-	462 -
Stage 2	-	-	-	-	746 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	832	-	243 644
Mov Cap-2 Maneuver	-	-	-	-	243 -
Stage 1	-	-	-	-	462 -
Stage 2	-	-	-	-	706 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	14.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	388	-	-	832	-
HCM Lane V/C Ratio	0.028	-	-	0.054	-
HCM Control Delay (s)	14.5	-	-	9.6	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	-

HCM 6th Signalized Intersection Summary
 1: SW Oregon Road & SW Tualatin-Sherwood Road

05/28/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	892	167	362	879	12	128	0	263	30	30	12
Future Volume (veh/h)	4	892	167	362	879	12	128	0	263	30	30	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1856	1856	1856	1841	1841	1841	1900	1900	1900
Adj Flow Rate, veh/h	4	959	180	389	945	13	138	0	283	32	32	13
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	0	0	0
Cap, veh/h	9	989	838	413	1323	18	185	0	551	40	34	7
Arrive On Green	0.01	0.54	0.54	0.19	0.72	0.72	0.16	0.00	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1753	1841	1560	1767	1826	25	803	0	1560	0	209	43
Grp Volume(v), veh/h	4	959	180	389	0	958	138	0	283	77	0	0
Grp Sat Flow(s),veh/h/ln	1753	1841	1560	1767	0	1851	803	0	1560	252	0	0
Q Serve(g_s), s	0.3	64.2	7.7	22.3	0.0	37.7	0.0	0.0	18.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	64.2	7.7	22.3	0.0	37.7	20.5	0.0	18.3	20.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	0.42		0.17
Lane Grp Cap(c), veh/h	9	989	838	413	0	1341	185	0	551	80	0	0
V/C Ratio(X)	0.44	0.97	0.21	0.94	0.00	0.71	0.74	0.00	0.51	0.96	0.00	0.00
Avail Cap(c_a), veh/h	82	1003	850	502	0	1341	185	0	551	80	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	63.3	28.5	15.4	42.3	0.0	10.0	54.2	0.0	32.6	53.7	0.0	0.0
Incr Delay (d2), s/veh	11.9	21.3	0.2	22.3	0.0	1.9	13.4	0.0	0.4	85.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	31.6	2.6	14.3	0.0	13.0	5.1	0.0	6.9	4.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.2	49.9	15.6	64.6	0.0	12.0	67.6	0.0	33.0	138.8	0.0	0.0
LnGrp LOS	E	D	B	E	A	B	E	A	C	F	A	A
Approach Vol, veh/h		1143			1347			421				77
Approach Delay, s/veh		44.6			27.2			44.3				138.8
Approach LOS		D			C			D				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	28.5	74.0		25.0	4.7	97.9		25.0				
Change Period (Y+Rc), s	4.0	5.5		4.5	4.0	5.5		4.5				
Max Green Setting (Gmax), s	31.0	69.5		20.5	6.0	79.5		20.5				
Max Q Clear Time (g_c+l1), s	24.3	66.2		22.5	2.3	39.7		22.5				
Green Ext Time (p_c), s	0.2	2.3		0.0	0.0	10.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	39.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Roundabout
 2: SW Tonquin Road & SW Oregon Road

05/28/2021

Intersection			
Intersection Delay, s/veh	13.8		
Intersection LOS	B		
Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	449	706	480
Demand Flow Rate, veh/h	467	734	489
Vehicles Circulating, veh/h	218	379	290
Vehicles Exiting, veh/h	895	400	395
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	8.0	20.6	9.2
Approach LOS	A	C	A
Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	467	734	489
Cap Entry Lane, veh/h	1105	937	1027
Entry HV Adj Factor	0.961	0.962	0.982
Flow Entry, veh/h	449	706	480
Cap Entry, veh/h	1062	902	1008
V/C Ratio	0.423	0.783	0.476
Control Delay, s/veh	8.0	20.6	9.2
LOS	A	C	A
95th %tile Queue, veh	2	8	3

HCM 6th Roundabout
 3: SW Murdock Road & SW Oregon Road

05/28/2021

Intersection			
Intersection Delay, s/veh10.5			
Intersection LOS B			
Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	334	876	232
Demand Flow Rate, veh/h	341	885	239
Vehicles Circulating, veh/h	480	70	239
Vehicles Exiting, veh/h	475	408	582
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	9.3	12.3	5.5
Approach LOS	A	B	A
Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	341	885	239
Cap Entry Lane, veh/h	846	1285	1081
Entry HV Adj Factor	0.980	0.990	0.971
Flow Entry, veh/h	334	876	232
Cap Entry, veh/h	829	1272	1050
V/C Ratio	0.403	0.689	0.221
Control Delay, s/veh	9.3	12.3	5.5
LOS	A	B	A
95th %tile Queue, veh	2	6	1

Intersection

Intersection Delay, s/veh 17.5
 Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	105	12	173	1	22	18	330	152	6	33	159	293
Future Vol, veh/h	105	12	173	1	22	18	330	152	6	33	159	293
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	117	13	192	1	24	20	367	169	7	37	177	326
Number of Lanes	1	1	0	0	1	0	1	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	13.7	12	22.5	15.2
HCM LOS	B	B	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	2%	17%	0%
Vol Thru, %	0%	96%	0%	6%	54%	83%	0%
Vol Right, %	0%	4%	0%	94%	44%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	330	158	105	185	41	192	293
LT Vol	330	0	105	0	1	33	0
Through Vol	0	152	0	12	22	159	0
RT Vol	0	6	0	173	18	0	293
Lane Flow Rate	367	176	117	206	46	213	326
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.734	0.325	0.26	0.385	0.101	0.407	0.549
Departure Headway (Hd)	7.202	6.664	8.018	6.869	8.019	6.874	6.071
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	506	542	449	526	447	525	596
Service Time	4.914	4.377	5.751	4.569	6.058	4.588	3.785
HCM Lane V/C Ratio	0.725	0.325	0.261	0.392	0.103	0.406	0.547
HCM Control Delay	27.3	12.6	13.6	13.8	12	14.2	15.9
HCM Lane LOS	D	B	B	B	B	B	C
HCM 95th-tile Q	6.1	1.4	1	1.8	0.3	2	3.3

HCM 6th TWSC
5: Site Access & SW Oregon Road

05/28/2021

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑	↘	
Traffic Vol, veh/h	352	4	6	619	30	36
Future Vol, veh/h	352	4	6	619	30	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	383	4	7	673	33	39

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	387	0	1072
Stage 1	-	-	-	-	385
Stage 2	-	-	-	-	687
Critical Hdwy	-	-	4.16	-	6.63
Critical Hdwy Stg 1	-	-	-	-	5.83
Critical Hdwy Stg 2	-	-	-	-	5.43
Follow-up Hdwy	-	-	2.238	-	3.519
Pot Cap-1 Maneuver	-	-	1157	-	229
Stage 1	-	-	-	-	658
Stage 2	-	-	-	-	498
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1157	-	228
Mov Cap-2 Maneuver	-	-	-	-	228
Stage 1	-	-	-	-	658
Stage 2	-	-	-	-	495

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	16.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	376	-	-	1157	-
HCM Lane V/C Ratio	0.191	-	-	0.006	-
HCM Control Delay (s)	16.8	-	-	8.1	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0	-

HCM 6th TWSC
2: SW Tonquin Road & SW Oregon Road

05/28/2021

Intersection						
Int Delay, s/veh	134.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Vol, veh/h	257	156	193	456	342	99
Future Vol, veh/h	257	156	193	456	342	99
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Yield	-	None	-	None
Storage Length	-	215	190	-	0	210
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	2	2
Mvmt Flow	279	170	210	496	372	108

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	279	0	1195
Stage 1	-	-	-	-	279
Stage 2	-	-	-	-	916
Critical Hdwy	-	-	4.14	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.236	-	3.518
Pot Cap-1 Maneuver	-	-	1272	-	~ 206
Stage 1	-	-	-	-	768
Stage 2	-	-	-	-	390
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1272	-	~ 172
Mov Cap-2 Maneuver	-	-	-	-	~ 172
Stage 1	-	-	-	-	768
Stage 2	-	-	-	-	~ 326

Approach	EB	WB	NB
HCM Control Delay, s	0	2.5	\$ 456
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	172	760	-	-	1272	-
HCM Lane V/C Ratio	2.161	0.142	-	-	0.165	-
HCM Control Delay (s)	\$ 584.9	10.5	-	-	8.4	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	29.7	0.5	-	-	0.6	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Intersection Delay, s/veh 37.2

Intersection LOS E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	105	12	173	1	22	18	330	152	6	33	159	293
Future Vol, veh/h	105	12	173	1	22	18	330	152	6	33	159	293
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	3	3	3	3	3	3	2	2	2	2	2	2
Mvmt Flow	117	13	192	1	24	20	367	169	7	37	177	326
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	2	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	1	2
HCM Control Delay	14.3	12.1	51.7	38.3
HCM LOS	B	B	F	E

Lane	NBLn1	EBLn1	EBLn2	WBLn1	SBLn1
Vol Left, %	68%	100%	0%	2%	7%
Vol Thru, %	31%	0%	6%	54%	33%
Vol Right, %	1%	0%	94%	44%	60%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	488	105	185	41	485
LT Vol	330	105	0	1	33
Through Vol	152	0	12	22	159
RT Vol	6	0	173	18	293
Lane Flow Rate	542	117	206	46	539
Geometry Grp	2	7	7	5	2
Degree of Util (X)	0.951	0.267	0.403	0.103	0.885
Departure Headway (Hd)	6.317	8.25	7.059	8.103	5.91
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	575	435	508	440	614
Service Time	4.371	6.012	4.821	6.202	3.961
HCM Lane V/C Ratio	0.943	0.269	0.406	0.105	0.878
HCM Control Delay	51.7	14	14.5	12.1	38.3
HCM Lane LOS	F	B	B	B	E
HCM 95th-tile Q	12.6	1.1	1.9	0.3	10.5

Exhibit H: Neighborhood Meeting Documentation



PLANNING DEPARTMENT NEIGHBORHOOD MEETING PACKET

(Required for all Type III, IV or V projects)

Submit the following with land use application materials to the City of Sherwood Planning Department, 22560 SW Pine St., Sherwood, OR 97140: (503) 625-5522.

The purpose of the neighborhood meeting is to solicit input and exchange information about the proposed development per Sherwood Zoning and Community Development Code 16.70.020.

The meeting must be held in a public location **prior** to submitting a land use application.

Affidavits of mailing to adjacent property owners that are within 1,000 feet of the subject application.

Sign-in sheet(s)

Summary of the meeting notes

(Projects requiring a neighborhood meeting in which the City or Urban Renewal District is the property owner or applicant shall also provide published and posted notice of the neighborhood meeting consistent with the notice requirements in 16.72.020.)

Affidavit of Mailing

DATE: June 8, 2021

STATE OF OREGON)
)
Washington County)

Oregon Street Business Park

I, Mitchell Godwin, representative for the 21720 SW Oregon St proposed development project do hereby certify that the attached notice to adjacent property owners and recognized neighborhood organizations that are within 1,000 feet of the subject project, was placed in a U.S. Postal receptacle on 06/08/2021.

Mitchell Godwin
Representatives Name: Mitchell Godwin
Name of the Organization: AKS Engineering + Forestry



June 8, 2021

RE: VIRTUAL NEIGHBORHOOD MEETING NOTICE
Land Use Application for a Business Park at 21720 SW Oregon Street

Dear Property Owner/Neighbor:

AKS Engineering & Forestry, LLC is holding a virtual neighborhood meeting regarding a ±9.23-acre site located at 21720 SW Oregon Street (Washington County Assessor's Map 2S 1 28C Tax Lot 500). The enclosed map shows the specific location of the project site east of the intersection of SW Oregon Street and SW Tonquin Road. The project involves a site plan review application for an industrial campus of five flex buildings (totaling ±90,800 square feet) and associated parking and landscaping and other site improvements. The site is zoned Employment Industrial and the planned buildings will primarily be for industrial tenants within a variety of spaces, but future commercial uses as allowed by the City of Sherwood's Zoning and Community Development Code (SZCDC) may also be possible.

You are invited to attend the virtual meeting on:

June 22, 2021 at 6:00 PM

See enclosed instructions to join the meeting.

A Virtual Neighborhood Meeting will be held on June 22, 2021 to inform the community about our proposed project. Interested community members are encouraged to attend this meeting. We would like to take the opportunity to discuss the project in more detail with you prior to applying to the City of Sherwood.

The purpose of this virtual meeting is to provide a forum for the applicant and surrounding property owners/neighbors to review the proposal and to identify issues so that they may be considered before a land use application is submitted to the City of Sherwood. This meeting gives you the opportunity to share with us any special information you know about the property involved. We will attempt to answer questions which may be relevant to meeting development standards consistent with the SZCDC.

Please note this meeting will be an informational meeting on preliminary development plans and may be recorded. These plans may be altered prior to submittal of the application to the City of Sherwood.

I look forward to discussing this project with you. If you have questions but will be unable to attend, please feel free to call me at 503-563-6151.

Sincerely,

AKS ENGINEERING & FORESTRY, LLC

Glen Southerland, AICP
12965 SW Herman Road, Suite 100
Tualatin, OR 97062
503-563-6151 | southerlandg@aks-eng.com

Instructions for Joining & Participating in the Public Neighborhood Meeting for Oregon Street Business Park

Virtual Meeting provided via Zoom Webinar

June 22, 2021 at 6:00 PM

Please Register in Advance

(a list of attendees will be submitted to the City of Sherwood):

- Go online to <https://www.aks-eng.com/or-st-business-park/> This must be typed in exactly as shown.
- Click on the link provided to complete the online registration form.
- You will receive a confirmation email containing a link to join the Zoom webinar at the scheduled time as well as additional instructions.
- Meeting materials will be available upon request at least 10 days after the meeting concludes.

How to Join the Meeting:

Join by computer, tablet or smartphone

- **This is the preferred method as it allows you to see the Presenter's materials on screen.**
- Click on the "Click this URL join" link provided in your registration confirmation email.
- If you registered but did not receive a confirmation email, please check your junk/spam folder before contacting the Meeting Administrator.
- You may be prompted to "download and run Zoom" or to install the App (ZOOM cloud meetings). Follow the prompts or bypass this process by clicking "join from your browser".
- You should automatically be connected to the virtual neighborhood meeting.

Join by telephone

- Dial any of the toll-free Zoom numbers below to connect to the neighborhood meeting:

+ 1-346-248-7799	+ 1-669-900-6833
+ 1-253-215-8782	+ 1-312-626-6799
+ 1-929-205-6099	+ 1-301-715-8592

- If you experience trouble connecting, please pick another number and try again.
- After dialing in, enter this Zoom ID when prompted: **851 1081 4465**
- The passcode, if needed is: **6151**

MEETING ADMINISTRATOR:

For technical assistance or to ask
a question if you will not be able to attend:

Email: SoutherlandG@aks-eng.com

During the Meeting

Audio Help

- Meeting attendees will be muted throughout the presentation. This will allow everyone to hear the presentation clearly without added distractions.
- Make sure that the speakers on your device are turned on and not muted.
- If you do not have speakers on your computer, you can join by phone (using the “Join by telephone” instructions) to hear the presentation while watching the presentation on your computer monitor.

Questions & Answers

Your questions are important to us. There will be time reserved during the meeting to take questions, using one of the submission options below. Our presentation team will make their best effort to answer all question(s) during the meeting.

Prior to the Meeting:

- If you will not be able to attend, you can email your question(s) in advance to the Meeting Administrator: SoutherlandG@aks-eng.com

During the Meeting:

- **Preferred Method:** Use the “Chat” button on the bottom of the presentation screen to submit a question in real time.

