CITY OF OREGON CITY
PLANNING COMMISSION
AGENDA

Commission Chambers, 1234 Linn Avenue, Oregon City and Virtual
Monday, December 13, 2021 at 7:00 PM

This meeting will be held in person and online via Zoom; please contact planning@orcity.org for the meeting link.

CALL TO ORDER

PUBLIC COMMENT

Citizens are allowed up to 3 minutes to present information relevant to the Planning Commission but not listed as an item on the agenda. Prior to speaking, citizens shall complete a comment form and deliver it to the Chair/City Staff. The Commission does not generally engage in dialog with those making comments but may refer the issue to the City Staff. Complaints shall first be addressed at the department level prior to addressing the Commission.

PUBLIC HEARING

1. GLUA-21-00062: VAR-21-00006 Sign Variance Gardiner Middle School

2. GLUA-21-00029: Serres Farm Planned Unit Development: MAS-21-00003 – Master Plan/Planned Unit Development, MAS-21-00004 – Detailed Development Plan – Phase I, MAS-21-00005 - Detailed Development Plan – Phase II, SUB-21-00001 – Subdivision – 123 lots, GEO-21-00010 Geologic Hazard Review & NROD-21-00006 – Natural Resources Overlay District

COMMUNICATIONS

ADJOURNMENT

PUBLIC COMMENT GUIDELINES

Complete a Comment Card prior to the meeting and submit it to the City Recorder. When the Mayor/Chair calls your name, proceed to the speaker table, and state your name and city of residence into the microphone. Each speaker is given three (3) minutes to speak. To assist in tracking your speaking time, refer to the timer on the table.

As a general practice, the City Commission does not engage in discussion with those making comments.

Electronic presentations are permitted but shall be delivered to the City Recorder 48 hours in advance of the meeting.

ADA NOTICE

The location is ADA accessible. Hearing devices may be requested from the City Recorder prior to the meeting. Individuals requiring other assistance must make their request known 48 hours preceding the meeting by contacting the City Recorder's Office at 503-657-0891.

Agenda Posted at City Hall, Pioneer Community Center, Library, City Website.

Video Streaming & Broadcasts: The meeting is streamed live on the Oregon City's website at www.orcity.org and available on demand following the meeting. The meeting can be viewed on Willamette Falls Television channel 28 for Oregon City area residents as a rebroadcast. Please contact WFMC at 503-650-0275 for a programming schedule.

CITY OF OREGON CITY

Staff Report

625 Center Street
Oregon City, OR 97045
503-657-0891

To: Planning Commission **Agenda Date:** 12/13/2021

From: Christina Robertson-Gardiner, Interim Planning Manager

SUBJECT: GLUA-21-00062: VAR-21-00006 Sign Variance Gardiner Middle School

STAFF RECOMMENDATION: Staff Recommends approval with conditions.

EXECUTIVE SUMMARY: The Applicant is requesting a Sign Variance for a freestanding monument sign with electronic message board at Gardiner Middle School. The subject site was approved as part of a Conditional Use Review. Electronic message boards in residential zones require review by the Planning Commision through the Sign Code Variance process.

BACKGROUND: See Staff Report and Recommendation document in the agenda item attachments.

OPTIONS:

1. Approve the proposal with conditions (staff recommendation)
2. Approve the proposal with modified conditions and provide revised findings
3. Deny the proposal and provide revised findings.
4. Continue the hearing and request more information

695 Warner Parrott Road | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

TYPE III
STAFF REPORT AND RECOMMENDATION
December 6, 2021

FILE NUMBER: GLUA-21-00062 (General Land Use Application), VAR-21-00006 (Variances)

APPLICANT: 3J Consulting, Inc.
9600 SW Nimbus Avenue, Suite 100
Beaverton, OR 97008
Contact: Mercedes Serra
Phone: (503) 946-9365
Email: mercedes.serra@3j-consulting.com

Application Submitted: 10/29/2021
Application Complete: 11/18/2021
120-Day Decision Deadline: 03/18/2022
PC Hearing: December 13, 2021

OWNER: Oregon City School District
C/O Wes Rogers, Director of Capital Projects PO Box 2110
Oregon City, OR 97045

REQUEST: The Applicant is requesting a Sign Variance for a freestanding monument sign with electronic message board at Gardiner Middle School. The subject site was approved as part of a Conditional Use Review.

LOCATION: 205 Williams Street, Oregon City, OR 97045
Clackamas County Map: 3-2E-06AD-07800
Zoning: Low Density Residential R-6

REVIEWER: Christina Robertson-Gardiner, Interim Planning Manager

RECOMMENDATION: Approval with Conditions.

PROCESS: Type III decisions involve the greatest amount of discretion and evaluation of subjective approval standards, yet are not required to be heard by the city commission, except upon appeal. Applications evaluated through this process include conditional use permits. The process for these land use decisions is controlled by ORS 197.763. Notice of the application and the planning commission hearing is published and mailed to the applicant, recognized neighborhood association and property owners within three hundred feet of the subject property. Notice must be issued at least twenty days pre-hearing, and the staff report must be available at least seven days pre-hearing. At the evidentiary hearing held before the planning commission, all issues are addressed. The decision is final unless appealed and description of the requirements for perfecting an appeal. The decision of the planning commission is appealable to the city commission within fourteen days of the issuance of the final decision. The city commission hearing on appeal is on the record and no new evidence shall be allowed. Only those persons or a city-recognized neighborhood association who have participated either orally or in writing have standing to appeal the decision of the planning commission. Grounds for appeal are limited to those issues raised either orally or in writing before the close of the public record. A city-recognized neighborhood association requesting an appeal fee waiver pursuant to OCMC 17.50.290.C must officially approve the request through a vote of its general membership or board at a duly announced meeting prior to the filing of an appeal. The city commission decision on appeal from the planning commission is the city's final decision and is appealable to the Land Use Board of Appeals (LUBA) within twenty-one days of when it becomes final.

Conditions of Approval

Planning File GLUA-21-00062 (General Land Use Application), VAR-21-00006 (Variances)

(P) = Verify that condition of approval has been met with the Planning Division.
(DS) = Verify that condition of approval has been met with the Development Services Division.
(B) = Verify that condition of approval has been met with the Building Division.
(F) = Verify that condition of approval has been met with Clackamas Fire Department.

The applicant shall include the following information with submittal of a building permit associated with the proposed application. The information shall be approved prior to issuance.

1. The applicant shall obtain all required Sign and Building permits for this application. (P/B)
2. The Variance approval allows for the submitted sign to be erected. The approved sign may be replaced with a new sign in the future through a Type I Sign Permit Review as long as there is no increase in the electronic screen surface area, height of the electronic screen or change in the general location. (P)
3. The approved sign shall stay in compliance with all standards set forth in the City's adopted sign code that address flashing, moving or animated elements and the number of message changes allowed per day. (P)
4. The hours of operation for the sign shall be 7:00 AM to 9:00 PM. (P)

I. BACKGROUND:

1. Existing Conditions

Gardiner Middle School is located at 205 Williams Street within the City of Oregon City (the "City"). The development site consists of one tax lot. The Site contains 18.0 acres and is zoned R-6. The Site is generally flat but slopes to the east.



Figure A: Site Aerial Photo (2020)

2. Project Description

The Oregon City School District ("OCSD") is requesting a Sign Variance for an internally illuminated sign at Gardiner Middle School. The subject site was approved as part of a conditional use review; thus, OCMC15.28.070 concerning signs for conditional uses in residential zones specifically applies, as well as OCMC15.28.130 pertaining to sign variance requests. A Sign Variance is evaluated under the Type III quasi- judicial decision process.