After the Meeting:

- We will continue to take questions after the meeting has ended. Please submit your question(s) to the Meeting Administrator: SoutherlandG@aks-eng.com
- All questions received after the meeting will be answered in an email to all registered meeting participants by end of business the following day.

Helpful Hints/Troubleshooting

We want to start on time! Please join the meeting 5-10 minutes prior to the 6:00 PM start time to ensure successful connection.

- You do not need a Zoom account to join the meeting.
- You will need a valid email address at the time of registration to receive the confirmation email and link to join the webinar or receive answers to any questions submitted after the meeting.
- For first-time Zoom users, we recommend downloading and installing the Zoom App well in advance, by clicking on the “Click Here to Join” link in your confirmation email.
- For technical assistance, please contact the Meeting Administrator (contact above).
- If you have difficulties connecting by computer, tablet, or smartphone, we suggest disconnecting and instead use the “Join by telephone” instructions to listen in.

NEIGHBORHOOD MEETING SIGN IN SHEET

Proposed Project: Oregon Street Business Park

Proposed Project Location: 21720 SW Oregon Street - 2S128C000500

Project Contact: AKS Engineering & Forestry, LLC - Glen Southerland, AICP

Meeting Location: Virtual - Zoom Webinar

Meeting Date: 6/23/21 - 6:00 p.m.

Name	Address	E-Mail	Please identify yourself (check all that apply)			
			Resident	Property owner	Business owner	Other
No members of the public attended						



June 24, 2021

**Re: Neighborhood Meeting Minutes
Oregon Street Business Park
City of Sherwood Project No. PAC 2020-010**

Meeting Date: June 22, 2021

Time: 6:00 p.m.

Location: Virtual Meeting was held via Zoom Webinar

The applicant conducted a neighborhood meeting in accordance with applicable City regulations to discuss a site and design review application for an industrial business park. Prior to the meeting, materials were uploaded to a project website at <https://www.aks-eng.com/or-st-business-park/>.

This meeting was held via a Zoom Webinar in accordance with the City's Neighborhood Meeting Guidelines. Mimi Doukas, John Christiansen, and Glen Southerland from AKS Engineering & Forestry, LLC and Bruce Polley from Oregon Street Business Park, LLC were present. No members of the public attended the meeting.

Having no members of the public in attendance, the meeting concluded at 6:15 p.m.

Sincerely,

AKS ENGINEERING & FORESTRY, LLC

A handwritten signature in black ink, appearing to be 'G. Southerland', written over a light blue horizontal line.

Glen Southerland, AICP

12965 SW Herman Road, Suite 100

Tualatin, OR 97062

503-563-6151 | SoutherlandG@aks-eng.com

Affidavit of Mailing

DATE: 5/17/22

STATE OF OREGON)
)
Washington County)

I, GLEN SOUTHERLAND, representative for the OREGON STREET BUSINESS PARK proposed development project do hereby certify that the attached notice to adjacent property owners and recognized neighborhood organizations that are within 1,000 feet of the subject project, was placed in a U.S. Postal receptacle on 5/16/22.



Representatives Name: GLEN SOUTHERLAND
Name of the Organization: AKS ENGINEERING & FORESTRY, LLC



May 16, 2022

RE: VIRTUAL NEIGHBORHOOD MEETING NOTICE
Land Use Application for a Business Park at 21720 SW Oregon Street

Dear Property Owner/Neighbor:

AKS Engineering & Forestry, LLC is holding a virtual neighborhood meeting regarding a ±9.23-acre site located at 21720 SW Oregon Street (Washington County Assessor's Map 2S 1 28C Tax Lot 500). The enclosed map shows the specific location of the project site east of the intersection of SW Oregon Street and SW Tonquin Road. The project involves a site plan review application for an industrial campus of four flex buildings (totaling ±115,170 square feet), associated parking and landscaping and other site improvements. The application also includes a variance for reduced building setback along SW Laurelwood Way, a new public street right-of-way along the site's eastern boundary. The site is zoned Employment Industrial and the planned buildings will primarily be for industrial tenants within a variety of spaces, but future commercial uses as allowed by the City of Sherwood's Zoning and Community Development Code (SZCDC) may also be possible.

You are invited to attend the virtual meeting on:

May 30, 2022, at 6:00 PM

See enclosed instructions to join the meeting.

A Virtual Neighborhood Meeting will be held on May 30, 2022, to inform the community about our proposed project. Interested community members are encouraged to attend this meeting. We would like to take the opportunity to discuss the project in more detail with you prior to applying to the City of Sherwood.

The purpose of this virtual meeting is to provide a forum for the applicant and surrounding property owners/neighbors to review the proposal and to identify issues so that they may be considered before a land use application is submitted to the City of Sherwood. This meeting gives you the opportunity to share with us any special information you know about the property involved. We will attempt to answer questions which may be relevant to meeting development standards consistent with the SZCDC.

Please note this meeting will be an informational meeting on preliminary development plans and may be recorded. These plans may be altered prior to submittal of the application to the City of Sherwood.

I look forward to discussing this project with you. If you have questions but will be unable to attend, please feel free to call me at 503-563-6151.

Sincerely,

AKS ENGINEERING & FORESTRY, LLC

A handwritten signature in black ink, appearing to read 'G. Southerland', written over a light blue horizontal line.

Glen Southerland, AICP
12965 SW Herman Road, Suite 100
Tualatin, OR 97062
503-563-6151 | southerlandg@aks-eng.com

Instructions for Joining & Participating in the Public Neighborhood Meeting for Oregon Street Business Park

Virtual Meeting provided via Zoom Webinar

May 30, 2022, at 6:00 PM

Please Register in Advance

(a list of attendees will be submitted to the City of Sherwood):

- Go online to <https://www.aks-eng.com/or-st-business-park/> This must be typed in exactly as shown.
- Click on the link provided to complete the online registration form.
- You will receive a confirmation email containing a link to join the Zoom webinar at the scheduled time as well as additional instructions.
- Meeting materials will be available upon request at least 10 days after the meeting concludes.

How to Join the Meeting:

Join by computer, tablet or smartphone

- **This is the preferred method as it allows you to see the Presenter's materials on screen.**
- Click on the "Click this URL join" link provided in your registration confirmation email.
- If you registered but did not receive a confirmation email, please check your junk/spam folder before contacting the Meeting Administrator.
- You may be prompted to "download and run Zoom" or to install the App (ZOOM cloud meetings). Follow the prompts or bypass this process by clicking "join from your browser".
- You should automatically be connected to the virtual neighborhood meeting.

Join by telephone

- Dial any of the toll-free Zoom numbers below to connect to the neighborhood meeting:

+ 1-346-248-7799	+ 1-669-900-6833
+ 1-253-215-8782	+ 1-312-626-6799
+ 1-929-205-6099	+ 1-301-715-8592

- If you experience trouble connecting, please pick another number and try again.
- After dialing in, enter this Zoom ID when prompted: **831 7246 5718**
- The passcode, if needed is: **6151**

MEETING ADMINISTRATOR:

For technical assistance or to ask
a question if you will not be able to attend:

Email: SoutherlandG@aks-eng.com

During the Meeting

Audio Help

- Meeting attendees will be muted throughout the presentation. This will allow everyone to hear the presentation clearly without added distractions.
- Make sure that the speakers on your device are turned on and not muted.
- If you do not have speakers on your computer, you can join by phone (using the “Join by telephone” instructions) to hear the presentation while watching the presentation on your computer monitor.

Questions & Answers

Your questions are important to us. There will be time reserved during the meeting to take questions, using one of the submission options below. Our presentation team will make their best effort to answer all question(s) during the meeting.

Prior to the Meeting:

- If you will not be able to attend, you can email your question(s) in advance to the Meeting Administrator: SoutherlandG@aks-eng.com

During the Meeting:

- **Preferred Method:** Use the “Chat” button on the bottom of the presentation screen to submit a question in real time.

After the Meeting:

- We will continue to take questions after the meeting has ended. Please submit your question(s) to the Meeting Administrator: SoutherlandG@aks-eng.com
- All questions received after the meeting will be answered in an email to all registered meeting participants by end of business the following day.

Helpful Hints/Troubleshooting

We want to start on time! Please join the meeting 5-10 minutes prior to the 6:00 PM start time to ensure successful connection.

- You do not need a Zoom account to join the meeting.
- You will need a valid email address at the time of registration to receive the confirmation email and link to join the webinar or receive answers to any questions submitted after the meeting.
- For first-time Zoom users, we recommend downloading and installing the Zoom App well in advance, by clicking on the “Click Here to Join” link in your confirmation email.
- For technical assistance, please contact the Meeting Administrator (contact above).
- If you have difficulties connecting by computer, tablet, or smartphone, we suggest disconnecting and instead use the “Join by telephone” instructions to listen in.

Affidavit of Mailing

DATE: 5/24/22

STATE OF OREGON)
)
Washington County)

I, GLEN SOUTHERLAND, representative for the LU 2021-015 OREGON STREET BUSINESS PARK proposed development project do hereby certify that the attached notice to adjacent property owners and recognized neighborhood organizations that are within 1,000 feet of the subject project, was placed in a U.S. Postal receptacle on 5/23/22.



Representatives Name: GLEN SOUTHERLAND
Name of the Organization: AKS ENGINEERING & FORESTRY, LLC



May 23, 2022

**RE: VIRTUAL NEIGHBORHOOD MEETING NOTICE – CORRECTED DATE
Land Use Application for a Business Park at 21720 SW Oregon Street**

Dear Property Owner/Neighbor:

AKS Engineering & Forestry, LLC is holding a virtual neighborhood meeting regarding a ±9.23-acre site located at 21720 SW Oregon Street (Washington County Assessor's Map 2S 1 28C Tax Lot 500). The enclosed map shows the specific location of the project site east of the intersection of SW Oregon Street and SW Tonquin Road. The project involves a site plan review application for an industrial campus of four flex buildings (totaling ±115,170 square feet), associated parking and landscaping and other site improvements. The application also includes a variance for reduced building setback along SW Laurelwood Way, a new public street right-of-way along the site's eastern boundary. The site is zoned Employment Industrial.

You are invited to attend the virtual meeting on:

MAY 31, 2022, at 6:00 PM

See enclosed instructions to join the meeting.

A Virtual Neighborhood Meeting will be held on May 31, 2022, to inform the community about our proposed project. Interested community members are encouraged to attend this meeting. We would like to take the opportunity to discuss the project in more detail with you prior to applying to the City of Sherwood.

The purpose of this virtual meeting is to provide a forum for the applicant and surrounding property owners/neighbors to review the proposal and to identify issues so that they may be considered before a land use application is submitted to the City of Sherwood. This meeting gives you the opportunity to share with us any special information you know about the property involved. We will attempt to answer questions which may be relevant to meeting development standards consistent with the SZCDC.

Please note this meeting will be an informational meeting on preliminary development plans and may be recorded. These plans may be altered prior to submittal of the application to the City of Sherwood.

I look forward to discussing this project with you. If you have questions but will be unable to attend, please feel free to call me at 503-563-6151.

Sincerely,

AKS ENGINEERING & FORESTRY, LLC

A handwritten signature in black ink, appearing to read 'G. Southerland', written over a light blue horizontal line.

Glen Southerland, AICP
12965 SW Herman Road, Suite 100
Tualatin, OR 97062
503-563-6151 | southerlandg@aks-eng.com

Instructions for Joining & Participating in the Public Neighborhood Meeting for Oregon Street Business Park

Virtual Meeting provided via Zoom Webinar

May 31, 2022, at 6:00 PM

Please Register in Advance

(a list of attendees will be submitted to the City of Sherwood):

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+ 1-253-215-8782	+ 1-312-626-6799
+ 1-929-205-6099	+ 1-301-715-8592

- If you experience trouble connecting, please pick another number and try again.
- After dialing in, enter this Zoom ID when prompted: **831 7246 5718**
- The passcode, if needed is: **6151**

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a question if you will not be able to attend:

Email: SoutherlandG@aks-eng.com

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During the Meeting:

- **Preferred Method:** Use the “Chat” button on the bottom of the presentation screen to submit a question in real time.

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- We will continue to take questions after the meeting has ended. Please submit your question(s) to the Meeting Administrator: SoutherlandG@aks-eng.com
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- For technical assistance, please contact the Meeting Administrator (contact above).
- If you have difficulties connecting by computer, tablet, or smartphone, we suggest disconnecting and instead use the “Join by telephone” instructions to listen in.

NEIGHBORHOOD MEETING SIGN IN SHEET

Proposed Project: Oregon Street Business Park

Proposed Project Location: 21720 SW Oregon Street - 2S128C000500

Project Contact: AKS Engineering & Forestry, LLC - Glen Southerland, AICP

Meeting Location: Virtual - Zoom Webinar

Meeting Date: 5/31/22 - 6:00 p.m.

Name	Address	E-Mail	Please identify yourself (check all that apply)			
			Resident	Property owner	Business owner	Other
No members of the public attended						



May 31, 2022

**Re: Neighborhood Meeting Minutes
Oregon Street Business Park
City of Sherwood Project No. LU 2021-015**

Meeting Date: May 31, 2022

Time: 6:00 p.m.

Location: Virtual Meeting was held via Zoom Webinar

The applicant conducted a neighborhood meeting in accordance with applicable City regulations to discuss a site, design review, and variance application for an industrial business park. Prior to the meeting, materials were uploaded to a project website at <https://www.aks-eng.com/or-st-business-park/>.

This meeting was held via a Zoom Webinar in accordance with the City's Neighborhood Meeting Guidelines. Glen Southerland, AICP from AKS Engineering & Forestry, LLC and Bruce Polley from Oregon Street Business Park, LLC were present. No members of the public attended the meeting.

Having no members of the public in attendance, the meeting concluded at 6:15 p.m.

Sincerely,

AKS ENGINEERING & FORESTRY, LLC

A handwritten signature in blue ink, appearing to be 'G. Southerland', written over a light blue horizontal line.

Glen Southerland, AICP

12965 SW Herman Road, Suite 100

Tualatin, OR 97062

503-563-6151 | SoutherlandG@aks-eng.com

Exhibit I: Public Notice Information



Date of Production: 05/09/2022

TERMS AND CONDITIONS OF INFORMATION REPORTS

IMPORTANT - READ CAREFULLY: AN INFORMATION REPORT IS NOT AN INSURED PRODUCT OR SERVICE OR A REPRESENTATION OF THE CONDITION OF TITLE TO REAL PROPERTY. IT IS NOT AN ABSTRACT, LEGAL OPINION, OPINION OF TITLE, TITLE INSURANCE COMMITMENT OR PRELIMINARY REPORT, OR ANY FORM OF TITLE INSURANCE OR GUARANTY. THE INFORMATION REPORT IS ISSUED EXCLUSIVELY FOR THE BENEFIT OF THE REQUESTOR, AND MAY NOT BE USED OR RELIED UPON BY ANY OTHER PERSON. THE INFORMATION REPORT MAY NOT BE REPRODUCED IN ANY MANNER WITHOUT FIRST AMERICAN TITLE'S PRIOR WRITTEN CONSENT. FIRST AMERICAN TITLE DOES NOT REPRESENT OR WARRANT THAT THE INFORMATION CONTAINED IN THE INFORMATION REPORT IS COMPLETE OR FREE FROM ERROR, AND THE INFORMATION THEREIN IS PROVIDED WITHOUT ANY WARRANTIES OF ANY KIND, AS-IS, AND WITH ALL FAULTS. AS A MATERIAL PART OF THE CONSIDERATION GIVEN IN EXCHANGE FOR THE ISSUANCE OF AN INFORMATION REPORT, REQUESTOR AGREES THAT FIRST AMERICAN TITLE'S SOLE LIABILITY FOR ANY LOSS OR DAMAGE CAUSED BY AN ERROR OR OMISSION DUE TO INACCURATE INFORMATION OR NEGLIGENCE IN PREPARING THE INFORMATION REPORT SHALL BE LIMITED TO THE GREATOR OF THE FEE CHARGED FOR THE INFORMATION REPORT OR \$15. REQUESTOR ACCEPTS THE INFORMATION REPORT WITH THIS LIMITATION AND AGREES THAT FIRST AMERICAN TITLE WOULD NOT HAVE ISSUED THE INFORMATION REPORT BUT FOR THE LIMITATION OF LIABILITY DESCRIBED ABOVE. FIRST AMERICAN TITLE MAKES NO REPRESENTATION OR WARRANTY AS TO THE LEGALITY OR PROPRIETY OF REQUESTOR'S USE OF THE INFORMATION CONTAINED IN THE INFORMATION REPORT.