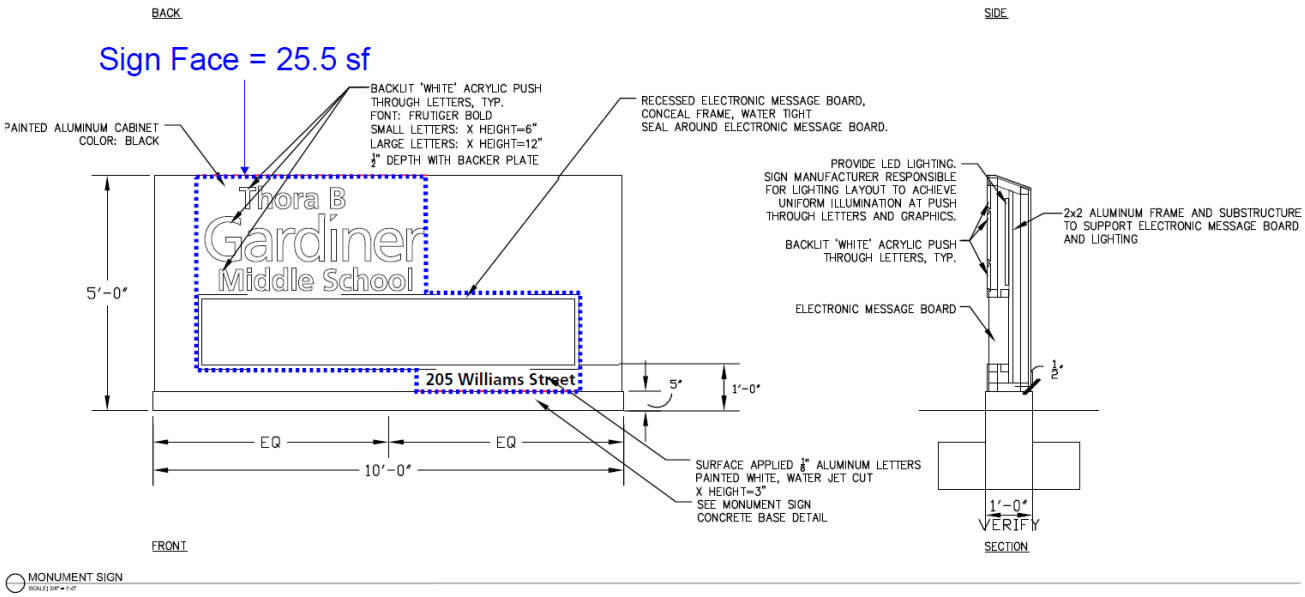


Figure B: Proposed Sign

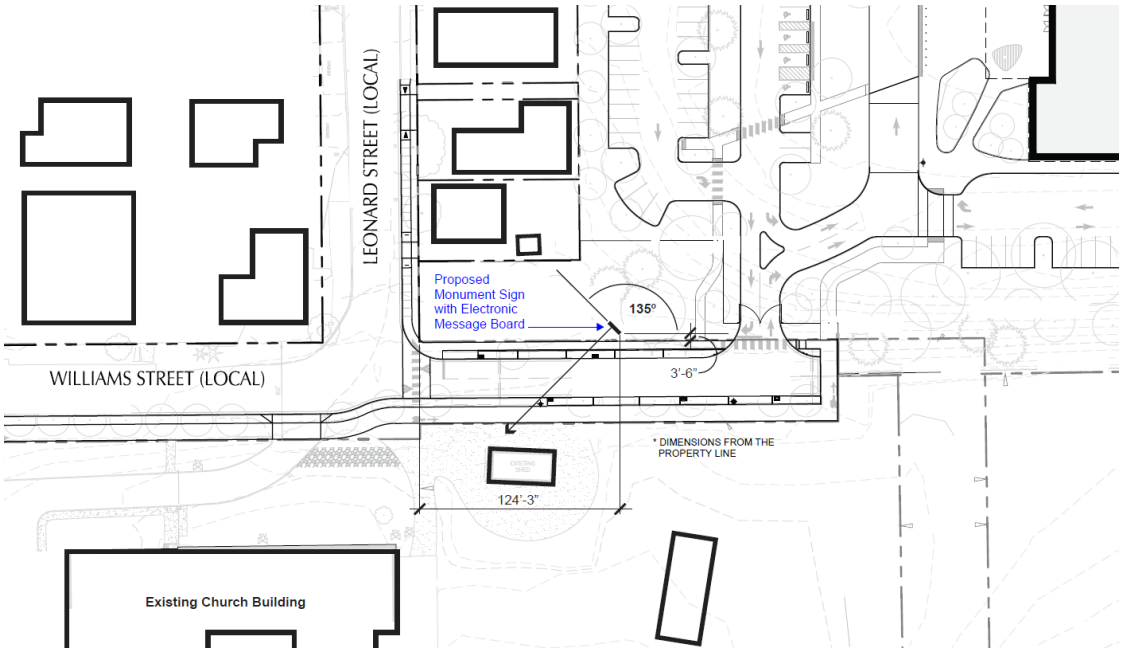


Figure C: Proposed Sign Location

1. **Permits and Approvals:** The Applicant is responsible for obtaining approval and permits from each applicable governmental agency and department at Oregon City including but not limited to the Engineering and Building Divisions.

2. **Public Comment**
   No public comments were received.

Municipal Code Standards and Requirements: The following sections of the Oregon City Municipal Code are applicable to this land use approval:

Chapter 17.08 Low Density Residential Chapter
Chapter 15.28 Signs
Chapter 17. 50 Administration and Procedures

CHAPTER 17.08 LOW DENSITY RESIDENTIAL DISTRICTS

17.8.20 - Permitted uses.

Permitted uses in the R-10, R-8 and R-6 districts are:

A. Single-family detached residential units;
B. Accessory uses, buildings and dwellings;
C. Internal conversions;
D. Corner duplexes;
E. Cluster housing;
F. Residential homes;
G. Parks, playgrounds, playfields and community or neighborhood centers;
H. Home occupations;
I. Family day care providers;
J. Farms, commercial or truck gardening and horticultural nurseries on a lot not less than twenty thousand square feet in area (retail sales of materials grown on-site is permitted);
K. Temporary real estate offices in model homes located on and limited to sales of real estate on a single piece of platted property upon which new residential buildings are being constructed;
L. Transportation facilities.
M.

17.8.25 - Conditional uses.

The following uses are permitted in the R-10, R-8 and R-6 districts when authorized by and in accordance with the standards contained in OCMC 17.56:

A. Golf courses, except miniature golf courses, driving ranges or similar commercial enterprises;
B. Bed and breakfast inns/boarding houses;
C. Cemeteries, crematories, mausoleums and columbariums;
D. Child care centers and nursery schools;
E. Emergency service facilities (police and fire), excluding correctional facilities;
F. Residential care facilities;
G. Private and/or public educational or training facilities;
H. Public utilities, including sub-stations (such as buildings, plants and other structures);
I. Religious institutions;
J. Assisted living facilities; nursing homes and group homes for over fifteen patients;

17.8.30 - Master plans.

The following are permitted in the R-10, R-8 and R-6 districts when authorized by and in accordance with the standards contained in OCMC 17.65.

A. Single-family attached residential units.

Finding: Complies. The subject site is the location for Gardiner Middle School and was approved through a conditional use process as permitted through OCMC 17.08.025.G. This application concerns a proposal to install an electronic message board sign through a Sign Variance process and is not changing the use of the subject site; therefore, this criterion is not applicable.

17.8.40 - Dimensional standards.

Dimensional standards in the R-10, R-8 and R-6 districts are as follows:

Table 17.08.040

Standard	**R-6**
Minimum lot size[1]	6,000 sq. ft.
Applicant's Response:	N/A – the lot size will not change; therefore, these standards are not applicable to the development.
Maximum height	35 ft.
Applicant's Response:	The sign height is 5'.
Maximum building lot coverage With ADU	40%, except 45%
Applicant's Response:	N/A – the proposed sign does not constitute a building; maximum building lot coverage is not changing and is not applicable.
Minimum lot width	50 ft.
Applicant's Response:	N/A – the lot width will not change as a result of this sign variance request; therefore, this criterion is not applicable.
Minimum lot depth	70 ft.
Applicant's Response:	N/A – the lot depth will not change as a result of this sign variance request; therefore, this criterion is not applicable.
Minimum front yard setback	10 ft., except 5 ft. -
Applicant's Response:	N/A – signs are regulated by OCMC 15.28, which is not part of the Title 17 – Zoning; thus, setbacks generally do not apply to the proposal.
Minimum interior side yard setback	5 ft.

Applicant's Response:	N/A – signs are regulated by OCMC 15.28, which is not part of the Title 17 – Zoning; thus, setbacks generally do not apply to the proposal.

Minimum corner side yard setback	10 ft.
Applicant's Response:	N/A – signs are regulated by OCMC 15.28, which is not part of the Title 17 – Zoning; thus, setbacks generally do not apply to the proposal.
Minimum rear yard setback	20 ft, except 15 ft - Porch 10 ft - ADU
Applicant's Response:	N/A – signs are regulated by OCMC 15.28, which is not part of the Title 17 – Zoning; thus, setbacks do not apply to the proposal.
Garage setback	20 ft. from ROW, except 5 ft. Alley
Applicant's Response:	N/A – the proposed sign variance is for a school site with no garages; therefore, this criterion is not applicable.

Notes:

1. For land divisions, lot sizes may be reduced pursuant to OCMC 16.08.065.
2. Accessory structures may have reduced setbacks pursuant to OCMC 17.54.010.B.

17.8.45 - Exceptions to setbacks.

A. Projections from buildings. Ordinary building projections such as cornices, eaves, overhangs, canopies, sunshades, gutters, chimneys, flues, sills or similar architectural features may project into the required yards up to twenty-four inches.

Finding: Not Applicable The proposal concerns a sign variance for a freestanding monument sign and will not result in any new projections from existing buildings. This criterion is not applicable.

B. Through lot setbacks. Through lots having a frontage on two streets shall provide the required front yard on each street. The required rear yard is not necessary.

Finding: Not Applicable The subject site is a corner lot and not a through lot; therefore, this criterion is not applicable.

17.8.50 - Density standards.

A. Density standards in the R-10, R-8 and R-6 districts are as follows:

Table 17.08.050

Standard	**R-6**
Minimum net density	5.8 du/acre
Applicant's Response:	N/A – density is not being modified from this sign proposal
Maximum net density	7.3 du/acre

Applicant's Response:	N/A – density is not being modified from this sign proposal

B. Exceptions.

1. Any dwelling units created as accessory dwelling units or internal conversions do not count towards the minimum or maximum density limits in Table 17.08.050.
2. Corner duplexes shall count as a single dwelling unit for the purposes of calculating density.
3. Cluster housing is permitted at higher densities exempt from the standards in Table 17.08.050; see OCMC 17.20.020.

Finding: Not Applicable This land use proposal concerns a sign variance for a freestanding electronic sign that will be installed on an existing school site – density is not affected by this proposal; therefore, these criteria are not applicable.

CHAPTER 17.50 ADMINISTRATION AND PROCEDURES

17.50.050 – Pre-application conference.

A Pre-application Conference. Prior to a Type II – IV or Legislative application, excluding Historic Review, being deemed complete, the applicant shall schedule and attend a pre-application conference with City staff to discuss the proposal, unless waived by the Community Development Director. The purpose of the pre-application conference is to provide an opportunity for staff to provide the applicant with information on the likely impacts, limitations, requirements, approval standards, fees and other information that may affect the proposal.