2S132AA-12000
David & Stephanie Zaganiacz
3952 Carman Dr
Lake Oswego, OR 97035

2S13300-00400
Woodburn Industrial Capital Gr
395 Shenandoah Ln NE
Woodburn, OR 97071

2S133BB-00100
Woodburn Industrial Capital Gr
Po Box 1060
Woodburn, OR 97071

2S128C0-00400
Washington County Facilities M
169 N 1st Ave # 42
Hillsboro, OR 97124

2S129D0-00600
Washington County Facilities M
169 N 1st Ave # 42
Hillsboro, OR 97124

2S128C0-00700
Kenneth & Carol Vandomelen Trs &
4825 SW Evans St
Portland, OR 97219

2S13300-02500
United States Of America Dept
911 NE 11th Ave
Portland, OR 97232

2S133BB-00200
United States Of America Dept
911 NE 11th Ave
Portland, OR 97232

2S133BB-00400
United States Of America Dept
911 NE 11th Ave
Portland, OR 97232

2S132AA-09900
Dennis & Kristen Titko
14603 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-11500
Amanda & Robert Taylor
14596 SW Oregon St
Sherwood, OR 97140

2S132AA-06600
Gabriel Tanoue
14616 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-09400
Hyunsuk Seo & Bridget Loftis
14645 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-07700
Paul & Stephanie Spath
14738 SW Brickyard Dr
Sherwood, OR 97140

2S128C0-00204
Sherwood City Of
22560 SW Pine St
Sherwood, OR 97140

2S128C0-00600
Harsch Investment Properties L
1121 SW Salmon St STE 500
Portland, OR 97205

2S132AA-00190
Sherwood City Of
22560 SW Pine St
Sherwood, OR 97140

2S132AA-06200
Sherwood City Of
22560 SW Pine St
Sherwood, OR 97140

2S13300-00200
Harsch Investment Properties L
1121 SW Salmon St STE 500
Portland, OR 97205

2S13300-00201
Harsch Investment Properties L
1121 SW Salmon St STE 500
Portland, OR 97205

2S13300-00300
Sherwood Commerce Center Llc
1121 SW Salmon St STE 500
Portland, OR 97205

2S13300-00401
Harsch Investment Properties L
1121 SW Salmon St STE 500
Portland, OR 97205

2S13300-00403
W John
1121 SW Salmon St STE 500
Portland, OR 97205

2S133BB-00300
Sherwood City Of
22560 SW Pine St
Sherwood, OR 97140

2S132AA-07300
Abdallah Salame
14694 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-09700
Carol Riggs
14619 SW Brickyard Dr
Sherwood, OR 97140

2S128C0-00100
Pride Properties Investments L
Po Box 820
Sherwood, OR 97140

2S128C0-00500
Bruce & Karen Polley
Po Box 1489
Sherwood, OR 97140

2S132AA-11200
Jason Berg & Rebecca Osmond
22095 SW Chesapeake Pl
Sherwood, OR 97140

2S128C0-00102
Orwa Sherwood Llc
8320 NE Highway 99
Vancouver, WA 98665

2S132AA-10000
N N & Astrida Clarice
10410 Rainier Ave S
Seattle, WA 98178

2S132AA-07000
Audrey & Dawn Oleary
14658 SW Brickyard Dr
Sherwood, OR 97140

2S128C0-00200
Northstar Chemical Inc
14200 SW Tualatin Sherwood Rd STE B
Sherwood, OR 97140

2S132AA-07500
Alejandra Nicolas
14718 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-06800
Cindy Nevill
14642 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-06900
John & Orfilio Naranjo
14650 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-06700
Bonnie Miller
14630 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-11000
Richard & Sandra Miles
22115 SW Chesapeake Pl
Sherwood, OR 97140

2S132AA-01101
Michael D & Lawrence D Kay Llc
22210 SW Murdock Rd
Sherwood, OR 97140

2S132AA-07400
Zeb Menle
14706 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-11400
Ryan & Cara Mcclung
11106 SW Oneida St
Tualatin, OR 97062

2S132AA-09500
Katherine & James Mcburnett
14637 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-07600
Ola Hopkins
14730 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-11900
Calla Lilly
22070 SW Chesapeake Pl
Sherwood, OR 97140

2S132AA-07200
David Krempley
14680 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-07100
Meghan & Meghan Jackson
14672 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-09300
Holly Jackson & William Lewis
32055 NE Corral Creek Rd
Newberg, OR 97132

2S128C0-00202
J & L Rink Llc
21433 SW Oregon St
Sherwood, OR 97140

2S132AA-12200
David Hiser
22100 SW Chesapeake Pl
Sherwood, OR 97140

2S132AA-09200
Kenneth & Patricia Higgason
14673 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-12100
Preston & Rochelle Griffin
22090 SW Chesapeake Pl
Sherwood, OR 97140

2S132AA-09100
Daniel Goodyear
14685 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-09600
David Garcia & Marisol Vega
14625 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-11100
Katharine Lingemann
22107 SW Chesapeake Pl
Sherwood, OR 97140

2S132AA-11600
Empyrean Real Estate Llc
13751 SW Rock Creek Rd
Sheridan, OR 97378

2S132AA-09800
Blake & Joan Elison
14615 SW Brickyard Dr
Sherwood, OR 97140

2S128C0-00701
Dahlke Lane Properties Llc
4677 SE Concord Rd
Portland, OR 97267

2S132AA-09000
Debra Clemmens
14723 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-11700
Colleen & James Buckner
59 Margate St
Daly City, CA 94015

2S132AA-11300
Sara & Anthony Betz
10014 SW Conestoga Dr APT 158
Beaverton, OR 97008

2S132AA-06500
Keith Beaumont
14602 SW Brickyard Dr
Sherwood, OR 97140

2S132AA-10200
Atley Estates Hoa
14673 SW Brickyard Dr
Sherwood, OR 97140

2S128C0-00201
Allied Systems Company
21433 SW Oregon St
Sherwood, OR 97140

2S128C0-00501
Allied Systems Company
21433 SW Oregon St
Sherwood, OR 97140

2S132AA-11800
22060 Sw Chesapeake Place Llc
Po Box 1626
Sherwood, OR 97140

2S128C0-00400
Washington County Facilities M
169 N 1st Ave # 42
Hillsboro, OR 97124

2S13300-02500
United States Of America Dept
911 NE 11th Ave
Portland, OR 97232

2S128C0-00500
Bruce D & Karen M Polley
Po Box 1489
Sherwood, OR 97140

2S128C0-00200
Washington County
14200 SW Tualatin Sherwood Rd
Sherwood, OR 97140

2S128C0-00201
Banc Of America
Po Box 100918
Atlanta, GA 30384

2S128C0-00201
Allied Systems Company
21433 SW Oregon St
Sherwood, OR 97140

2S128C0-00201
J & L Rink Llc
21433 SW Oregon St
Sherwood, OR 97140

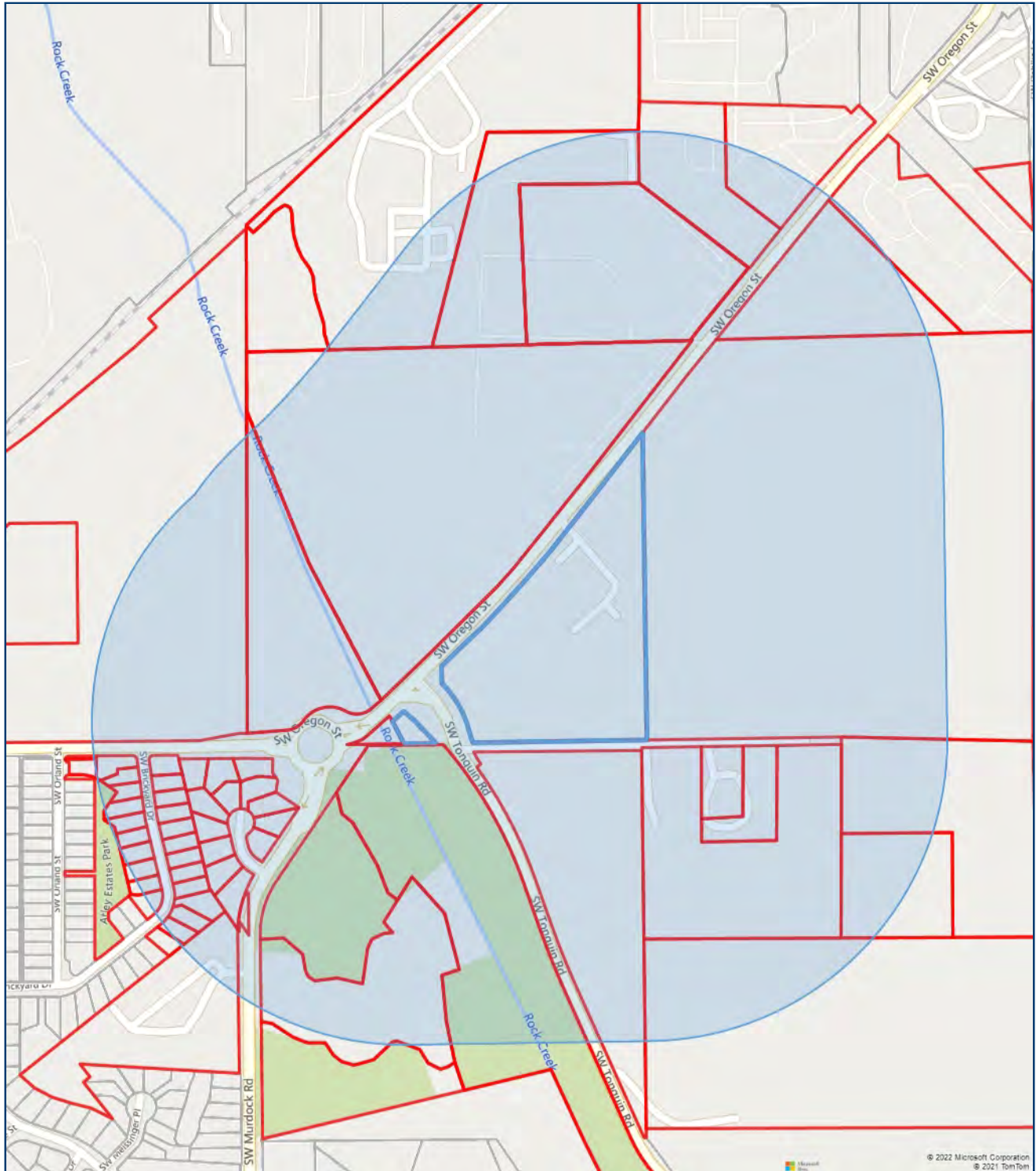
2S128C0-00501
Allied Systems Company
21433 SW Oregon St
Sherwood, OR 97140



1000 ft Buffer

21720 SW Oregon St, Sherwood, OR 97140

Report Generated: 5/9/2022



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Customer Service Department
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Email: cs.oregon@firstam.com
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Ownership

Legal Owner(s): Bruce & Karen Polley	Parcel #: 2S128C0-00500
Site Address: 21720 SW Oregon St Sherwood, OR 97140	APN: R1492192
Mailing Address: Po Box 1489 Sherwood, OR 97140	County: Washington

Property Characteristics

Bedrooms: 2	Year Built: 1984	Lot SqFt: 402059
Total Bathrooms: 3	Building SqFt: 1568	Lot Acres: 9.23
Full Bathrooms: 2	First Floor SqFt: 1568	Roof Type:
Half Bathrooms: 0	Basement Sqft: 0	Roof Shape: GABLE
Units: 0	Basment Type:	Porch Type:
Stories:		Building Style:
Fire Place: Y		Garage: Carport
Air Conditioning:		Garage SqFt: 0
Heating Type: Forced air unit		Parking Spots: 1
Electric Type:		Pool:

Property Information

Land Use:	Zoning: E1
Improvement Type:	School District: Sherwood School
Legal Description: ACRES 9.23, UNZONED FARMLAND LIEN \$2,896.94, CODE SPLIT, LAND HOOK, POTENTIAL ADDL TAX LIABILITY	Neighborhood: Sherwood - Tualatin
	Subdivision:

Assessor & Tax

Market Land: \$6,000	Taxes: \$4,531.64
Market Total: \$6,000	% Improved: 2
Market Structure: \$0	Levy Code: 088.20
Assessed Total: \$252,430	Millage Rate: 18.4904

Sale History

Last Sale Date: 3/24/2008	Doc #: 2008-025922	Last Sale Price: \$225,000
Prior Sale Date:	Prior Doc #:	Prior Sale Price: \$0

Mortgage

1st Mortgage Date:	Doc #:	
1st Mortgage Type:	1st Mortgage Lender:	1st Mortgage: \$0
2nd Mortgage Type:		2nd Mortgage: \$0



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Ownership

Legal Owner(s): Bruce D & Karen M Polley	Parcel #: 2S128C0-00500
Site Address: 21720 SW Oregon St Sherwood, OR 97140	APN: R547466
Mailing Address: Po Box 1489 Sherwood, OR 97140	County: Washington

Property Characteristics

Bedrooms: 0	Year Built: 0	Lot SqFt: 13068
Total Bathrooms: 0	Building SqFt: 0	Lot Acres: 0.30
Full Bathrooms: 0	First Floor SqFt: 1568	Roof Type:
Half Bathrooms: 0	Basement Sqft: 0	Roof Shape:
Units: 0	Basment Type:	Porch Type:
Stories:		Building Style:
Fire Place: N		Garage:
Air Conditioning:		Garage SqFt: 0
Heating Type:		Parking Spots: 0
Electric Type:		Pool:

Property Information

Land Use:	Zoning: E1
Improvement Type:	School District: Sherwood School
Legal Description: ACRES 0.3, UNZONED FARMLAND LIEN \$367.19, CODE SPLIT, LAND HOOK, POTENTIAL ADDL TAX LIABILITY	Neighborhood: Sherwood - Tualatin
	Subdivision:

Assessor & Tax

Market Land: \$6,000	Taxes: \$112.42
Market Total: \$6,000	% Improved: 0
Market Structure: \$0	Levy Code: 088.47
Assessed Total: \$6,000	Millage Rate: 18.7360

Sale History

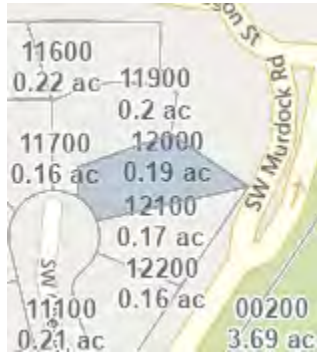
Last Sale Date: 3/24/2008	Doc #: 2008-025922	Last Sale Price: \$225,000
Prior Sale Date:	Prior Doc #:	Prior Sale Price: \$0

Mortgage

1st Mortgage Date:	Doc #:	
1st Mortgage Type:	1st Mortgage Lender:	1st Mortgage: \$0
2nd Mortgage Type:		2nd Mortgage: \$0



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Legal Owner: David & Stephanie Zaganiacz
 Site Address: 22080 SW Chesapeake Pl Sherwood, OR
 Mailing Address: 3952 Carman Dr Lake Oswego, OR 97035
 Bedrooms: 3
 Bathrooms: 2
 Building SqFt: 2,253 Lot Acres: 0.19
 Year Built: 1994
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: CHESAPEAKE PARK, LOT 11, ACRES 0.19

APN: R2036401
 Ref Parcel #: 2S132AA-12000
 Taxes: \$4,993.18
 Market Value: \$466,990
 Assessed Value: \$278,140
 Sales Price: \$502,000
 Transfer Date: 7/14/2021



Legal Owner: Woodburn Industrial Capital Gr
 Site Address: NS Unincorporated, OR
 Mailing Address: 395 Shenandoah Ln NE Woodburn, OR
 Bedrooms: 0
 Bathrooms: 0
 Building SqFt: 0 Lot Acres: 20.00
 Year Built: 0
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: ACRES 20.00

APN: R558006
 Ref Parcel #: 2S13300-00400
 Taxes: \$5,340.95
 Market Value: \$320,960
 Assessed Value: \$297,510
 Sales Price: \$0
 Transfer Date:



Legal Owner: Woodburn Industrial Capital Gr
 Site Address: NS Unincorporated, OR
 Mailing Address: Po Box 1060 Woodburn, OR 97071
 Bedrooms: 0
 Bathrooms: 0
 Building SqFt: 0 Lot Acres: 8.17
 Year Built: 0
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: ACRES 8.17

APN: R558042
 Ref Parcel #: 2S133BB-00100
 Taxes: \$2,843.29
 Market Value: \$861,830
 Assessed Value: \$158,380
 Sales Price: \$0
 Transfer Date:



Legal Owner: Washington County Facilities M
 Site Address: Ns # Ns # NS Sherwood, OR
 Mailing Address: 169 N 1st Ave # 42 Hillsboro, OR 97124
 Bedrooms: 0
 Bathrooms: 0
 Building SqFt: 0 Lot Acres: 5.30
 Year Built: 0
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: ACRES 5.30, CODE SPLIT

APN: R1047290
 Ref Parcel #: 2S128C0-00400
 Taxes: \$0.00
 Market Value: \$84,800
 Assessed Value: \$0
 Sales Price: \$0
 Transfer Date:



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Legal Owner: Washington County Facilities M
 Site Address: 14647 SW Oregon St Sherwood, OR 97140
 Mailing Address: 169 N 1st Ave # 42 Hillsboro, OR 97124
 Bedrooms: 0
 Bathrooms: 0
 Building SqFt: 0 Lot Acres: 16.24
 Year Built: 0
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: ACRES 21.06

APN: R548189
 Ref Parcel #: 2S129D0-00600
 Taxes: \$0.00
 Market Value: \$3,687,050
 Assessed Value: \$0
 Sales Price: \$0
 Transfer Date:



Legal Owner: Kenneth & Carol Vandomelen Trs & Vandomelen Joint Trust
 Site Address: 4825 SW Evans St Portland, OR 97219
 Mailing Address: 4825 SW Evans St Portland, OR 97219
 Bedrooms: 2
 Bathrooms: 1
 Building SqFt: 800 Lot Acres: 4.62
 Year Built: 1901
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: ACRES 4.62

APN: R547484
 Ref Parcel #: 2S128C0-00700
 Taxes: \$3,032.95
 Market Value: \$966,360
 Assessed Value: \$205,610
 Sales Price: \$750,000
 Transfer Date: 9/24/2019



Legal Owner: United States Of America Dept
 Site Address: Ns # Ns # NS Sherwood, OR
 Mailing Address: 911 NE 11th Ave Portland, OR 97232
 Bedrooms: 0
 Bathrooms: 0
 Building SqFt: 0 Lot Acres: 12.69
 Year Built: 0
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: 1992-008 PARTITION PLAT, LOT 2, ACRES 12.69, CODE SPLIT

APN: R2019381
 Ref Parcel #: 2S13300-02500
 Taxes: \$0.00
 Market Value: \$317,250
 Assessed Value: \$0
 Sales Price: \$0
 Transfer Date:



Legal Owner: United States Of America Dept
 Site Address: Ns # Ns # NS Sherwood, OR
 Mailing Address: 911 NE 11th Ave Portland, OR 97232
 Bedrooms: 0
 Bathrooms: 0
 Building SqFt: 0 Lot Acres: 3.69
 Year Built: 0
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: 1993-010 PARTITION PLAT, LOT 1, ACRES 3.69

APN: R2031459
 Ref Parcel #: 2S133BB-00200
 Taxes: \$0.00
 Market Value: \$1,179,320
 Assessed Value: \$0
 Sales Price: \$0
 Transfer Date:



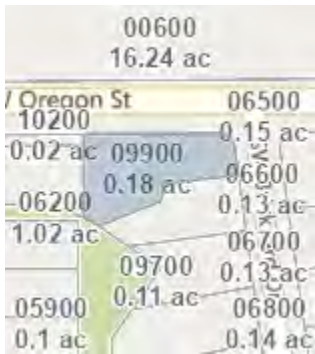
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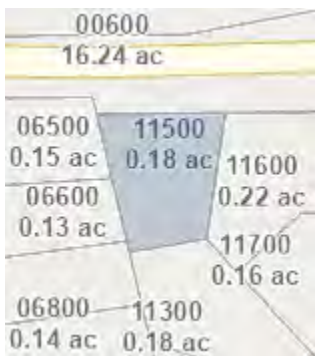
Legal Owner: United States Of America Dept
Site Address: Ns # Ns # NS Sherwood, OR
Mailing Address: 911 NE 11th Ave Portland, OR 97232
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 3.29
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: 1993-010 PARTITION PLAT, LOT 3, ACRES 3.29

APN: R2031460
Ref Parcel #: 2S133BB-00400
Taxes: \$0.00
Market Value: \$1,051,480
Assessed Value: \$0
Sales Price: \$0
Transfer Date:



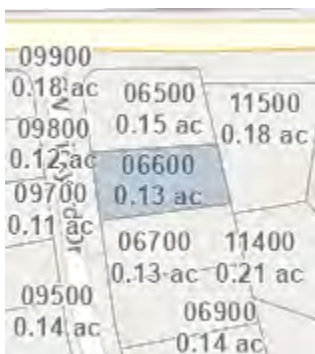
Legal Owner: Dennis & Kristen Titko
Site Address: 14603 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14603 SW Brickyard Dr Sherwood, OR
Bedrooms: 3
Bathrooms: 2
Building SqFt: 1,296 Lot Acres: 0.18
Year Built: 1993
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 35 & PT TR B, ACRES 0.18

APN: R2017806
Ref Parcel #: 2S132AA-09900
Taxes: \$2,919.65
Market Value: \$266,830
Assessed Value: \$162,630
Sales Price: \$0
Transfer Date: 6/29/1998



Legal Owner: Amanda & Robert Taylor
Site Address: 14596 SW Oregon St Sherwood, OR 97140
Mailing Address: 14596 SW Oregon St Sherwood, OR 97140
Bedrooms: 3
Bathrooms: 2
Building SqFt: 2,008 Lot Acres: 0.18
Year Built: 1997
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: CHESAPEAKE PARK, LOT 6, ACRES 0.18

APN: R2036396
Ref Parcel #: 2S132AA-11500
Taxes: \$4,194.90
Market Value: \$494,110
Assessed Value: \$233,670
Sales Price: \$162,000
Transfer Date: 4/27/2011



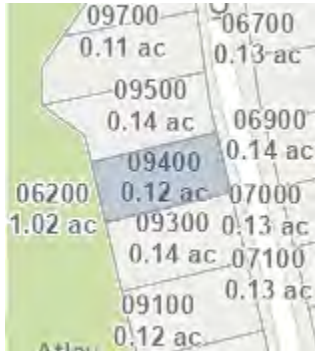
Legal Owner: Gabriel Tanoue
Site Address: 14616 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14616 SW Brickyard Dr Sherwood, OR
Bedrooms: 2
Bathrooms: 3
Building SqFt: 1,470 Lot Acres: 0.13
Year Built: 1991
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 2, ACRES 0.13

APN: R2017769
Ref Parcel #: 2S132AA-06600
Taxes: \$1,806.34
Market Value: \$265,570
Assessed Value: \$100,620
Sales Price: \$0
Transfer Date:



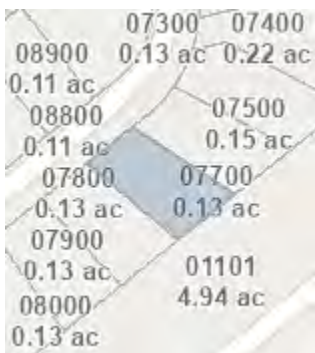
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Legal Owner: Hyunsuk Seo & Bridget Loftis
Site Address: 14645 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14645 SW Brickyard Dr Sherwood, OR
Bedrooms: 3
Bathrooms: 2
Building SqFt: 1,776 Lot Acres: 0.12
Year Built: 1991
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 30, ACRES 0.12

APN: R2017801
Ref Parcel #: 2S132AA-09400
Taxes: \$2,567.57
Market Value: \$270,800
Assessed Value: \$143,020
Sales Price: \$359,900
Transfer Date: 12/17/2021



Legal Owner: Paul & Stephanie Spath
Site Address: 14738 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14738 SW Brickyard Dr Sherwood, OR
Bedrooms: 3
Bathrooms: 2
Building SqFt: 1,512 Lot Acres: 0.13
Year Built: 1995
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 13, ACRES 0.13

APN: R2017780
Ref Parcel #: 2S132AA-07700
Taxes: \$2,751.55
Market Value: \$267,330
Assessed Value: \$153,270
Sales Price: \$0
Transfer Date:



Legal Owner: Sherwood City Of
Site Address: Ns # Ns # NS Sherwood, OR
Mailing Address: 22560 SW Pine St Sherwood, OR 97140
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 2.04
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ACRES 2.04

APN: R2027564
Ref Parcel #: 2S128C0-00204
Taxes: \$0.00
Market Value: \$32,640
Assessed Value: \$0
Sales Price: \$0
Transfer Date:



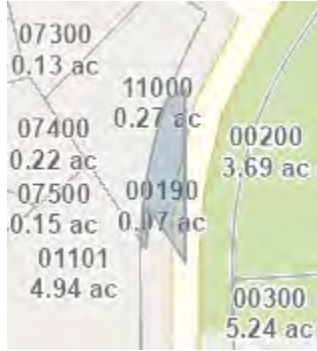
Legal Owner: Harsch Investment Properties L
Site Address: 21600 SW Oregon St Sherwood, OR 97140
Mailing Address: 1121 SW Salmon St STE 500 Portland, OR
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 38.82
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ACRES 38.82

APN: R547475
Ref Parcel #: 2S128C0-00600
Taxes: \$5,540.47
Market Value: \$8,111,560
Assessed Value: \$308,620
Sales Price: \$6,000,000
Transfer Date: 11/14/2018



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Legal Owner: Sherwood City Of
Site Address: Ns # Ns # NS Sherwood, OR
Mailing Address: 22560 SW Pine St Sherwood, OR 97140
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 0.07
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ACRES 0.07

APN: R1161655
Ref Parcel #: 2S132AA-00190
Taxes: \$0.00
Market Value: \$6,100
Assessed Value: \$0
Sales Price: \$0
Transfer Date:



Legal Owner: Sherwood City Of
Site Address: 22208 SW Orland St Sherwood, OR 97140
Mailing Address: 22560 SW Pine St Sherwood, OR 97140
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 1.02
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ORLAND VILLA, LOT A, ACRES 1.02

APN: R1308472
Ref Parcel #: 2S132AA-06200
Taxes: \$0.00
Market Value: \$86,700
Assessed Value: \$0
Sales Price: \$0
Transfer Date:



Legal Owner: Harsch Investment Properties L
Site Address: NS Unincorporated, OR
Mailing Address: 1121 SW Salmon St STE 500 Portland, OR
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 7.00
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ACRES 7.00, POTENTIAL ADDL TAX LIABILITY

APN: R557971
Ref Parcel #: 2S13300-00200
Taxes: \$54.07
Market Value: \$1,462,670
Assessed Value: \$3,560
Sales Price: \$0
Transfer Date:



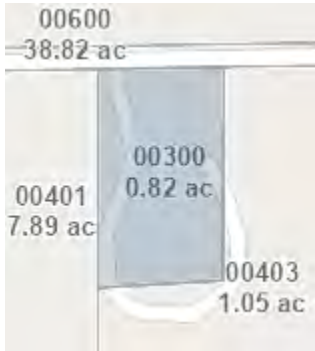
Legal Owner: Harsch Investment Properties L
Site Address: 14260 SW Tonquin Rd Sherwood, OR 97140
Mailing Address: 1121 SW Salmon St STE 500 Portland, OR
Bedrooms: 2
Bathrooms: 1
Building SqFt: 1,656 Lot Acres: 3.00
Year Built: 1974
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ACRES 3.00, POTENTIAL ADDL TAX LIABILITY

APN: R557980
Ref Parcel #: 2S13300-00201
Taxes: \$2,636.26
Market Value: \$762,230
Assessed Value: \$178,690
Sales Price: \$0
Transfer Date:



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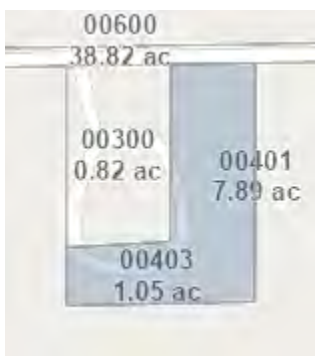
Legal Owner: Sherwood Commerce Center Llc
Site Address: 14250 SW Tonquin Rd Sherwood, OR 97140
Mailing Address: 1121 SW Salmon St STE 500 Portland, OR
Bedrooms: 3
Bathrooms: 2
Building SqFt: 1,722 Lot Acres: 0.82
Year Built: 1971
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ACRES 0.82

APN: R557999
Ref Parcel #: 2S13300-00300
Taxes: \$2,427.83
Market Value: \$191,380
Assessed Value: \$164,590
Sales Price: \$900,000
Transfer Date: 5/20/2021



Legal Owner: Harsch Investment Properties L
Site Address: 14240 SW Tonquin Rd Sherwood, OR 97140
Mailing Address: 1121 SW Salmon St STE 500 Portland, OR
Bedrooms: 4
Bathrooms: 2
Building SqFt: 2,024 Lot Acres: 7.89
Year Built: 1960
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ACRES 7.89, POTENTIAL ADDL TAX LIABILITY

APN: R558015
Ref Parcel #: 2S13300-00401
Taxes: \$3,651.00
Market Value: \$1,864,160
Assessed Value: \$247,410
Sales Price: \$0
Transfer Date:



Legal Owner: W John
Site Address: NS Unincorporated, OR
Mailing Address: 1121 SW Salmon St STE 500 Portland, OR
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 1.05
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ACRES 1.05

APN: R558033
Ref Parcel #: 2S13300-00403
Taxes: \$271.35
Market Value: \$219,400
Assessed Value: \$18,390
Sales Price: \$0
Transfer Date:



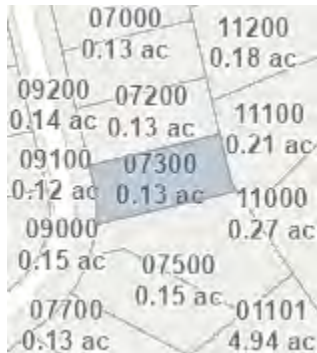
Legal Owner: Sherwood City Of
Site Address: Ns # Ns # NS Sherwood, OR
Mailing Address: 22560 SW Pine St Sherwood, OR 97140
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 5.24
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: 1993-010 PARTITION PLAT, LOT 2, ACRES 5.24