1. To schedule a pre-application conference, the applicant shall contact the Planning Division, submit the required materials, and pay the appropriate conference fee.
2. At a minimum, an applicant should submit a short narrative describing the proposal and a proposed site plan, drawn to a scale acceptable to the City, which identifies the proposed land uses, traffic circulation, and public rights-of-way and all other required plans.
3. The Planning Division shall provide the applicant(s) with the identity and contact persons for all affected neighborhood associations as well as a written summary of the pre-application conference.

B. A pre-application conference shall be valid for a period of six months from the date it is held. If no application is filed within six months of the conference or meeting, the applicant shall schedule and attend another conference before the City will accept a permit application. The Community Development Director may waive the pre-application requirement if, in the Director's opinion, the development has not changed significantly and the applicable municipal code or standards have not been significantly amended. In no case shall a pre-application conference be valid for more than one year.

Finding: Complies A pre-application conference concerning the subject proposal was held on September 29, 2021 (PA 21-10034) in accordance with OCMC 17.50.050. This standard is met. Pre- application conference notes have been submitted as Appendix "B".

17.50.055 - Neighborhood association meeting.

Neighborhood Association Meeting. The purpose of the meeting with the recognized neighborhood association is to inform the affected neighborhood association about the proposed development and to receive the preliminary responses and suggestions from the neighborhood association and the member residents.

A. Applicants applying for annexations, zone change, comprehensive plan amendments, conditional use, Planning Commission variances, subdivision, or site plan and design review (excluding minor site plan and design review), general development master plans or detailed development plans applications shall schedule and attend a meeting with the City-recognized neighborhood association in whose territory the application is proposed no earlier than one year prior to the date of application.

Although not required for other projects than those identified above, a meeting with the neighborhood association is highly recommended.

B. The applicant shall request via email or regular mail a request to meet with the neighborhood association chair where the proposed development is located. The notice shall describe the proposed project. A copy of this notice shall also be provided to the chair of the Citizen Involvement Committee.

C. A meeting shall be scheduled within thirty days of the date that the notice is sent. A meeting may be scheduled later than thirty days if by mutual agreement of the applicant and the neighborhood association. If the neighborhood association does not want to, or cannot meet within thirty days, the applicant shall host a meeting inviting the neighborhood association, Citizen Involvement Committee, and all property owners within three hundred feet to attend. This meeting shall not begin before six p.m. on a weekday or may be held on a weekend and shall occur within the neighborhood association boundaries or at a City facility.

D. If the neighborhood association is not currently recognized by the City, is inactive, or does not exist, the applicant shall request a meeting with the Citizen Involvement Committee.

E. To show compliance with this section, the applicant shall submit a copy of the email or mail notice to the neighborhood association and CIC chair, a sign-in sheet of meeting attendees, and a summary of issues discussed at the meeting. If the applicant held a separately noticed meeting, the applicant shall submit a copy of the meeting flyer, postcard or other correspondence used, and a summary of issues discussed at the meeting and submittal of these materials shall be required for a complete application.

Finding: Complies A neighborhood association meeting was held on October 21, 2021 in accordance with OCMC 17.50.055. Pursuant to subsection E., a copy of the email notice to the Rivercrest Neighborhood Association and CIC chair, a list of meeting attendees, and a summary of issues discussed at the virtual meeting are provided in Appendix "C" submitted alongside this narrative. This standard is met.

17.50.100 - Notice posting requirements.

Where this chapter requires notice of a pending or proposed permit application or hearing to be posted on the subject property, the requirements of this section shall apply.

A. City Guidance and the Applicant's Responsibility. The City shall supply all of the notices which the applicant is required to post on the subject property and shall specify the dates the notices are to be posted and the earliest date on which they may be removed. The City shall also provide a statement to be signed and returned by the applicant certifying that the notice(s) were posted at the correct time and that if there is any delay in the City's land use process caused by the applicant's failure to correctly post the subject property for the required period of time and in the correct location, the applicant agrees to extend the applicable decision-making time limit in a timely manner.

B. Number and Location. The applicant shall place the notices on each frontage of the subject property. If the property's frontage exceeds six hundred feet, the applicant shall post one copy of the notice for each six hundred feet or fraction thereof. Notices do not have to be posted adjacent to alleys or unconstructed right-of-way. Notices shall be posted within ten feet of the street and shall be visible to pedestrians and motorists. Notices shall not be posted within the public right-of-way or on trees. The applicant shall remove all signs within ten days following the event announced in the notice.

Finding: Complies Signs for each frontage of the subject property were posted as required by this and all other applicable provisions of the Oregon City Municipal Code. This standard is met.

17.50.140 – Financial guarantees.

When conditions of permit approval require a permitee to construct certain public improvements, the City shall require the permitee to provide financial guarantee for construction of the certain public improvements. Financial guarantees shall be governed by this section.

A. Form of Guarantee. Guarantees shall be in a form approved by the City Attorney. Approvable forms of guarantee include irrevocable standby letters of credit to the benefit of the City issued by a recognized lending institution, certified checks, dedicated bank accounts or allocations of construction loans held in reserve by the lending institution for the benefit of the City. The form of guarantee shall be specified by the City Engineer and, prior to execution and acceptance by the City shall be reviewed and approved by the City Attorney. The guarantee shall be filed with the City Engineer.

B. Performance Guarantees. A permittee shall be required to provide a performance guarantee as follows.

1. After Final Approved Design by The City: The City may request the Permittee to submit a Performance Guarantee for construction of certain public improvements. A permitee may request the option of submitting a Performance Guarantee when prepared for temporary/final occupancy. The guarantee shall be one hundred twenty percent of the estimated cost of constructing the public improvements as submitted by the permittee's engineer. The engineer's estimated costs shall be supported by a verified engineering estimate and approved by the City Engineer.

2. Before Complete Design Approval and Established Engineered Cost Estimate: The City may request a permittee to submit a Performance Guarantee for construction of certain public improvements. A permitee may request the option of submitting a performance guarantee before public improvements are designed and completed. The guarantee shall be one hundred fifty percent of the estimated cost of constructing the public improvements as submitted by the permittee's engineer and approved by the City Engineer. The engineer's estimated costs shall be supported by a verified engineering estimate and approved by the City Engineer.

C. Release of Guarantee. The guarantee shall remain in effect until the improvement is actually constructed and accepted by the City. Once the City has inspected and accepted the improvement, the City shall release the guarantee to the permittee. If the improvement is not completed to the City's satisfaction within the time limits specified in the permit approval, the City Engineer may, at their discretion, draw upon the guarantee and use the proceeds to construct or complete construction of the improvement and for any related administrative and legal costs incurred by the City in completing the construction, including any costs incurred in attempting to have the permittee complete the improvement. Once constructed and approved by the City, any remaining funds shall be refunded to the permittee. The City shall not allow a permittee to defer construction of improvements by using a performance guarantee, unless the permittee agrees to construct those improvements upon written notification by the City, or at some other mutually agreed-to time. If the permittee fails to commence construction of the required improvements within six months of being instructed to do so, the City may, without further notice, undertake the construction of the improvements and draw upon the permittee's performance guarantee to pay those costs.

D. Fee-in-lieu. When conditions of approval or the City Engineer allows a permittee to provide a fee-in-lieu of actual construction of public improvements, the fee shall be one hundred fifty percent of the estimated cost of constructing the public improvements as submitted by the permittee's engineer and approved by the City Engineer. The percentage required is to ensure adequate funds for the future

work involved in design, bid, contracting, and construction management and contract closeout. The engineer's estimated costs shall be supported by a verified engineering estimate and approved by the City Engineer. The fee-in-lieu shall be submitted as cash, certified check, or other negotiable instrument acceptable by the City Attorney.

17.50.141 – Public improvements – Warranty

All public improvements not constructed by the City, shall be maintained and under warranty provided by the property owner or developer constructing the facilities until the City accepts the improvements at the end of the warranty period. The warranty is to be used at the discretion of the City Engineer or designee to correct deficiencies in materials or maintenance of constructed public infrastructure, or to address any failure of engineering design.

A. Duration of Warranty. Responsibility for maintenance of public improvements shall remain with the property owner or developer for a warranty period of two years.

B. Financial Guarantee. Approvable forms of guarantee include irrevocable standby letters of credit to the benefit of the City issued by a recognized lending institution, bond, certified checks, dedicated bank accounts or allocations of construction loans held in reserve by the lending institution for the benefit of the City. The form of guarantee shall be specified by the City Engineer and, prior to execution and acceptance by the City shall be reviewed and approved by the City Attorney. The guarantee shall be filed with the City Engineer.

C. Amount of Warranty. The amount of the warranty shall be equal to fifteen percent of the estimated cost of construction of all public improvements (including those improvements that will become owned and maintained by the City at the end of the two year maintenance period), and shall be supported by a verified engineering estimate and approved by the City Engineer. Upon expiration of the warranty period and acceptance by the City as described below, the City shall be responsible for maintenance of those improvements.

D. Transfer of Maintenance. The City will perform an inspection of all public improvements approximately forty-five days before the two-year warranty period expires. The public improvements shall be found to be in a clean, functional condition by the City Engineer before acceptance of maintenance responsibility by the City. Transfer of maintenance of public improvements shall occur when the City accepts the improvements at the end of the two year warranty period.

Finding: Not Applicable Public improvements are neither appropriate nor anticipated as a result of this land use proposal, which only concerns the construction of an electronic freestanding sign through a Sign Variance process. These criteria are not applicable.