APN: R2031461
Ref Parcel #: 2S133BB-00300
Taxes: \$0.00
Market Value: \$1,674,700
Assessed Value: \$0
Sales Price: \$0
Transfer Date:



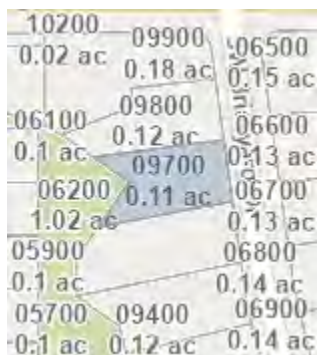
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Legal Owner: Abdallah Salame
Site Address: 14694 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14694 SW Brickyard Dr Sherwood, OR
Bedrooms: 4
Bathrooms: 2
Building SqFt: 1,792 Lot Acres: 0.13
Year Built: 1992
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 9, ACRES 0.13

APN: R2017776
Ref Parcel #: 2S132AA-07300
Taxes: \$2,613.26
Market Value: \$293,020
Assessed Value: \$145,560
Sales Price: \$200,000
Transfer Date: 12/18/2015



Legal Owner: Carol Riggs
Site Address: 14619 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14619 SW Brickyard Dr Sherwood, OR
Bedrooms: 0
Bathrooms: 1
Building SqFt: 1,100 Lot Acres: 0.11
Year Built: 1995
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 33, ACRES 0.11

APN: R2017804
Ref Parcel #: 2S132AA-09700
Taxes: \$2,441.10
Market Value: \$262,980
Assessed Value: \$135,980
Sales Price: \$105,000
Transfer Date: 10/28/1996



Legal Owner: Pride Properties Investments L
Site Address: 21287 SW Oregon St Sherwood, OR 97140
Mailing Address: Po Box 820 Sherwood, OR 97140
Bedrooms: 0
Bathrooms: 0
Building SqFt: 11,300 Lot Acres: 3.29
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ACRES 3.29

APN: R547386
Ref Parcel #: 2S128C0-00100
Taxes: \$12,228.62
Market Value: \$1,916,220
Assessed Value: \$681,190
Sales Price: \$1,200,000
Transfer Date: 2/28/2014



Legal Owner: Bruce & Karen Polley
Site Address: 21720 SW Oregon St Sherwood, OR 97140
Mailing Address: Po Box 1489 Sherwood, OR 97140
Bedrooms: 2
Bathrooms: 3
Building SqFt: 1,568 Lot Acres: 9.23
Year Built: 1984
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ACRES 9.23, UNZONED FARMLAND LIEN \$2,896.94, CODE SPLIT, LAND HOOK,

APN: R1492192
Ref Parcel #: 2S128C0-00500
Taxes: \$4,531.64
Market Value: \$6,000
Assessed Value: \$252,430
Sales Price: \$225,000
Transfer Date: 3/24/2008



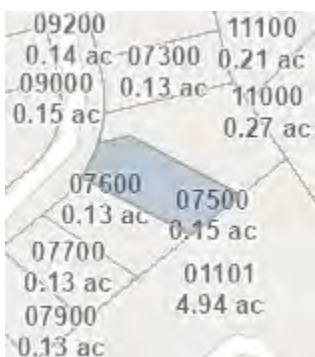
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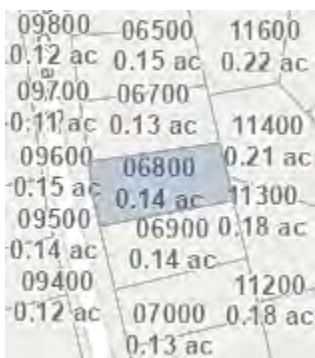
Legal Owner: Northstar Chemical Inc
Site Address: No Site Address , OR
Mailing Address: 14200 SW Tualatin Sherwood Rd STE B
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 0.00
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: NO LEGAL

APN: R2077141
Ref Parcel #: 2S128C0-00200
Taxes: \$9,194.35
Market Value: \$492,460
Assessed Value: \$492,460
Sales Price: \$0
Transfer Date:



Legal Owner: Alejandra Nicolas
Site Address: 14718 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14718 SW Brickyard Dr Sherwood, OR
Bedrooms: 0
Bathrooms: 2
Building SqFt: 1,732 Lot Acres: 0.15
Year Built: 1993
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 11, ACRES 0.15

APN: R2017778
Ref Parcel #: 2S132AA-07500
Taxes: \$2,645.97
Market Value: \$288,020
Assessed Value: \$147,390
Sales Price: \$340,000
Transfer Date: 6/4/2021



Legal Owner: Cindy Nevill
Site Address: 14642 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14642 SW Brickyard Dr Sherwood, OR
Bedrooms: 0
Bathrooms: 2
Building SqFt: 1,620 Lot Acres: 0.14
Year Built: 1990
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 4, ACRES 0.14

APN: R2017771
Ref Parcel #: 2S132AA-06800
Taxes: \$1,994.36
Market Value: \$231,930
Assessed Value: \$111,090
Sales Price: \$0
Transfer Date:



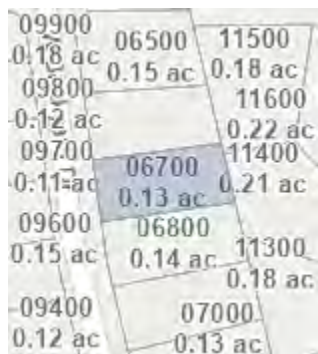
Legal Owner: John & Orfilio Naranjo
Site Address: 14650 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14650 SW Brickyard Dr Sherwood, OR
Bedrooms: 3
Bathrooms: 2
Building SqFt: 1,188 Lot Acres: 0.14
Year Built: 1992
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 5, ACRES 0.14

APN: R2017772
Ref Parcel #: 2S132AA-06900
Taxes: \$2,036.17
Market Value: \$252,240
Assessed Value: \$113,420
Sales Price: \$225,000
Transfer Date: 5/17/2017



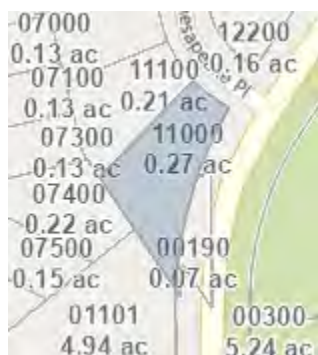
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Legal Owner: Bonnie Miller
Site Address: 14630 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14630 SW Brickyard Dr Sherwood, OR
Bedrooms: 3
Bathrooms: 2
Building SqFt: 1,296 Lot Acres: 0.13
Year Built: 1993
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 3, ACRES 0.13

APN: R2017770
Ref Parcel #: 2S132AA-06700
Taxes: \$3,021.50
Market Value: \$292,600
Assessed Value: \$168,310
Sales Price: \$90,000
Transfer Date: 3/23/2016



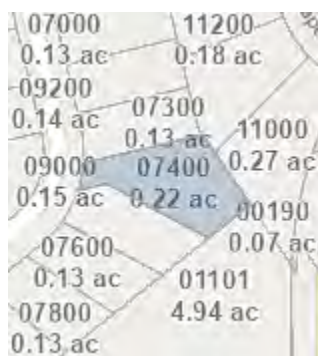
Legal Owner: Richard & Sandra Miles
Site Address: 22115 SW Chesapeake PI Sherwood, OR 97140
Mailing Address: 22115 SW Chesapeake PI Sherwood, OR
Bedrooms: 3
Bathrooms: 1
Building SqFt: 1,880 Lot Acres: 0.27
Year Built: 1996
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: CHESAPEAKE PARK, LOT 1, ACRES 0.27

APN: R2036391
Ref Parcel #: 2S132AA-11000
Taxes: \$4,116.86
Market Value: \$421,210
Assessed Value: \$229,320
Sales Price: \$160,500
Transfer Date: 8/31/2000



Legal Owner: Michael D & Lawrence D Kay Llc
Site Address: 22210 SW Murdock Rd Sherwood, OR 97140
Mailing Address: 22210 SW Murdock Rd Sherwood, OR
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 4.94
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ACRES 4.94

APN: R552039
Ref Parcel #: 2S132AA-01101
Taxes: \$74,126.74
Market Value: \$9,115,640
Assessed Value: \$4,129,190
Sales Price: \$106,000
Transfer Date: 6/26/1995



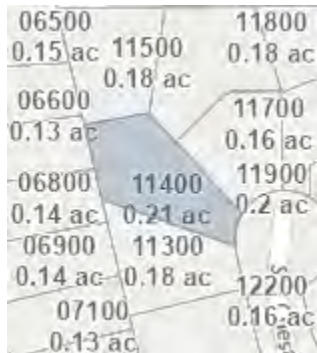
Legal Owner: Zeb Menle
Site Address: 14706 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14706 SW Brickyard Dr Sherwood, OR
Bedrooms: 3
Bathrooms: 2
Building SqFt: 1,782 Lot Acres: 0.22
Year Built: 1990
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 10, ACRES 0.22

APN: R2017777
Ref Parcel #: 2S132AA-07400
Taxes: \$2,672.42
Market Value: \$316,000
Assessed Value: \$148,860
Sales Price: \$0
Transfer Date: 8/16/2021



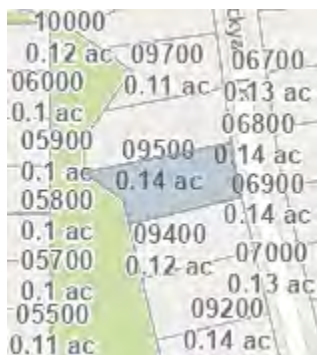
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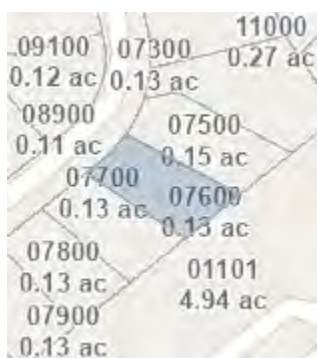
Legal Owner: Ryan & Cara McClung
Site Address: 22075 SW Chesapeake PI Sherwood, OR
Mailing Address: 11106 SW Oneida St Tualatin, OR 97062
Bedrooms: 6
Bathrooms: 6
Building SqFt: 3,306 Lot Acres: 0.21
Year Built: 1995
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: CHESAPEAKE PARK, LOT 5, ACRES 0.21

APN: R2036395
Ref Parcel #: 2S132AA-11400
Taxes: \$6,608.29
Market Value: \$724,900
Assessed Value: \$402,130
Sales Price: \$696,000
Transfer Date: 8/23/2021



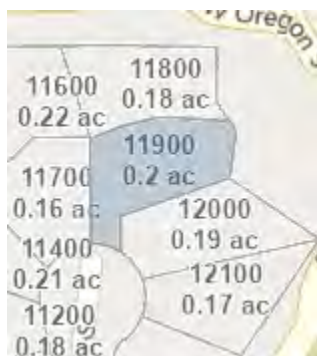
Legal Owner: Katherine & James Mcburnett
Site Address: 14637 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14637 SW Brickyard Dr Sherwood, OR
Bedrooms: 2
Bathrooms: 3
Building SqFt: 1,773 Lot Acres: 0.14
Year Built: 1992
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 31, ACRES 0.14

APN: R2017802
Ref Parcel #: 2S132AA-09500
Taxes: \$3,011.88
Market Value: \$302,780
Assessed Value: \$167,770
Sales Price: \$81,000
Transfer Date: 3/7/2022



Legal Owner: Ola Hopkins
Site Address: 14730 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14730 SW Brickyard Dr Sherwood, OR
Bedrooms: 0
Bathrooms: 2
Building SqFt: 1,752 Lot Acres: 0.13
Year Built: 1993
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 12, ACRES 0.13

APN: R2017779
Ref Parcel #: 2S132AA-07600
Taxes: \$2,571.09
Market Value: \$261,130
Assessed Value: \$143,220
Sales Price: \$104,000
Transfer Date: 7/5/1996



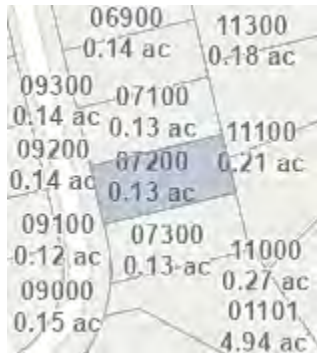
Legal Owner: Calla Lilly
Site Address: 22070 SW Chesapeake PI Sherwood, OR
Mailing Address: 22070 SW Chesapeake PI Sherwood, OR
Bedrooms: 3
Bathrooms: 2
Building SqFt: 1,926 Lot Acres: 0.20
Year Built: 1994
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: CHESAPEAKE PARK, LOT PTS 9-10, ACRES 0.20

APN: R2036400
Ref Parcel #: 2S132AA-11900
Taxes: \$4,568.61
Market Value: \$433,050
Assessed Value: \$254,490
Sales Price: \$134,900
Transfer Date: 3/15/1995



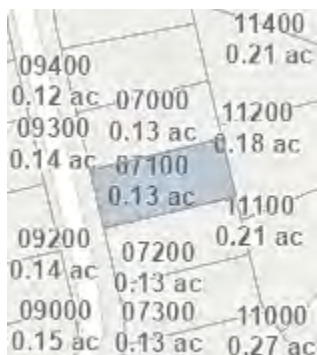
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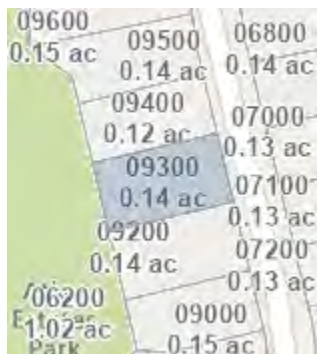
Legal Owner: David Krempley
Site Address: 14680 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14680 SW Brickyard Dr Sherwood, OR
Bedrooms: 3
Bathrooms: 2
Building SqFt: 1,766 Lot Acres: 0.13
Year Built: 1994
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 8, ACRES 0.13

APN: R2017775
Ref Parcel #: 2S132AA-07200
Taxes: \$2,597.90
Market Value: \$267,630
Assessed Value: \$144,710
Sales Price: \$0
Transfer Date:



Legal Owner: Meghan & Meghan Jackson
Site Address: 14672 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14672 SW Brickyard Dr Sherwood, OR
Bedrooms: 0
Bathrooms: 2
Building SqFt: 1,474 Lot Acres: 0.13
Year Built: 1991
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 7, ACRES 0.13

APN: R2017774
Ref Parcel #: 2S132AA-07100
Taxes: \$2,946.08
Market Value: \$256,750
Assessed Value: \$164,100
Sales Price: \$156,350
Transfer Date: 8/23/2005



Legal Owner: Holly Jackson & William Lewis
Site Address: 14665 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 32055 NE Corral Creek Rd Newberg, OR
Bedrooms: 0
Bathrooms: 2
Building SqFt: 1,568 Lot Acres: 0.14
Year Built: 1993
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 29, TRACT PT D, ACRES 0.14

APN: R2017800
Ref Parcel #: 2S132AA-09300
Taxes: \$3,083.30
Market Value: \$296,090
Assessed Value: \$171,750
Sales Price: \$308,000
Transfer Date: 8/30/2019