Chapter 15.28 Signs

15.28.70 Signs for conditional uses in residential zones.

These standards apply to all conditional uses within a residential zoning district ("R-10" Single-Family Dwelling District, "R-8" Single-Family Dwelling District, "R-6" Single-Family Dwelling District, "R-5" Single-Family Dwelling District, "R-3.5" Dwelling District, and "R-2" Multi-Family Dwelling District) unless otherwise limited in the conditional use approval. Conditional uses are identified within each applicable zoning designation. Signs within the right-of-way shall comply with Section 15.28.100.

Finding: Complies: The subject site is currently being used as a school, which is a conditional use in the underlying zoning district (“R-6” Single-Family Dwelling District); therefore, OCMC 15.28.070 is applicable to this Sign Variance application.

A. General. All of the following standards apply to all signs for conditional uses in residential zones:

1. With the exception of banners, at least fifty percent of the wall sign shall be constructed of metal, wood, stone, brick, rock or any combination thereof.

Finding: Not Applicable This proposal concerns a freestanding sign, not a wall sign; therefore, this criterion is not applicable.

2. If a sign is illuminated, the source of illumination shall be external to the sign and directed or shielded so as to not shine directly onto any neighboring structures.

Finding: Complies The proposed is illuminated in a manner that is not external to the sign as required by this subsection. For this reason, the Applicant is requesting a Sign Variance in accordance with the criteria delineated within OCMC 15.28.130. Please see OCMC 15.28.130 for an evaluation of the proposal against the applicable Sign Variance criteria.

3. With the exception of projecting and wall signs, signs shall not project over the right-of-way. Signs projecting into the right-of-way shall receive approval by the city engineer.

Finding: Complies The sign for which this application concerns does not project into the right-of-way. The precise location of the sign can be found in the provided plans set submitted alongside this narrative as Appendix “D”.

4. With the exception of wall signs, signs shall maintain a minimum clearance of ten feet above grade over pedestrian or vehicular areas, and fourteen feet above grade over areas of truck access.

Finding: Not Applicable The sign for which this application concerns is affixed directly to the ground in an area that does not constitute a pedestrian or vehicular area; therefore, this criterion is not applicable.

C. Freestanding Sign. All of the following standards apply to freestanding signs for conditional uses in residential zones:

Finding: Not Applicable The sign for which this application concerns is a freestanding sign for a conditional use in a residential zone; therefore, these criteria are applicable.

1. A maximum of one freestanding sign per lot is allowed.

Finding: Complies The subject site does not contain any other freestanding signs. This criterion is met.

2. The display area shall not exceed sixty-four square feet and the sign face shall not exceed thirty-two square feet.

Finding: Complies: The “sign face” is defined in OCMC 15.28.200 as follows: "Sign face" means the total area as measured pursuant to Section 15.28.050. The total area of the sign face is 25.5 square feet. This measurement was taken in accordance with OCMC 15.28.050.A. This meets the sign face maximum requirement of 32 square feet.

The “display area” is defined in OCMC 15.28.020 as follows: "Display area" means the total size of all sign faces on a sign. The sign has only one side that meets the definition of a “sign face” as defined in OCMC 15.28.020 and described further in OCMC 15.28.050.A. Thus, the “display area” is the same as the “sign face” and is 25.5 square feet, meeting the display area maximum requirement of 64 square feet.

3. The sign width shall not exceed ten linear feet.

Finding: Complies Pursuant to OCMC 15.28.050.B, sign width is measured as the horizontal distance between the outermost area of sign face for wall signs and includes the supporting structure for all other sign types. The width of the sign is 10 feet. This standard is met.

4. The sign height shall not exceed fifteen feet.

Finding: Complies Pursuant to OCMC 15.28.050.C, the height of a sign above grade is measured from the average level of the grade below the sign to the topmost point of the sign, including any supporting structure. The height of the sign is 5 feet. This standard is met.

15.28.130 Variances.

All of the following standards apply to variances to this chapter:

A. Grounds for Variance. Upon application by an applicant, the planning commission may grant a specific variance from provisions of this chapter provided all of the following circumstances exist:

1. That the variance from the requirements is not likely to cause substantial damage to adjacent properties by reducing light, air, safe access or other desirable or necessary qualities otherwise protected by this title;

Finding: Complies Substantial damage to adjacent properties is not anticipated from this sign variance request. As shown on the provided plans (Exhibit B of Appendix “D”), the sign is intentionally proposed in a location that is mid-block on Williams Street, a local street. This reduces the possibility that the sign interferes in any way with a traffic control sign or device or prevents clear and unobstructed views of traffic control signs.

The sign is located at a 135-degree angle from the nearest property line to the south, in an effort to minimize the lighting impacts to the residential properties west of the site, particularly those across the street from Leonard Street, a local street. The sign is directed toward a blank wall of the First Evangelical Presbyterian Church building just southwest of the school site. This wall is on other side of Williams Street from where the sign is to be placed, approximately 180 feet from the sign. Note that the illumination from the sign is directional – light from the LEDs travels out and down. This reduces upward illumination (sky glow) and limits illumination onto unintended area.

2. That the request is the minimum variance that would alleviate the hardship;

Finding: Complies Precluding the school from installing an illuminated sign would result in practical difficulty for students, families of students, teachers, school administrators and the general public not having quick and easy access to important school and community-related information. As mentioned

elsewhere in this report, electronic message board signs are a versatile communication tool with the capability to rotate through messages and provide information in multiple languages. These signs can be easily and quickly changed by the school administration to provide updates about current and upcoming events. A non-electronic sign is limited in space to how many magnetic letters can fit on the static sign and the letters provided with the sign. Middle schools are active places with many events happening during the same week. A static sign creates issues for the school in determining which activity gets posted and which gets left out, resulting in inequities.

3. Granting the variance will equal or exceed the purpose of the regulation to be modified;

Finding: Complies As mentioned elsewhere in this report, the standard being modified includes a description of its intent within the standard itself, namely "…so as to not shine directly onto any neighboring structures." As mentioned elsewhere, the internal illumination of the sign is directional, traveling out and downward to reduce illumination to unintended areas such as neighboring structures. The sign is located at a 135-degree angle from the nearest property line to the south, in an effort to minimize the lighting impacts to the residential properties west of the site. The sign is directed toward the First Evangelical Presbyterian Church building just southwest of the school site. This wall is on other side of Williams Street from where the sign is to be placed, approximately 180 feet from the sign – the wall prevents the sign from being visible from the interior space of the church. The sign automatically dims based on ambient light, and its operating brightness standard complies with industry lighting standards for measuring EMC brightness. Additionally, the sign placement and angle were chosen to avoid interference with traffic devices, controllers and signs, and to avoid light spillage onto neighboring residential properties. Lastly, the sign's illuminating capabilities will be shut off during night time hours, which are the hours in which the sign creates the most impact on neighboring structures.

4. Any impacts resulting from the adjustment are mitigated;

Applicant's Response: In addition to the measures described in OCMC 15.28.130.A.1. (Including the intentional location of the sign mid-block and the angling of the sign away from residential properties), the sign will also be turned off during night hours. Specifically, the hours of operation for the sign will be 7:00 AM to 9:00 PM. The nature of this request does not set a precedent in Oregon City – a sign variance was requested and approved for Oregon City High School. While this sign is located on Beavercreek Road and thus has less impact on neighboring residential properties, the sign is kept on during night hours. The application for which this narrative concerns proposes to turn off the sign during night hours, effectively eliminating impacts of the sign during a time of day where those effects are most exacerbated.

The illumination from the sign is directional – light from the LEDs travels out and down. This reduces upward illumination (sky glow) and limits illumination onto unintended area.

5. No practical alternatives have been identified which would accomplish the same purpose and not require a variance; and

Finding: Complies There are no other practical alternatives for signs that accomplish the same degree of versatility as electronic message board signs. The standard allows for external illumination; however, electronic message board signs require internal illumination by design. Electronically illuminated signs can be easily and quickly changed by the school administration to provide updates about current and upcoming events. A non-electronic sign is limited in space to how many magnetic letters can fit on the static sign and the letters provided with the sign, and changing out these letters is labor intensive. Middle schools are active places with many events happening during the same week. A static sign creates issues for the school in determining which activity gets posted and which gets left out, resulting in inequities.

6. The variance conforms to the comprehensive plan and the intent of the ordinance being varied.

Finding: Complies The ordinance being varied is a provision from OCMC 15.28.070.A.2. that states the following:

If a sign is illuminated, the source of illumination shall be external to the sign and directed or shielded so as to not shine directly onto any neighboring structures.

This standard includes a description of its intent within the standard itself, namely "…so as to not shine directly onto any neighboring structures." As mentioned elsewhere, the internal illumination of the sign is directional, traveling out and downward to reduce illumination to unintended areas such as neighboring structures. The sign automatically dims based on ambient light, and its operating brightness standard complies with industry lighting standards for measuring EMC brightness. Additionally, the sign placement and angle were chosen to avoid interference with traffic devices, controllers and signs, and to avoid light spillage onto neighboring residential properties. Lastly, the sign's illuminating capabilities will be shut off during nighttime hours, which are the hours in which the sign creates the most impact on neighboring structures.

The following Comprehensive Plan policies were extracted to demonstrate compliance with this subsection:

Goal 2.4 Neighborhood Livability, Policy 2.4.5
Ensure a process is developed to prevent barriers in the development of neighborhood schools, senior and childcare facilities, parks, and other uses that serve the needs of the immediate area and the residents of Oregon City.

Finding: Complies An electronic message board sign is a versatile communication tool with the capability to rotate through messages and provide information in multiple languages. These signs can be easily and quickly changed by the school administration to provide updates about current and upcoming events. A non-electronic sign is limited in space to how many magnetic letters can fit on the static sign and the letters provided with the sign. Middle schools are active places with many events happening during the same week. A static sign creates issues for the school in determining which activity gets posted

OREGON CITY
Community Development – Planning
695 Warner Parrott Road | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

and which gets left out, resulting in inequities. Providing an electronic message board sign in lieu of a static sign will therefore help to prevent barriers in the development of Gardiner Middle School, a neighborhood school.