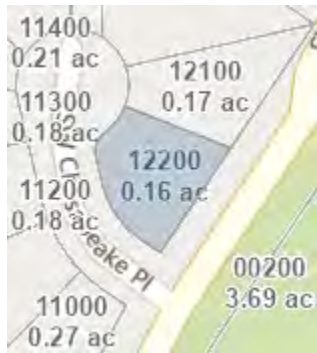
Legal Owner: J & L Rink Llc
Site Address: 21433 SW Oregon St Sherwood, OR 97140
Mailing Address: 21433 SW Oregon St Sherwood, OR 97140
Bedrooms: 0
Bathrooms: 0
Building SqFt: 154,399 Lot Acres: 4.62
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ACRES 4.62

APN: R1032055
Ref Parcel #: 2S128C0-00202
Taxes: \$9,436.01
Market Value: \$1,112,640
Assessed Value: \$525,620
Sales Price: \$0
Transfer Date:



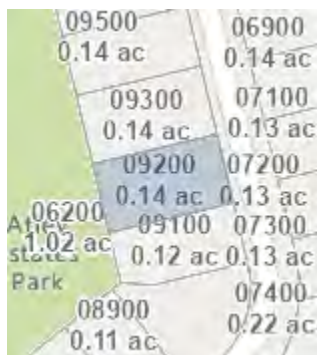
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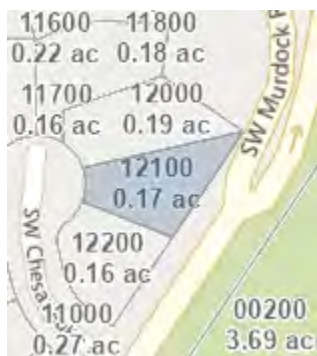
Legal Owner: David Hiser
Site Address: 22100 SW Chesapeake PI Sherwood, OR
Mailing Address: 22100 SW Chesapeake PI Sherwood, OR
Bedrooms: 3
Bathrooms: 3
Building SqFt: 2,035 Lot Acres: 0.16
Year Built: 1995
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: CHESAPEAKE PARK, LOT 13, ACRES 0.16

APN: R2036403
Ref Parcel #: 2S132AA-12200
Taxes: \$4,783.28
Market Value: \$441,420
Assessed Value: \$266,450
Sales Price: \$235,100
Transfer Date: 12/21/2009



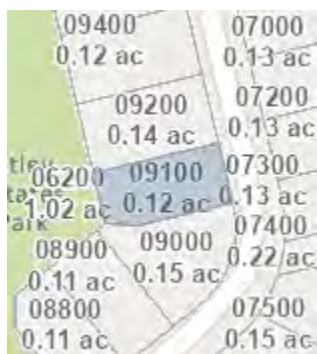
Legal Owner: Kenneth & Patricia Higgason
Site Address: 14673 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14673 SW Brickyard Dr Sherwood, OR
Bedrooms: 3
Bathrooms: 2
Building SqFt: 2,034 Lot Acres: 0.14
Year Built: 1994
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 28 & TRACT PT D, ACRES 0.14

APN: R2017796
Ref Parcel #: 2S132AA-09200
Taxes: \$2,932.40
Market Value: \$289,960
Assessed Value: \$163,340
Sales Price: \$151,900
Transfer Date: 8/23/2001



Legal Owner: Preston & Rochelle Griffin
Site Address: 22090 SW Chesapeake PI Sherwood, OR
Mailing Address: 22090 SW Chesapeake PI Sherwood, OR
Bedrooms: 3
Bathrooms: 3
Building SqFt: 2,160 Lot Acres: 0.17
Year Built: 1995
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: CHESAPEAKE PARK, LOT 12, ACRES 0.17

APN: R2036402
Ref Parcel #: 2S132AA-12100
Taxes: \$4,797.52
Market Value: \$454,520
Assessed Value: \$267,240
Sales Price: \$304,500
Transfer Date: 10/28/2015



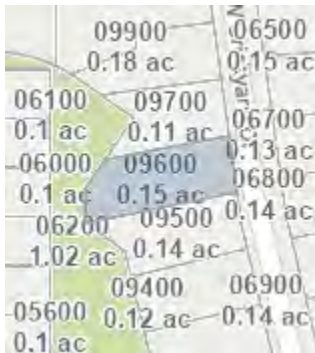
Legal Owner: Daniel Goodyear
Site Address: 14685 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14685 SW Brickyard Dr Sherwood, OR
Bedrooms: 3
Bathrooms: 2
Building SqFt: 1,344 Lot Acres: 0.12
Year Built: 1993
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 27, ACRES 0.12

APN: R2017795
Ref Parcel #: 2S132AA-09100
Taxes: \$1,957.95
Market Value: \$265,160
Assessed Value: \$109,060
Sales Price: \$113,000
Transfer Date: 7/31/1997



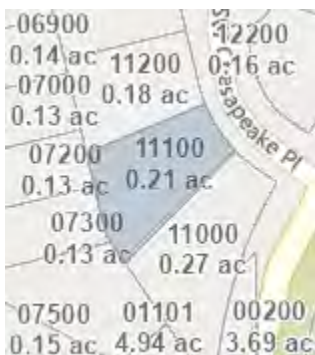
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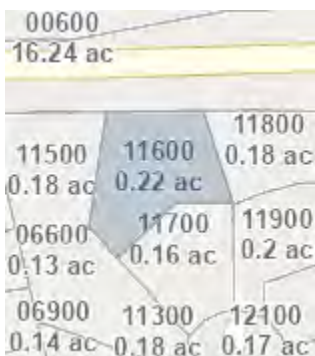
Legal Owner: David Garcia & Marisol Vega
Site Address: 14625 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14625 SW Brickyard Dr Sherwood, OR
Bedrooms: 0
Bathrooms: 2
Building SqFt: 1,782 Lot Acres: 0.15
Year Built: 1992
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 32, ACRES 0.15

APN: R2017803
Ref Parcel #: 2S132AA-09600
Taxes: \$2,898.17
Market Value: \$265,150
Assessed Value: \$212,020
Sales Price: \$410,000
Transfer Date: 11/16/2021



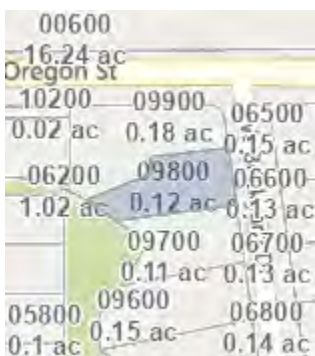
Legal Owner: Katharine Lingemann
Site Address: 22105 SW Chesapeake PI Sherwood, OR
Mailing Address: 22107 SW Chesapeake PI Sherwood, OR
Bedrooms: 6
Bathrooms: 4
Building SqFt: 2,965 Lot Acres: 0.21
Year Built: 1997
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: CHESAPEAKE PARK, LOT 2, ACRES 0.21

APN: R2036392
Ref Parcel #: 2S132AA-11100
Taxes: \$6,296.35
Market Value: \$559,380
Assessed Value: \$350,730
Sales Price: \$589,000
Transfer Date: 12/20/2021



Legal Owner: Emyrean Real Estate Llc
Site Address: 22045 SW Chesapeake PI Sherwood, OR
Mailing Address: 13751 SW Rock Creek Rd Sheridan, OR
Bedrooms: 3
Bathrooms: 2
Building SqFt: 2,559 Lot Acres: 0.22
Year Built: 1901
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: CHESAPEAKE PARK, LOT PT 7, ACRES 0.22

APN: R2036397
Ref Parcel #: 2S132AA-11600
Taxes: \$3,352.10
Market Value: \$411,580
Assessed Value: \$186,720
Sales Price: \$331,000
Transfer Date: 9/26/2016



Legal Owner: Blake & Joan Elison
Site Address: 14615 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14615 SW Brickyard Dr Sherwood, OR
Bedrooms: 3
Bathrooms: 2
Building SqFt: 1,337 Lot Acres: 0.12
Year Built: 1993
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 34, ACRES 0.12

APN: R2017805
Ref Parcel #: 2S132AA-09800
Taxes: \$2,974.54
Market Value: \$250,870
Assessed Value: \$165,690
Sales Price: \$172,825
Transfer Date: 6/23/2016

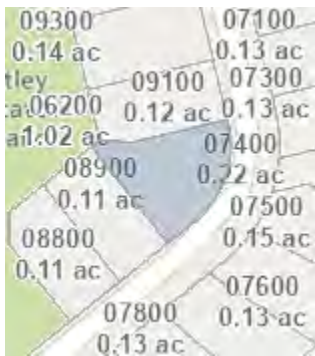


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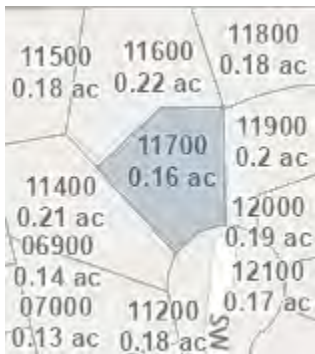
Legal Owner: Dahlke Lane Properties Llc
 Site Address: 21425 SW Dahlke Ln Sherwood, OR 97140
 Mailing Address: 4677 SE Concord Rd Portland, OR 97267
 Bedrooms: 0
 Bathrooms: 0
 Building SqFt: 0 Lot Acres: 4.97
 Year Built: 0
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: ACRES 4.97

APN: R547493
 Ref Parcel #: 2S128C0-00701
 Taxes: \$550.00
 Market Value: \$523,430
 Assessed Value: \$37,280
 Sales Price: \$0
 Transfer Date:



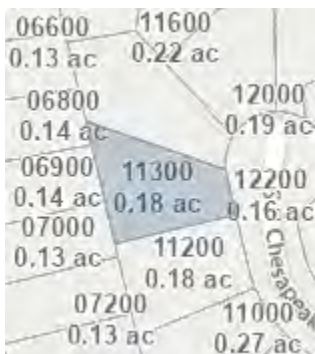
Legal Owner: Debra Clemmens
 Site Address: 14723 SW Brickyard Dr Sherwood, OR 97140
 Mailing Address: 14723 SW Brickyard Dr Sherwood, OR
 Bedrooms: 2
 Bathrooms: 3
 Building SqFt: 1,340 Lot Acres: 0.15
 Year Built: 1992
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: ATLEY ESTATES, LOT 26, ACRES 0.15

APN: R2017794
 Ref Parcel #: 2S132AA-09000
 Taxes: \$927.10
 Market Value: \$177,140
 Assessed Value: \$51,640
 Sales Price: \$0
 Transfer Date:



Legal Owner: Colleen & James Buckner
 Site Address: 22065 SW Chesapeake PI Sherwood, OR
 Mailing Address: 59 Margate St Daly City, CA 94015
 Bedrooms: 3
 Bathrooms: 3
 Building SqFt: 1,780 Lot Acres: 0.16
 Year Built: 1994
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: CHESAPEAKE PARK, LOT 8, ACRES 0.16

APN: R2036398
 Ref Parcel #: 2S132AA-11700
 Taxes: \$4,359.68
 Market Value: \$419,040
 Assessed Value: \$242,850
 Sales Price: \$362,000
 Transfer Date: 3/18/2019



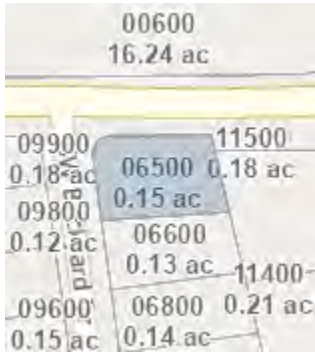
Legal Owner: Sara & Anthony Betz
 Site Address: 22085 SW Chesapeake PI Sherwood, OR
 Mailing Address: 10014 SW Conestoga Dr APT 158
 Bedrooms: 3
 Bathrooms: 3
 Building SqFt: 1,778 Lot Acres: 0.18
 Year Built: 1995
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: CHESAPEAKE PARK, LOT 4, ACRES 0.18

APN: R2036394
 Ref Parcel #: 2S132AA-11300
 Taxes: \$4,277.95
 Market Value: \$418,020
 Assessed Value: \$238,300
 Sales Price: \$436,000
 Transfer Date: 1/13/2021



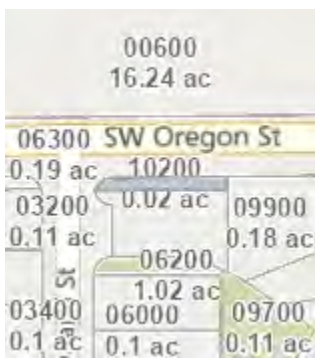
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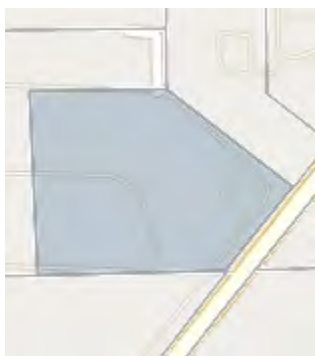
Legal Owner: Keith Beaumont
Site Address: 14602 SW Brickyard Dr Sherwood, OR 97140
Mailing Address: 14602 SW Brickyard Dr Sherwood, OR
Bedrooms: 0
Bathrooms: 2
Building SqFt: 1,080 Lot Acres: 0.15
Year Built: 1992
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT 1, ACRES 0.15

APN: R2017768
Ref Parcel #: 2S132AA-06500
Taxes: \$2,350.49
Market Value: \$240,710
Assessed Value: \$130,930
Sales Price: \$137,500
Transfer Date: 7/6/2015



Legal Owner: Atley Estates Hoa
Site Address: 14673 SW Oregon St Sherwood, OR 97140
Mailing Address: 14673 SW Brickyard Dr Sherwood, OR
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 0.02
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ATLEY ESTATES, LOT PT B, ACRES 0.02

APN: R2017809
Ref Parcel #: 2S132AA-10200
Taxes: \$0.00
Market Value: \$0
Assessed Value: \$0
Sales Price: \$0
Transfer Date:



Legal Owner: Allied Systems Company
Site Address: No Site Address , OR
Mailing Address: 21433 SW Oregon St Sherwood, OR 97140
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 0.00
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: NO LEGAL

APN: R2024911
Ref Parcel #: 2S128C0-00201
Taxes: \$70,884.44
Market Value: \$3,833,580
Assessed Value: \$3,833,580
Sales Price: \$0
Transfer Date:



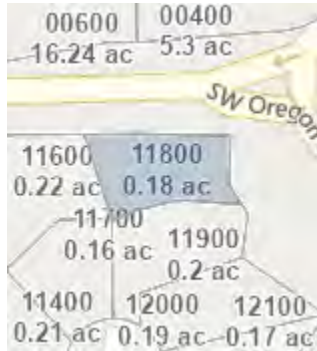
Legal Owner: Allied Systems Company
Site Address: No Site Address , OR
Mailing Address: 21433 SW Oregon St Sherwood, OR 97140
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 0.00
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: NO LEGAL

APN: R2180039
Ref Parcel #: 2S128C0-00501
Taxes: \$5,946.15
Market Value: \$321,580
Assessed Value: \$321,580
Sales Price: \$0
Transfer Date:



First American Title™

Customer Service Department
Phone: 503.219.8746 (TRIO)
Email: cs.oregon@firstam.com
Report Generated: 5/9/2022



Legal Owner: 22060 Sw Chesapeake Place Llc
Site Address: 22060 SW Chesapeake Pl Sherwood, OR
Mailing Address: Po Box 1626 Sherwood, OR 97140
Bedrooms: 3
Bathrooms: 2
Building SqFt: 1,716 Lot Acres: 0.18
Year Built: 1997
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: CHESAPEAKE PARK, LOT PT 7 & PTS 9-10, ACRES 0.18

APN: R2036399
Ref Parcel #: 2S132AA-11800
Taxes: \$3,783.11
Market Value: \$384,920
Assessed Value: \$210,730
Sales Price: \$207,000
Transfer Date: 9/12/2005