Goal 6.3 Nightlighting, Policy 6.3.1
Minimize light pollution and reduce glare from reaching the sky and trespassing onto adjacent properties.

Finding: Complies As mentioned elsewhere, the internal illumination of the sign is directional, traveling out and downward to reduce illumination to unintended areas such as neighboring structures. The sign automatically dims based on ambient light, and its operating brightness standard complies with industry lighting standards for measuring EMC brightness. Additionally, the sign placement and angle were chosen to avoid interference with traffic devices, controllers and signs, and to avoid light spillage onto neighboring residential properties. Lastly, the sign's illuminating capabilities will be shut off from 9:00 PM to 7:00 AM, which are the hours in which the sign creates the most impact on neighboring structures and the sky.

Prior Land Use Approval for Gardiner Middle School: GLUA-19-00025, CU 19-02, MAS-19-00003, MAS-19-00006

The following condition of approval from the construction of the new middle school building is applicable to this proposal:

Condition #13: The applicant shall ensure that any athletic field lighting is not greater than 80 feet tall, that no lighting on site adds more than 0.5 footcandles on any neighboring properties, and shall ensure that athletic lighting is not utilized past 9:30 PM.

Finding: Complies As demonstrated in Exhibit C of Appendix "D", no lighting produced by the subject sign adds more than 0.5 footcandles on any neighboring properties. The application is in conformance with this condition of approval.

CONCLUSION AND DECISION:

Based on the analysis and findings as described above, Staff concludes that the proposed development located at 205 Williams Street, Oregon City, OR 97045, Clackamas County Map: 3-2E-06AD-07800 can meet the requirements as described in the Oregon City Municipal Code. Therefore, the Community Development Director recommends approval of Planning Files GLUA-21-00062: VAR-21-00006 based upon the findings and exhibits contained in this staff report.

EXHIBITS:

1. Vicinity Map (onfile)
2. Applicant's Narrative and Plans

CITY OF OREGON CITY
LAND USE APPLICATION

City of Oregon City, Community Development Department, 221 Molalla Ave., Ste. 200, P.O. Box 3040, Oregon City, OR 97045, (503) 722-3789

Type I (OCMC 17.50.030.A)	Type II (OCMC 17.50.030.B)	Type III / IV (OCMC 17.50.030.C)
☐ Compatibility Review	☐ Extension	☐ Annexation
☐ Nonconforming Use review	☐ Detailed Development Review	☐ Code Interpretation / Similar Use
☐ Water Resources Exemption	☐ Geotechnical Hazards	☐ Concept Development Plan
	☐ Minor Partition	☐ Conditional Use
	☐ Minor Site Plan & Design Review	☐ Comprehensive Plan Amendment (Text/Map)
	☐ Nonconforming Use Review	☐ Detailed Development Plan
	☐ Site Plan and Design Review	☐ Historic Review
	☐ Subdivision	☐ Oregon City Municipal Code Amendment
	☐ Minor Variance	☒ Variance (Sign Variance)
	☐ Water Resource Review	☐ Zone Change

Application Number: _____

Proposed Land Use or Activity: Applicant is requesting a Sign Variance at Gardiner Middle School for an electronically illuminated readerboard sign.

Project Name: PA 21-10034 Number of Lots Proposed (If Applicable): N/A

Physical Address of Site: 180 Ethel Street, Oregon City, OR 97045

Clackamas County Map and Tax Lot Number(s): 3-2E-06AD-07800

Applicant(s):

Applicant(s) Signature: _____

Applicant(s) Name Printed: Mercedes Serra, Senior Planner, 3J Consulting, Inc. Date: October 26th, 2021

Mailing Address: 9600 SW Nimbus Ave, Suite #100, Beaverton, OR 97008

Phone: (503) 946-9365 x211 Fax: _____ Email: mercedes.serra@3j-consulting.com

Property Owner(s):

Property Owner(s) Signature: Oregon City School District, C/O Wes Rogers, Director of Operations

Property Owner(s) Name Printed: Wes Rogers Date: October 26th, 2021

Mailing Address: PO Box 2110, Oregon City, OR 97045

Phone: (503) 785-8531 Fax: _____ Email: wes.rogers@orecity.k12.or.us

Representative(s):

Representative(s) Signature: Same as Applicant Wes Rogers

Representative (s) Name Printed: Wes Rogers, Dir of Capital Projects Date: October 26, 2021

Mailing Address: 14551 Meyers Road, Oregon City, OR 97045

Phone: 503-785-8531 Fax: _____ Email: wes.rogers@orecity.k12.or.us

All signatures represented must have the full legal capacity and hereby authorize the filing of this application and certify that the information and exhibits herewith are correct and indicate the parties willingness to comply with all code requirements.

TYPE III – SIGN VARIANCE
Applicant's Submittal
October 27th, 2021

APPLICANT: **3J Consulting, Inc.**
9600 SW Nimbus Avenue, Suite 100
Beaverton, OR 97008
Contact: Mercedes Serra
Phone: (503) 946-9365
Email: mercedes.serra@3j-consulting.com

OWNER: Oregon City School District
C/O Wes Rogers, Director of Capital Projects
PO Box 2110
Oregon City, OR 97045

REQUEST: The Applicant is requesting a Sign Variance for a freestanding monument sign with electronic message board at Gardiner Middle School. The subject site was approved as part of a Conditional Use Review.

LOCATION: 205 Williams Street, Oregon City, OR 97045
Clackamas County Map: 3-2E-06AD-07800
Zoning: Low Density Residential R-6

SITE INFORMATION:

Address:	205 Williams Street
Parcel Number:	32E06AD07800 (one lot)
Size:	18.0 acres
Site Zoning Designation:	R-6
Existing Site Use:	Gardiner Middle School
Surrounding Zoning:	The properties to the north and east are zoned R-6. The properties to the west are zoned R-6 and R-2. The properties to the south are zoned R-2 and MUC-1.
Surrounding Uses:	The Site is abutted by single-family homes to the north and west. To the east, the Site is abutted by single-family homes and residential properties and the St. John the Apostle Cemetery. To the south, the Site is abutted by a Portland General Electric property and the First Evangelical Presbyterian Church.

APPENDIX:

Appendix A – Land Use Application Form

Appendix B – Pre-Application Conference Notes

Appendix C – Neighborhood Meeting Materials

Appendix D – Plans Set

BACKGROUND:

1. Existing Conditions

Gardiner Middle School is located at 205 Williams Street within the City of Oregon City (the "City"). The development Site consists of one tax lot. The Site contains 18.0 acres and is zoned R-6. The Site is generally flat but slopes to the east.

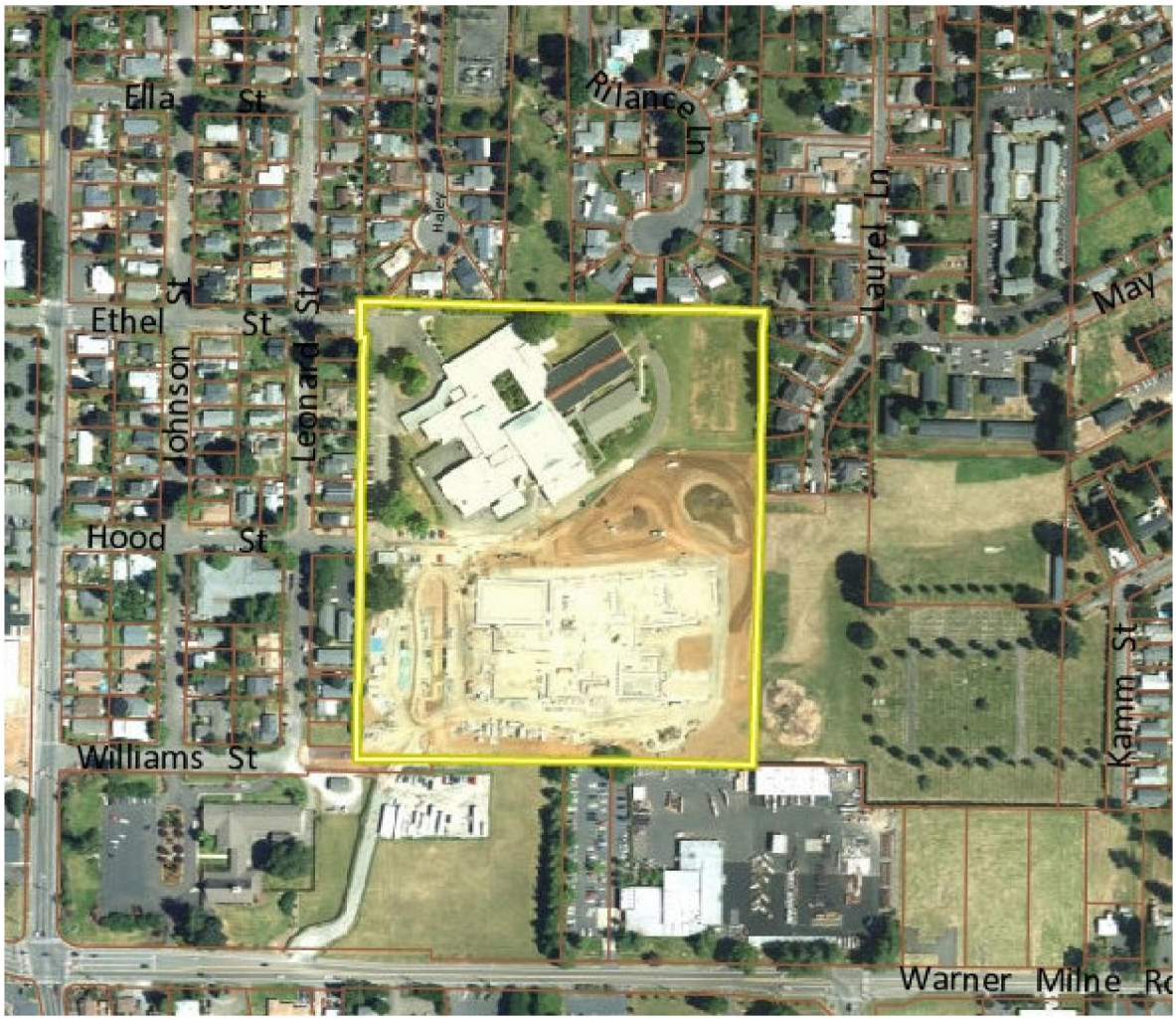


Figure A: Site Aerial Photo (2020)

2. Project Description

The Oregon City School District ("OCSD") is requesting a Sign Variance for an internally illuminated sign at Gardiner Middle School. The subject site was approved as part of a conditional use review; thus, OCMC 15.28.070 concerning signs for conditional uses in residential zones specifically applies, as well as OCMC 15.28.130 pertaining to sign variance requests. A Sign Variance is evaluated under the Type III quasi-judicial decision process. The City's Planning Commission will render the Type III decision after a public hearing on the application is held.

OREGON CITY MUNICIPAL CODE:

Municipal Code Standards and Requirements: The following sections of the Oregon City Municipal Code are applicable to this land use approval:

Chapter 17.08 Low Density Residential
Chapter 17. 50 Administration and Procedures
Chapter 15.28 Signs

CHAPTER 17.08 LOW DENSITY RESIDENTIAL DISTRICTS

17.08.020 - Permitted uses.

Permitted uses in the R-10, R-8 and R-6 districts are:

A. Single-family detached residential units;
B. Accessory uses, buildings and dwellings;
C. Internal conversions;
D. Corner duplexes;
E. Cluster housing;
F. Residential homes;
G. Parks, playgrounds, playfields and community or neighborhood centers;
H. Home occupations;
I. Family day care providers;
J. Farms, commercial or truck gardening and horticultural nurseries on a lot not less than twenty thousand square feet in area (retail sales of materials grown on-site is permitted);
K. Temporary real estate offices in model homes located on and limited to sales of real estate on a single piece of platted property upon which new residential buildings are being constructed;
L. Transportation facilities.

17.08.025 - Conditional uses.

The following uses are permitted in the R-10, R-8 and R-6 districts when authorized by and in accordance with the standards contained in OCMC 17.56:

A. Golf courses, except miniature golf courses, driving ranges or similar commercial enterprises;
B. Bed and breakfast inns/boarding houses;
C. Cemeteries, crematories, mausoleums and columbariums;
D. Child care centers and nursery schools;
E. Emergency service facilities (police and fire), excluding correctional facilities;
F. Residential care facilities;
G. Private and/or public educational or training facilities;
H. Public utilities, including sub-stations (such as buildings, plants and other structures);
I. Religious institutions;
J. Assisted living facilities; nursing homes and group homes for over fifteen patients;

17.08.030 - Master plans.

The following are permitted in the R-10, R-8 and R-6 districts when authorized by and in accordance with the standards contained in OCMC 17.65.

A. Single-family attached residential units.

Applicant's Response: The subject site is the location for Gardiner Middle School and was approved through a conditional use process as permitted through OCMC 17.08.025.G. This application concerns a proposal to install an electronic message board sign through a Sign Variance process and is not changing the use of the subject site; therefore, this criterion is not applicable.

17.08.040 - Dimensional standards.

Dimensional standards in the R-10, R-8 and R-6 districts are as follows:

Table 17.08.040

Standard	***R-6***
Minimum lot size[1]	*6,000 sq. ft.*
Applicant's Response:	N/A – the lot size will not change; therefore, these standards are not applicable to the development.
Maximum height	*35 ft.*
Applicant's Response:	The sign height is 5'.
Maximum building lot coverage *With ADU*	*40%, except* *45%*
Applicant's Response:	N/A – the proposed sign does not constitute a building; maximum building lot coverage is not changing and is not applicable.
Minimum lot width	*50 ft.*
Applicant's Response:	N/A – the lot width will not change as a result of this sign variance request; therefore, this criterion is not applicable.
Minimum lot depth	*70 ft.*
Applicant's Response:	N/A – the lot depth will not change as a result of this sign variance request; therefore, this criterion is not applicable.
Minimum front yard setback	*10 ft., except* *5 ft. - Porch*
Applicant's Response:	N/A – signs are regulated by OCMC 15.28, which is not part of the Title 17 – Zoning; thus, setbacks do not apply to the proposal.
Minimum interior side yard setback	*5 ft.*
Applicant's Response:	N/A – signs are regulated by OCMC 15.28, which is not part of the Title 17 – Zoning; thus, setbacks do not apply to the proposal.

Minimum corner side yard setback	*10 ft.*
Applicant's Response:	N/A – signs are regulated by OCMC 15.28, which is not part of the Title 17 – Zoning; thus, setbacks do not apply to the proposal.
Minimum rear yard setback	*20 ft, except* *15 ft - Porch* *10 ft - ADU*
Applicant's Response:	N/A – signs are regulated by OCMC 15.28, which is not part of the Title 17 – Zoning; thus, setbacks do not apply to the proposal.
Garage setback	*20 ft. from ROW, except* *5 ft. Alley*
Applicant's Response:	N/A – the proposed sign variance is for a school site with no garages; therefore, this criterion is not applicable.

Notes:

1. *For land divisions, lot sizes may be reduced pursuant to OCMC 16.08.065.*
2. *Accessory structures may have reduced setbacks pursuant to OCMC 17.54.010.B.*

17.08.045 - Exceptions to setbacks.

A. Projections from buildings. Ordinary building projections such as cornices, eaves, overhangs, canopies, sunshades, gutters, chimneys, flues, sills or similar architectural features may project into the required yards up to twenty-four inches.

Applicant's Response: The proposal concerns a sign variance for a freestanding monument sign and will not result in any new projections from existing buildings. This criterion is not applicable.

B. Through lot setbacks. Through lots having a frontage on two streets shall provide the required front yard on each street. The required rear yard is not necessary.

Applicant's Response: The subject site is a corner lot and not a through lot; therefore, this criterion is not applicable.

17.08.050 - Density standards.

A. Density standards in the R-10, R-8 and R-6 districts are as follows:

Table 17.08.050

Standard	***R-6***
Minimum net density	*5.8 du/acre*
Applicant's Response:	N/A – density is not being modified from this sign proposal
Maximum net density	*7.3 du/acre*
Applicant's Response:	N/A – density is not being modified from this sign proposal

B. Exceptions.

1. *Any dwelling units created as accessory dwelling units or internal conversions do not count towards the minimum or maximum density limits in Table 17.08.050.*
2. *Corner duplexes shall count as a single dwelling unit for the purposes of calculating density.*
3. *Cluster housing is permitted at higher densities exempt from the standards in Table 17.08.050; see OCMC 17.20.020.*

Applicant's Response: This land use proposal concerns a sign variance for a freestanding electronic sign that will be installed on an existing school site – density is not affected by this proposal; therefore, these criteria are not applicable.

CHAPTER 17.50 ADMINISTRATION AND PROCEDURES

17.50.050 – Pre-application conference.

A Pre-application Conference. Prior to a Type II – IV or Legislative application, excluding Historic Review, being deemed complete, the applicant shall schedule and attend a pre-application conference with City staff to discuss the proposal, unless waived by the Community Development Director. The purpose of the pre-application conference is to provide an opportunity for staff to provide the applicant with information on the likely impacts, limitations, requirements, approval standards, fees and other information that may affect the proposal.

1. *To schedule a pre-application conference, the applicant shall contact the Planning Division, submit the required materials, and pay the appropriate conference fee.*
2. *At a minimum, an applicant should submit a short narrative describing the proposal and a proposed site plan, drawn to a scale acceptable to the City, which identifies the proposed land uses, traffic circulation, and public rights-of-way and all other required plans.*
3. *The Planning Division shall provide the applicant(s) with the identity and contact persons for all affected neighborhood associations as well as a written summary of the pre-application conference.*

B. A pre-application conference shall be valid for a period of six months from the date it is held. If no application is filed within six months of the conference or meeting, the applicant shall schedule and attend another conference before the City will accept a permit application. The Community Development Director may waive the pre-application requirement if, in the Director's opinion, the development has not changed significantly and the applicable municipal code or standards have not been significantly amended. In no case shall a pre-application conference be valid for more than one year.

Applicant's Response: A pre-application conference concerning the subject proposal was held on September 29th, 2021 (PA 21-10034) in accordance with OCMC 17.50.050. This standard is met. Pre-application conference notes have been submitted as Appendix "B".

17.50.055 - Neighborhood association meeting.

Neighborhood Association Meeting. The purpose of the meeting with the recognized neighborhood association is to inform the affected neighborhood association about the proposed development and to receive the preliminary responses and suggestions from the neighborhood association and the member residents.

A. Applicants applying for annexations, zone change, comprehensive plan amendments, conditional use, Planning Commission variances, subdivision, or site plan and design review (excluding minor site plan and design review), general development master plans or detailed development plans applications shall schedule and attend a meeting with the City-recognized neighborhood association in whose territory the application is proposed no earlier than one year prior to the date of application.