Legal Owner: Washington County Facilities M
Site Address: NS Unincorporated, OR
Mailing Address: 169 N 1st Ave # 42 Hillsboro, OR 97124
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 0.07
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ACRES 0.07, CODE SPLIT

APN: R2144297
Ref Parcel #: 2S128C0-00400
Taxes: \$0.00
Market Value: \$1,120
Assessed Value: \$0
Sales Price: \$0
Transfer Date:



Legal Owner: United States Of America Dept
Site Address: NS Unincorporated, OR
Mailing Address: 911 NE 11th Ave Portland, OR 97232
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 19.62
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: 1992-008 PARTITION PLAT, LOT 2, ACRES 19.62, CODE SPLIT

APN: R2019382
Ref Parcel #: 2S13300-02500
Taxes: \$0.00
Market Value: \$98,100
Assessed Value: \$0
Sales Price: \$0
Transfer Date:



Legal Owner: Bruce D & Karen M Polley
Site Address: 21720 SW Oregon St Sherwood, OR 97140
Mailing Address: Po Box 1489 Sherwood, OR 97140
Bedrooms: 0
Bathrooms: 0
Building SqFt: 0 Lot Acres: 0.30
Year Built: 0
School District: Sherwood School District 88j
Neighborhood: Sherwood - Tualatin
Legal: ACRES 0.3, UNZONED FARMLAND LIEN \$367.19, CODE SPLIT, LAND HOOK,

APN: R547466
Ref Parcel #: 2S128C0-00500
Taxes: \$112.42
Market Value: \$6,000
Assessed Value: \$6,000
Sales Price: \$225,000
Transfer Date: 3/24/2008

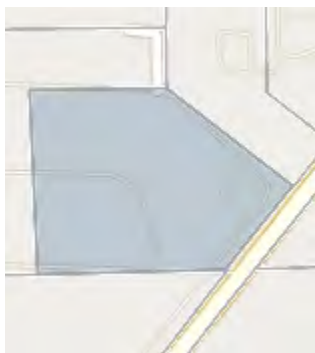


Customer Service Department
 Phone: 503.219.8746(TRIO)
 Email: cs.oregon@firstam.com
 Report Generated: 5/9/2022



Legal Owner: Washington County
 Site Address: 14200 SW Tualatin Sherwood Rd Sherwood,
 Mailing Address: 14200 SW Tualatin Sherwood Rd Sherwood,
 Bedrooms: 0
 Bathrooms: 0
 Building SqFt: 36,133 Lot Acres: 12.14
 Year Built: 0
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: ACRES 17.59

APN: R547411
 Ref Parcel #: 2S128C0-00200
 Taxes: \$63,846.81
 Market Value: \$9,209,340
 Assessed Value: \$3,556,550
 Sales Price: \$111,000
 Transfer Date: 3/1/2022



Legal Owner: Banc Of America
 Site Address: No Site Address , OR
 Mailing Address: Po Box 100918 Atlanta, GA 30384
 Bedrooms: 0
 Bathrooms: 0
 Building SqFt: 0 Lot Acres: 0.00
 Year Built: 0
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: NO LEGAL

APN: R2161833
 Ref Parcel #: 2S128C0-00201
 Taxes: \$6,294.86
 Market Value: \$340,440
 Assessed Value: \$340,440
 Sales Price: \$0
 Transfer Date:



Legal Owner: Allied Systems Company
 Site Address: No Site Address , OR
 Mailing Address: 21433 SW Oregon St Sherwood, OR 97140
 Bedrooms: 0
 Bathrooms: 0
 Building SqFt: 0 Lot Acres: 0.00
 Year Built: 0
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: NO LEGAL

APN: R2185802
 Ref Parcel #: 2S128C0-00201
 Taxes: \$1,231.63
 Market Value: \$69,220
 Assessed Value: \$68,600
 Sales Price: \$0
 Transfer Date:



Legal Owner: J & L Rink Llc
 Site Address: 21433 SW Oregon St Sherwood, OR 97140
 Mailing Address: 21433 SW Oregon St Sherwood, OR 97140
 Bedrooms: 0
 Bathrooms: 0
 Building SqFt: 154,399 Lot Acres: 7.68
 Year Built: 0
 School District: Sherwood School District 88j
 Neighborhood: Sherwood - Tualatin
 Legal: ACRES 7.68

APN: R955862
 Ref Parcel #: 2S128C0-00201
 Taxes: \$135,209.19
 Market Value: \$7,819,250
 Assessed Value: \$7,531,770
 Sales Price: \$0
 Transfer Date:



Customer Service Department
Phone: 503.219.8746(TRIO)
Email: cs.oregon@firstam.com
Report Generated: 5/9/2022



Legal Owner: Allied Systems Company	APN: R989657
Site Address: 21555 SW Oregon St Sherwood, OR 97140	Ref Parcel #: 2S128C0-00501
Mailing Address: 21433 SW Oregon St Sherwood, OR 97140	Taxes: \$156,579.86
Bedrooms: 0	Market Value: \$9,026,150
Bathrooms: 0	Assessed Value: \$8,722,210
Building SqFt: 0	Sales Price: \$0
Lot Acres: 12.32	Transfer Date:
Year Built: 0	
School District: Sherwood School District 88j	
Neighborhood: Sherwood - Tualatin	
Legal: ACRES 21.74	

Exhibit J: CWS Service Provider Letter

Service Provider Letter

This form and the attached conditions will serve as your Service Provider Letter in accordance with Clean Water Services Design and Construction Standards (R&O 19-5, as amended by R&O 19-22).

Jurisdiction:	<u>City of Sherwood</u>	Review Type:	<u>Tier 2 Analysis</u>
Site Address / Location:	<u>21720 SW Oregon ST</u> <u>Sherwood, OR 97140</u>	SPL Issue Date:	<u>May 12, 2021</u>
		SPL Expiration Date:	<u>May 12, 2023</u>

Applicant Information:

Name STACEY REED

Company AKS ENGINEERING & FORESTRY LLC
12965 SW HERMAN RD SUITE 100

Address TUALATIN, OR 97062

Phone/Fax (503) 563-6151

E-mail: staceyr@aks-eng.com

Owner Information:

Name BRUCE POLLEY

Company OREGON STREET BUSINESS PARK
LLC
PO BOX 1489

Address SHERWOOD, OR 97140

Phone/Fax (503) 625-7058

E-mail: bruce@airteknw.com

Tax lot ID

Development Activity

2S128C000500

Oregon Street Business Park

2S128C000501

Off-site Sanitary Sewer Connection

Pre-Development Site Conditions:

Sensitive Area Present: On-Site Off-Site

Vegetated Corridor Width: 50

Vegetated Corridor Condition: Marginal/Degraded

Post Development Site Conditions:

Sensitive Area Present: On-Site Off-Site

Vegetated Corridor Width: Variable

Enhancement of Remaining Vegetated Corridor Required:

Square Footage to be enhanced: _____

Encroachments into Pre-Development Vegetated Corridor:

Type and location of Encroachment:	Square Footage:
<u>Stormwater Facility (Permanent Encroachment; Mitigation Required)</u>	<u>19,304</u>
<u>Stormwater Outfall (Permanent Encroachment; No Mitigation Required)</u>	<u>100</u>
<u>Off-site Sanitary Sewer Connection (Temporary Encroachment; Restoration Planting In-place Required)</u>	<u>994</u>

Mitigation Requirements:

Type/Location	Sq. Ft./Ratio/Cost
<u>Per R&O 13-12 VC Mitigation Requirement for VC Encroachment Associated with Wetland Impacts is Met Through Wetland Mitigation Bank Purchase</u>	
<u>Public Benefit Mitigation</u>	<u>1,128</u>

Conditions Attached Development Figures Attached (3) Planting Plan Attached Geotech Report Required

This Service Provider Letter does NOT eliminate the need to evaluate and protect water quality sensitive areas if they are subsequently discovered on your property.

In order to comply with Clean Water Services water quality protection requirements the project must comply with the following conditions:

1. No structures, development, construction activities, gardens, lawns, application of chemicals, uncontained areas of hazardous materials as defined by Oregon Department of Environmental Quality, pet wastes, dumping of materials of any kind, or other activities shall be permitted within the sensitive area or Vegetated Corridor which may negatively impact water quality, except those allowed in R&O 19-5, Chapter 3, as amended by R&O 19-22.
2. Prior to any site clearing, grading or construction the Vegetated Corridor and water quality sensitive areas shall be surveyed, staked, and temporarily fenced per approved plan. During construction the Vegetated Corridor shall remain fenced and undisturbed except as allowed by R&O 19-5, Section 3.06.1, as amended by R&O 19-22 and per approved plans.
3. **Prior to activity within the sensitive area, the applicant shall gain authorization for the project from the Oregon Department of State Lands (DSL) and US Army Corps of Engineers (USACE). The applicant shall provide Clean Water Services or its designee (appropriate city) with copies of all DSL and USACE project authorization permits.**
4. An approved Oregon Department of Forestry Notification is required for one or more trees harvested for sale, trade, or barter, on any non-federal lands within the State of Oregon.
5. Prior to any ground disturbing activities, an erosion control permit is required. Appropriate Best Management Practices (BMP's) for Erosion Control, in accordance with Clean Water Services' Erosion Prevention and Sediment Control Planning and Design Manual, shall be used prior to, during, and following earth disturbing activities.
6. Prior to construction, a Stormwater Connection Permit from Clean Water Services or its designee is required pursuant to Ordinance 27, Section 4.B.
7. Activities located within the 100-year floodplain shall comply with R&O 19-5, Section 5.10, as amended by R&O 19-22.
8. Removal of native, woody vegetation shall be limited to the greatest extent practicable.
9. The water quality swale and detention pond shall be planted with Clean Water Services approved native species, and designed to blend into the natural surroundings.
10. **Should final development plans differ significantly from those submitted for review by Clean Water Services, the applicant shall provide updated drawings, and if necessary, obtain a revised Service Provider Letter.**
11. **For remaining on-site Vegetated Corridors up to 50 feet wide, the applicant shall enhance the entire Vegetated Corridor to meet or exceed good corridor condition as defined in R&O 19-5, Section 3.14.2, Table 3-3, as amended by R&O 19-22.**
12. Prior to any site clearing, grading or construction, the applicant shall provide Clean Water Services with a Vegetated Corridor enhancement/restoration plan. Enhancement/restoration of the Vegetated Corridor shall be provided in accordance with R&O 19-5, Appendix A, as amended by R&O 19-22, and shall include planting specifications for all Vegetated Corridor, including any cleared areas larger than 25 square feet in Vegetated Corridor rated ""good.""
13. Prior to installation of plant materials, all invasive vegetation within the Vegetated Corridor shall be removed per methods described in Clean Water Services' Integrated Pest Management Plan, 2019. During removal of invasive vegetation care shall be taken to minimize impacts to existing native tree and shrub species.
14. Clean Water Services and/or City shall be notified 72 hours prior to the start and completion of enhancement/restoration activities. Enhancement/restoration activities shall comply with the guidelines provided in Planting Requirements (R&O 19-5, Appendix A, as amended by R&O 19-22).
15. **Maintenance and monitoring requirements shall comply with R&O 19-5, Section 2.12.2, as amended by R&O 19-22. If at any time during the warranty period the landscaping falls below the 80% survival level, the owner shall reinstall all deficient planting at the next appropriate planting opportunity and the two year maintenance period shall begin again from the date of replanting.**

16. **Performance assurances for the Vegetated Corridor shall comply with R&O 19-5, Section 2.07.2, Table 2-1 and Section 2.11, Table 2-2, as amended by R&O 19-22.**
17. **Clean Water Services shall require an easement over the Sensitive Area and Vegetated Corridor conveying storm and surface water management to Clean Water Services or the City that would prevent the owner of the Vegetated Corridor from activities and uses inconsistent with the purpose of the corridor and any easements therein.**
18. **Final construction plans shall include landscape plans.** In the details section of the plans, a description of the methods for removal and control of exotic species, location, distribution, condition and size of plantings, existing plants and trees to be preserved, and installation methods for plant materials is required. Plantings shall be tagged for dormant season identification and shall remain on plant material after planting for monitoring purposes.
19. **A Maintenance Plan shall be included on final plans** including methods, responsible party contact information, and dates (minimum two times per year, by June 1 and September 30).
20. **Final construction plans shall clearly depict the location and dimensions of the sensitive area and the Vegetated Corridor** (indicating good, marginal, or degraded condition). Sensitive area boundaries shall be marked in the field.
21. Protection of the Vegetated Corridors and associated sensitive areas shall be provided by the installation of permanent fencing and signage between the development and the outer limits of the Vegetated Corridors. **Fencing and signage details to be included on final construction plans.**

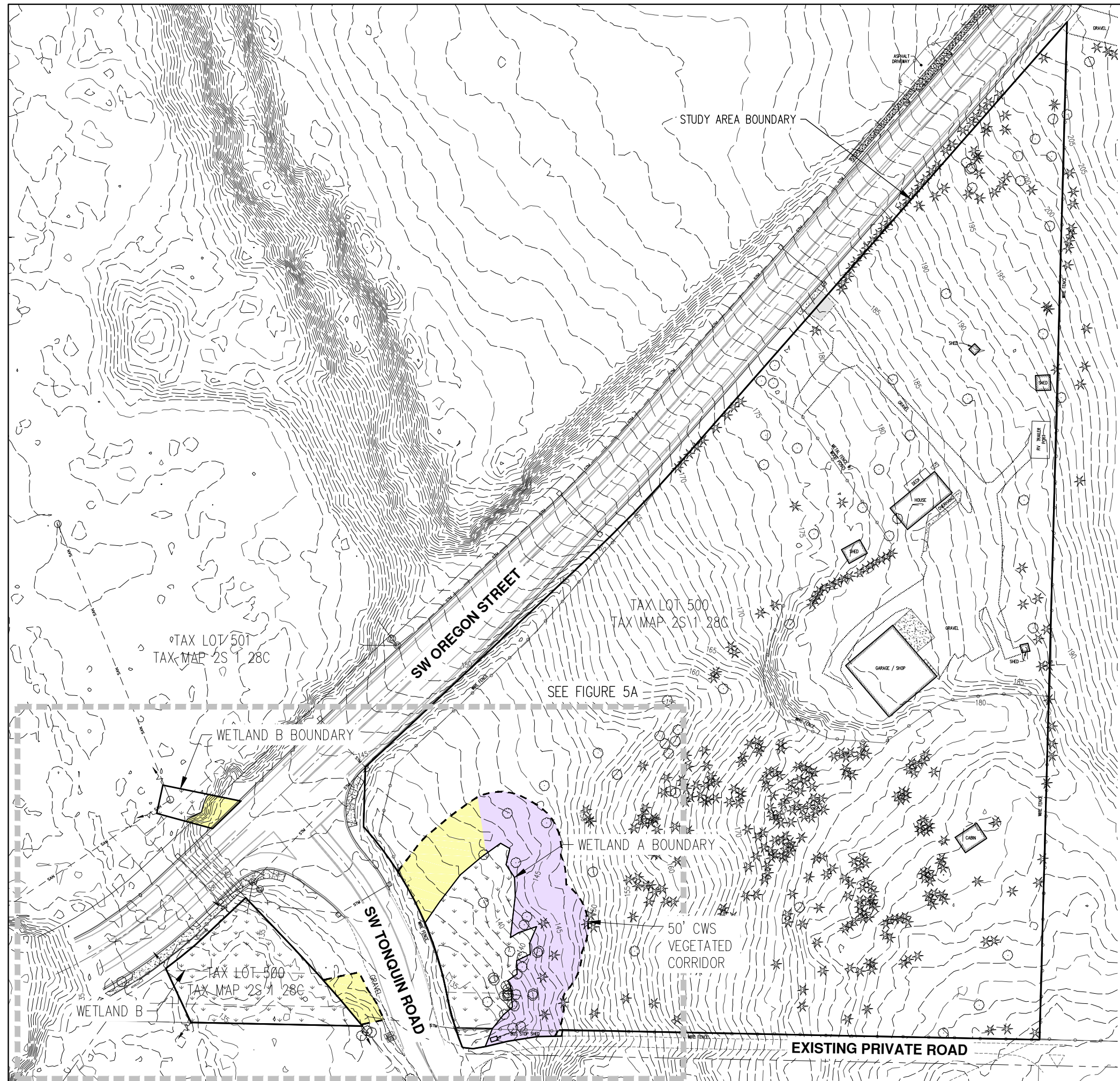
This Service Provider Letter is not valid unless CWS-approved site plan is attached.