Although not required for other projects than those identified above, a meeting with the neighborhood association is highly recommended.

B. The applicant shall request via email or regular mail a request to meet with the neighborhood association chair where the proposed development is located. The notice shall describe the proposed project. A copy of this notice shall also be provided to the chair of the Citizen Involvement Committee.

C. A meeting shall be scheduled within thirty days of the date that the notice is sent. A meeting may be scheduled later than thirty days if by mutual agreement of the applicant and the neighborhood association. If the neighborhood association does not want to, or cannot meet within thirty days, the applicant shall host a meeting inviting the neighborhood association, Citizen Involvement Committee, and all property owners within three hundred feet to attend. This meeting shall not begin before six p.m. on a weekday or may be held on a weekend and shall occur within the neighborhood association boundaries or at a City facility.

D. If the neighborhood association is not currently recognized by the City, is inactive, or does not exist, the applicant shall request a meeting with the Citizen Involvement Committee.

E. To show compliance with this section, the applicant shall submit a copy of the email or mail notice to the neighborhood association and CIC chair, a sign-in sheet of meeting attendees, and a summary of issues discussed at the meeting. If the applicant held a separately noticed meeting, the applicant shall submit a copy of the meeting flyer, postcard or other correspondence used, and a summary of issues discussed at the meeting and submittal of these materials shall be required for a complete application.

Applicant's Response: A neighborhood association meeting was held on October 21st, 2021 in accordance with OCMC 17.50.055. Pursuant to subsection E., a copy of the email notice to the Rivercrest Neighborhood Association and CIC chair, a list of meeting attendees, and a summary of issues discussed at the virtual meeting are provided in Appendix "C" submitted alongside this narrative. This standard is met.

17.50.100 - Notice posting requirements.

Where this chapter requires notice of a pending or proposed permit application or hearing to be posted on the subject property, the requirements of this section shall apply.

A. City Guidance and the Applicant's Responsibility. The City shall supply all of the notices which the applicant is required to post on the subject property and shall specify the dates the notices are to be posted and the earliest date on which they may be removed. The City shall also provide a statement to be signed and returned by the applicant certifying that the notice(s) were posted at the correct time and that if there is any delay in the City's land use process caused by the applicant's failure to correctly post the subject property for the required period of time and in the correct location, the applicant agrees to extend the applicable decision-making time limit in a timely manner.

B. Number and Location. The applicant shall place the notices on each frontage of the subject property. If the property's frontage exceeds six hundred feet, the applicant shall post one copy of the notice for each six hundred feet or fraction thereof. Notices do not have to be posted adjacent to alleys or unconstructed right-of-way. Notices shall be posted within ten feet of the street and shall be visible to pedestrians and motorists. Notices shall not be posted within the public right-of-way or on trees. The applicant shall remove all signs within ten days following the event announced in the notice.

Applicant's Response: Signs for each frontage of the subject property will be posted as required by this and all other applicable provisions of the Oregon City Municipal Code. This standard will be met.

17.50.140 – Financial guarantees.

When conditions of permit approval require a permitee to construct certain public improvements, the City shall require the permitee to provide financial guarantee for construction of the certain public improvements. Financial guarantees shall be governed by this section.

A. Form of Guarantee. Guarantees shall be in a form approved by the City Attorney. Approvable forms of guarantee include irrevocable standby letters of credit to the benefit of the City issued by a recognized lending institution, certified checks, dedicated bank accounts or allocations of construction loans held in reserve by the lending institution for the benefit of the City. The form of guarantee shall be specified by the City Engineer and, prior to execution and acceptance by the City shall be reviewed and approved by the City Attorney. The guarantee shall be filed with the City Engineer.

B. Performance Guarantees. A permittee shall be required to provide a performance guarantee as follows.

1. After Final Approved Design by The City: The City may request the Permittee to submit a Performance Guarantee for construction of certain public improvements. A permitee may request the option of submitting a Performance Guarantee when prepared for temporary/final occupancy. The guarantee shall be one hundred twenty percent of the estimated cost of constructing the public improvements as submitted by the permittee's engineer. The engineer's estimated costs shall be supported by a verified engineering estimate and approved by the City Engineer.

2. Before Complete Design Approval and Established Engineered Cost Estimate: The City may request a permittee to submit a Performance Guarantee for construction of certain public improvements. A permitee may request the option of submitting a performance guarantee before public improvements are designed and completed. The guarantee shall be one hundred fifty percent of the estimated cost of constructing the public improvements as submitted by *the permittee's engineer and approved by the City Engineer. The engineer's estimated costs shall be supported by a verified engineering estimate and approved by the City Engineer.*

C. Release of Guarantee. The guarantee shall remain in effect until the improvement is actually constructed and accepted by the City. Once the City has inspected and accepted the improvement, the City shall release the guarantee to the permittee. If the improvement is not completed to the City's satisfaction within the time limits specified in the permit approval, the City Engineer may, at their discretion, draw upon the guarantee and use the proceeds to construct or complete construction of the improvement and for any related administrative and legal costs incurred by the City in completing the construction, including any costs incurred in attempting to have the permittee complete the improvement. Once constructed and approved by the City, any remaining funds shall be refunded to the permittee. The City shall not allow a permittee to defer construction of improvements by using a performance guarantee, unless the permittee agrees to construct those improvements upon written notification by the City, or at some other mutually agreed-to time. If the permittee fails to commence construction of the required improvements within six months of being instructed to do so, the City may, without further notice, undertake the construction of the improvements and draw upon the permittee's performance guarantee to pay those costs.

D. Fee-in-lieu. When conditions of approval or the City Engineer allows a permittee to provide a fee-in-lieu of actual construction of public improvements, the fee shall be one hundred fifty percent of the estimated cost of constructing the public improvements as submitted by the permittee's engineer and approved by the City Engineer. The percentage required is to ensure adequate funds for the future

work involved in design, bid, contracting, and construction management and contract closeout. The engineer's estimated costs shall be supported by a verified engineering estimate and approved by the City Engineer. The fee-in-lieu shall be submitted as cash, certified check, or other negotiable instrument acceptable by the City Attorney.

17.50.141 – Public improvements – Warranty

All public improvements not constructed by the City, shall be maintained and under warranty provided by the property owner or developer constructing the facilities until the City accepts the improvements at the end of the warranty period. The warranty is to be used at the discretion of the City Engineer or designee to correct deficiencies in materials or maintenance of constructed public infrastructure, or to address any failure of engineering design.

A. Duration of Warranty. Responsibility for maintenance of public improvements shall remain with the property owner or developer for a warranty period of two years.

B. Financial Guarantee. Approvable forms of guarantee include irrevocable standby letters of credit to the benefit of the City issued by a recognized lending institution, bond, certified checks, dedicated bank accounts or allocations of construction loans held in reserve by the lending institution for the benefit of the City. The form of guarantee shall be specified by the City Engineer and, prior to execution and acceptance by the City shall be reviewed and approved by the City Attorney. The guarantee shall be filed with the City Engineer.

C. Amount of Warranty. The amount of the warranty shall be equal to fifteen percent of the estimated cost of construction of all public improvements (including those improvements that will become owned and maintained by the City at the end of the two year maintenance period), and shall be supported by a verified engineering estimate and approved by the City Engineer. Upon expiration of the warranty period and acceptance by the City as described below, the City shall be responsible for maintenance of those improvements.

D. *Transfer of Maintenance. The City will perform an inspection of all public improvements approximately forty-five days before the two-year warranty period expires. The public improvements shall be found to be in a clean, functional condition by the City Engineer before acceptance of maintenance responsibility by the City. Transfer of maintenance of public improvements shall occur when the City accepts the improvements at the end of the two year warranty period.*

Applicant's Response: Public improvements are neither appropriate nor anticipated as a result of this land use proposal, which only concerns the construction of an electronic freestanding sign through a Sign Variance process. These criteria are not applicable.

Chapter 15.28 Signs

15.28.070 Signs for conditional uses in residential zones.

These standards apply to all conditional uses within a residential zoning district ("R-10" Single-Family Dwelling District, "R-8" Single-Family Dwelling District, "R-6" Single-Family Dwelling District, "R-5" Single-Family Dwelling District, "R-3.5" Dwelling District, and "R-2" Multi-Family Dwelling District) unless otherwise limited in the conditional use approval. Conditional uses are identified within each applicable zoning designation. Signs within the right-of-way shall comply with Section 15.28.100.

Applicant's Response: The subject site is currently being used as a school, which is a conditional use in the underlying zoning district ("R-6" Single-Family Dwelling District); therefore, OCMC 15.28.070 is applicable to this Sign Variance application.

A. General. All of the following standards apply to all signs for conditional uses in residential zones:

1. With the exception of banners, at least fifty percent of the wall sign shall be constructed of metal, wood, stone, brick, rock or any combination thereof.

Applicant's Response: This proposal concerns a freestanding sign, not a wall sign; therefore, this criterion is not applicable.

2. If a sign is illuminated, the source of illumination shall be external to the sign and directed or shielded so as to not shine directly onto any neighboring structures.

Applicant's Response: The proposed is illuminated in a manner that is not external to the sign as required by this subsection. For this reason, the Applicant is requesting a Sign Variance in accordance with the criteria delineated within OCMC 15.28.130. Please see OCMC 15.28.130 for an evaluation of the proposal against the applicable Sign Variance criteria.

3. With the exception of projecting and wall signs, signs shall not project over the right-of-way. Signs projecting into the right-of-way shall receive approval by the city engineer.

Applicant's Response: The sign for which this application concerns does not project into the right-of-way. The precise location of the sign can be found in the provided plans set submitted alongside this narrative as Appendix "D".