Please call (503) 681-3667 with any questions.

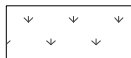




Stacy Benjamin

**Stacy Benjamin
Environmental Plan Review**

Attachments (3)

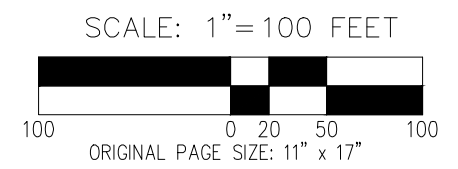
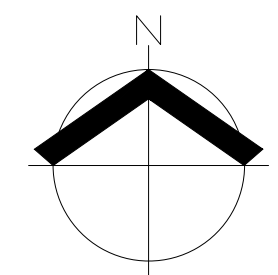


LEGEND (COLOR COPY):

-  TOTAL ON-SITE WETLAND: 26,307 SF± (0.60 ACRES±)
-  PSS/PEM/SLOPE WETLAND A: 11,978 SF± (0.27 ACRES±)
PEM/SLOPE/RIVERINE WETLAND B: 14,329 SF± (0.33 ACRES±)
-  MARGINAL CONDITION VC ON-SITE: 14,375 SF± (0.33 ACRES±)
-  DEGRADED CONDITION VC ON-SITE: 7,237 SF± (0.17 ACRES±)
-  PHOTO LOCATIONS & ORIENTATION

WETLAND BOUNDARIES SHOWN WERE DELINEATED BY AKS ENGINEERING & FORESTRY, LLC ON MARCH 8, 2021 AND WERE PROFESSIONALLY LAND SURVEYED BY AKS ON MARCH 10, 2021.

1-FOOT INTERVAL GROUND CONTOURS DERIVED FROM NOAA LIDAR. EXISTING CONDITIONS AND STUDY AREA ARE DERIVED FROM LAND SURVEY WITH SUB-METER ACCURACY.



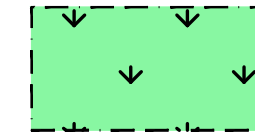
DATE: 04/12/2021

NATURAL RESOURCES EXISTING CONDITIONS OVERVIEW	FIGURE
POLLEY INDUSTRIAL NATURAL RESOURCE ASSESSMENT	5
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: SKT CHKD: SAR AKS JOB: 7971

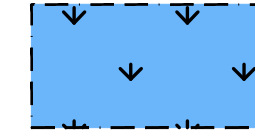


CWS FILE NO. 21-001024
 Approved
 Clean Water Services
 FOR ENVIRONMENTAL REVIEW
 By *SNB* Date 5/12/2021
 SPL ATTACHMENT 2 OF 3

LEGEND (COLOR COPY):



WETLAND – EXISTING AREA TO REMAIN:
 13,609 SF± (0.31 ACRES±)



WETLAND PERMANENT IMPACTS:
 11,978 SF± (0.27 ACRES±)



WETLAND TEMPORARY IMPACT AREA:
 720 SF± (0.02 ACRES±)



VEGETATED CORRIDOR – EXISTING AREA TO REMAIN:
 1,214 SF± (0.03 ACRES±)



VEGETATED CORRIDOR PERMANENT IMPACT AREA:
 19,304 SF± (0.44 ACRES±)

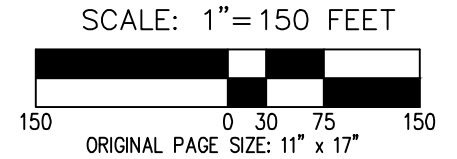
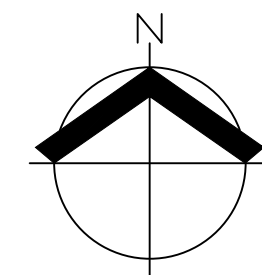
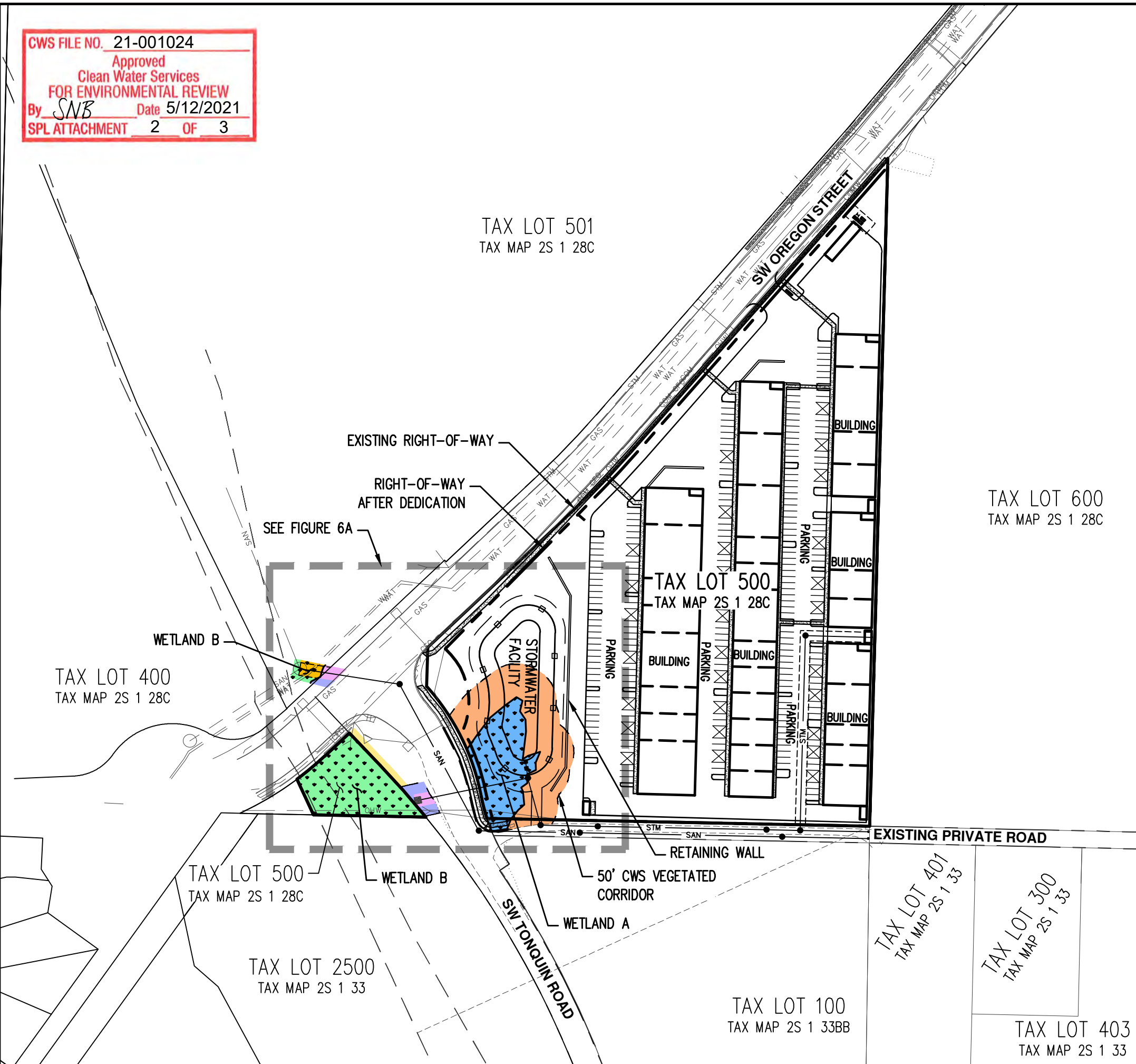


VEGETATED CORRIDOR TEMPORARY IMPACT AREA:
 (TO BE PLANTED TO GOOD CONDITION)
 994 SF± (0.02 ACRES±)



VEGETATED CORRIDOR PUBLIC BENEFIT MITIGATION AREA
 (TO BE PLANTED TO GOOD CONDITION):
 1,128 SF± (0.03 ACRES±)

WETLAND AND WATER BOUNDARIES SHOWN WERE DELINEATED BY AKS ENGINEERING & FORESTRY, LLC ON MARCH 8, 2021 AND WERE PROFESSIONALLY LAND SURVEYED BY AKS ON MARCH 10, 2021.



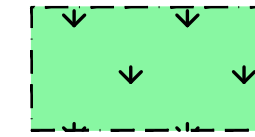
DATE: 04/20/2021

SITE PLAN	FIGURE 6
OREGON STREET BUSINESS PARK NATURAL RESOURCE ASSESSMENT	
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	
AKS	
DRWN: BDL/JDS CHKD: SAR AKS JOB: 7971	

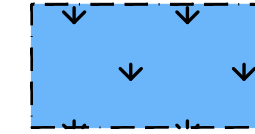
CWS FILE NO. 21-001024
 Approved
 Clean Water Services
 FOR ENVIRONMENTAL REVIEW
 By *SNB* Date 5/12/2021
 SPL ATTACHMENT 3 OF 3

TAX LOT 501
 TAX MAP 2S 1 28C

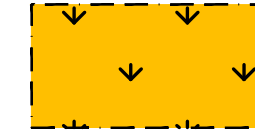
LEGEND (COLOR COPY):



WETLAND - EXISTING AREA TO REMAIN:
 13,609 SF± (0.31 ACRES±)



WETLAND PERMANENT IMPACTS:
 11,978 SF± (0.27 ACRES±)



WETLAND TEMPORARY IMPACT AREA:
 720 SF± (0.02 ACRES±)



VEGETATED CORRIDOR - EXISTING AREA TO REMAIN:
 1,214 SF± (0.03 ACRES±)



VEGETATED CORRIDOR PERMANENT IMPACT AREA:
 19,304 SF± (0.44 ACRES±)

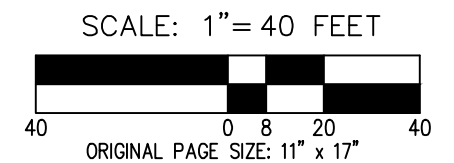
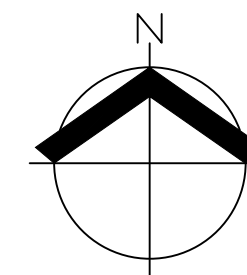


VEGETATED CORRIDOR TEMPORARY IMPACT AREA:
 (TO BE PLANTED TO GOOD CONDITION)
 994 SF± (0.02 ACRES±)

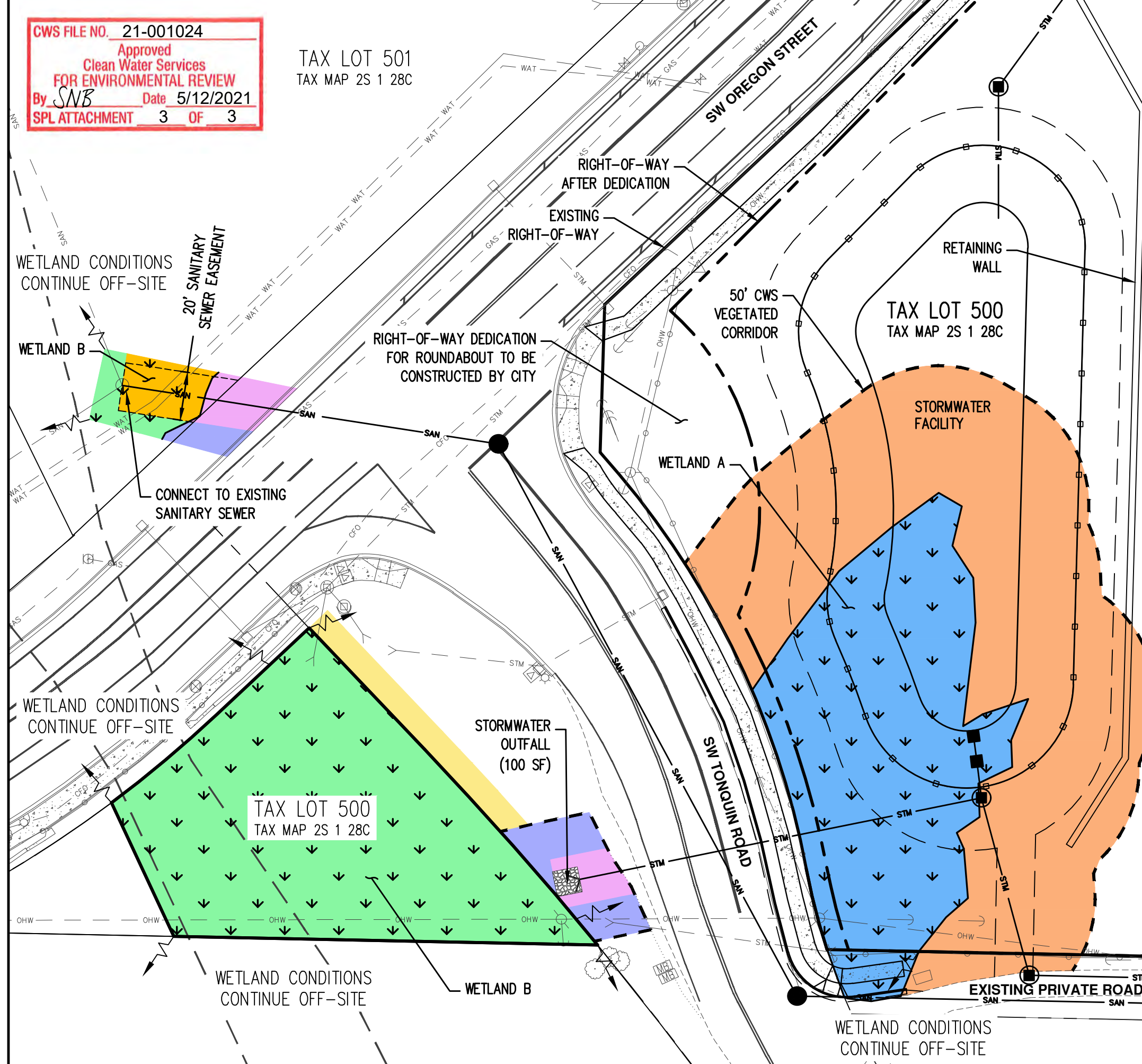


VEGETATED CORRIDOR PUBLIC BENEFIT MITIGATION AREA
 (TO BE PLANTED TO GOOD CONDITION):
 1,128 SF± (0.03 ACRES±)

WETLAND AND WATER BOUNDARIES SHOWN WERE DELINEATED BY AKS ENGINEERING & FORESTRY, LLC ON MARCH 8, 2021 AND WERE PROFESSIONALLY LAND SURVEYED BY AKS ON MARCH 10, 2021.



DATE: 04/20/2021



SITE PLAN	FIGURE
OREGON STREET BUSINESS PARK NATURAL RESOURCE ASSESSMENT	6A
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: BDL/JDS CHKD: SAR AKS JOB: 7971