4. With the exception of wall signs, signs shall maintain a minimum clearance of ten feet above grade over pedestrian or vehicular areas, and fourteen feet above grade over areas of truck access.

Applicant's Response: The sign for which this application concerns is affixed directly to the ground in an area that does not constitute a pedestrian or vehicular area; therefore, this criterion is not applicable.

C. Freestanding Sign. All of the following standards apply to freestanding signs for conditional uses in residential zones:

Applicant's Response: The sign for which this application concerns is a freestanding sign for a conditional use in a residential zone; therefore, these criteria are applicable.

1. A maximum of one freestanding sign per lot is allowed.

Applicant's Response: The subject site does not contain any other freestanding signs. This criterion is met.

2. The display area shall not exceed sixty-four square feet and the sign face shall not exceed thirty-two square feet.

Applicant's Response: The "sign face" is defined in OCMC 15.28.200 as follows: "Sign face" means the total area as measured pursuant to Section 15.28.050. The total area of the sign face is 25.5 square feet. This measurement was taken in accordance with OCMC 15.28.050.A. This meets the sign face maximum requirement of 32 square feet.

The “display area” is defined in OCMC 15.28.020 as follows: "Display area" means the total size of all sign faces on a sign. The sign has only one side that meets the definition of a “sign face” as defined in OCMC 15.28.020 and described further in OCMC 15.28.050.A. Thus, the “display area” is the same as the “sign face” and is 25.5 square feet, meeting the display area maximum requirement of 64 square feet.

3. The sign width shall not exceed ten linear feet.

Applicant’s Response: Pursuant to OCMC 15.28.050.B, sign width is measured as the horizontal distance between the outermost area of sign face for wall signs and includes the supporting structure for all other sign types. The width of the sign is 10 feet. This standard is met.

4. The sign height shall not exceed fifteen feet.

Applicant’s Response: Pursuant to OCMC 15.28.050.C, the height of a sign above grade is measured from the average level of the grade below the sign to the topmost point of the sign, including any supporting structure. The height of the sign is 5 feet. This standard is met.

15.28.130 Variances.

All of the following standards apply to variances to this chapter:

A. Grounds for Variance. Upon application by an applicant, the planning commission may grant a specific variance from provisions of this chapter provided all of the following circumstances exist:

1. That the variance from the requirements is not likely to cause substantial damage to adjacent properties by reducing light, air, safe access or other desirable or necessary qualities otherwise protected by this title;

Applicant’s Response: Substantial damage to adjacent properties is not anticipated from this sign variance request. As shown on the provided plans (Exhibit B of Appendix “D”), the sign is intentionally proposed in a location that is mid-block on Williams Street, a local street. This reduces the possibility that the sign interferes in any way with a traffic control sign or device or prevents clear and unobstructed views of traffic control signs.

The sign is located at a 135-degree angle from the nearest property line to the south, in an effort to minimize the lighting impacts to the residential properties west of the site, particularly those across the street from Leonard Street, a local street. The sign is directed toward a blank wall of the First Evangelical Presbyterian Church building just southwest of the school site. This wall is on other side of Williams Street from where the sign is to be placed, approximately 180 feet from the sign. Note that the illumination from the sign is directional – light from the LEDs travels out and down. This reduces upward illumination (sky glow) and limits illumination onto unintended area.

2. That the request is the minimum variance that would alleviate the hardship;

Applicant’s Response: Precluding the school from installing an illuminated sign would result in practical difficulty for students, families of students, teachers, school administrators and the general public not having quick and easy access to important school and community-related information. As mentioned

elsewhere in this report, electronic message board signs are a versatile communication tool with the capability to rotate through messages and provide information in multiple languages. These signs can be easily and quickly changed by the school administration to provide updates about current and upcoming events. A non-electronic sign is limited in space to how many magnetic letters can fit on the static sign and the letters provided with the sign. Middle schools are active places with many events happening during the same week. A static sign creates issues for the school in determining which activity gets posted and which gets left out, resulting in inequities.

3. Granting the variance will equal or exceed the purpose of the regulation to be modified;

Applicant's Response: As mentioned elsewhere in this report, the standard being modified includes a description of its intent within the standard itself, namely "…*so as to not shine directly onto any neighboring structures."* As mentioned elsewhere, the internal illumination of the sign is directional, traveling out and downward to reduce illumination to unintended areas such as neighboring structures. The sign is located at a 135-degree angle from the nearest property line to the south, in an effort to minimize the lighting impacts to the residential properties west of the site. The sign is directed toward the First Evangelical Presbyterian Church building just southwest of the school site. This wall is on other side of Williams Street from where the sign is to be placed, approximately 180 feet from the sign – the wall prevents the sign from being visible from the interior space of the church. The sign automatically dims based on ambient light, and its operating brightness standard complies with industry lighting standards for measuring EMC brightness. Additionally, the sign placement and angle were chosen to avoid interference with traffic devices, controllers and signs, and to avoid light spillage onto neighboring residential properties. Lastly, the sign's illuminating capabilities will be shut off during night time hours, which are the hours in which the sign creates the most impact on neighboring structures.

4. Any impacts resulting from the adjustment are mitigated;

Applicant's Response: In addition to the measures described in OCMC 15.28.130.A.1. (Including the intentional location of the sign mid-block and the angling of the sign away from residential properties), the sign will also be turned off during night hours. Specifically, the hours of operation for the sign will be 7:00 AM to 9:00 PM. The nature of this request does not set a precedent in Oregon City – a sign variance was requested and approved for Oregon City High School. While this sign is located on Beavercreek Road and thus has less impact on neighboring residential properties, the sign is kept on during night hours. The application for which this narrative concerns proposes to turn off the sign during night hours, effectively eliminating impacts of the sign during a time of day where those effects are most exacerbated.

The illumination from the sign is directional – light from the LEDs travels out and down. This reduces upward illumination (sky glow) and limits illumination onto unintended area.

5. No practical alternatives have been identified which would accomplish the same purpose and not require a variance; and

Applicant's Response: There are no other practical alternatives for signs that accomplish the same degree of versatility as electronic message board signs. The standard allows for external illumination; however, electronic message board signs require internal illumination by design. Electronically illuminated signs can be easily and quickly changed by the school administration to provide updates about current and upcoming events. A non-electronic sign is limited in space to how many magnetic letters can fit on the static sign and the letters provided with the sign, and changing out these letters is labor intensive. Middle schools are active places with many events happening during the same week. A static sign creates issues for the school in determining which activity gets posted and which gets left out, resulting in inequities.

6. The variance conforms to the comprehensive plan and the intent of the ordinance being varied.

Applicant's Response: The ordinance being varied is a provision from OCMC 15.28.070.A.2. that states the following:

If a sign is illuminated, the source of illumination shall be external to the sign and directed or shielded so as to not shine directly onto any neighboring structures.

This standard includes a description of its intent within the standard itself, namely "…*so as to not shine directly onto any neighboring structures."* As mentioned elsewhere, the internal illumination of the sign is directional, traveling out and downward to reduce illumination to unintended areas such as neighboring structures. The sign automatically dims based on ambient light, and its operating brightness standard complies with industry lighting standards for measuring EMC brightness. Additionally, the sign placement and angle were chosen to avoid interference with traffic devices, controllers and signs, and to avoid light spillage onto neighboring residential properties. Lastly, the sign's illuminating capabilities will be shut off during nighttime hours, which are the hours in which the sign creates the most impact on neighboring structures.

The following Comprehensive Plan policies were extracted to demonstrate compliance with this subsection:

Goal 2.4 Neighborhood Livability, Policy 2.4.5
Ensure a process is developed to prevent barriers in the development of neighborhood schools, senior and childcare facilities, parks, and other uses that serve the needs of the immediate area and the residents of Oregon City.

Applicant's Response: An electronic message board sign is a versatile communication tool with the capability to rotate through messages and provide information in multiple languages. These signs can be easily and quickly changed by the school administration to provide updates about current and upcoming events. A non-electronic sign is limited in space to how many magnetic letters can fit on the static sign and the letters provided with the sign. Middle schools are active places with many events happening during the same week. A static sign creates issues for the school in determining which activity gets posted

and which gets left out, resulting in inequities. Providing an electronic message board sign in lieu of a static sign will therefore help to prevent barriers in the development of Gardiner Middle School, a neighborhood school.

Goal 6.3 Nightlighting, Policy 6.3.1
Minimize light pollution and reduce glare from reaching the sky and trespassing onto adjacent properties.

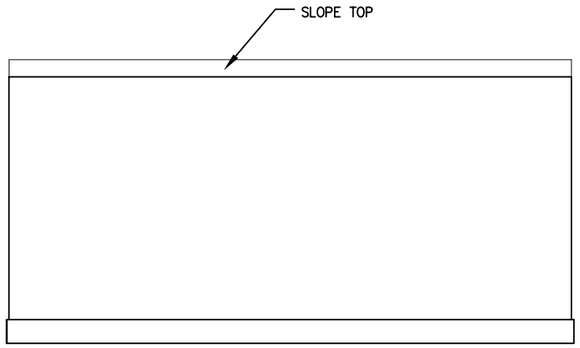
Applicant's Response: As mentioned elsewhere, the internal illumination of the sign is directional, traveling out and downward to reduce illumination to unintended areas such as neighboring structures. The sign automatically dims based on ambient light, and its operating brightness standard complies with industry lighting standards for measuring EMC brightness. Additionally, the sign placement and angle were chosen to avoid interference with traffic devices, controllers and signs, and to avoid light spillage onto neighboring residential properties. Lastly, the sign's illuminating capabilities will be shut off from 9:00 PM to 7:00 AM, which are the hours in which the sign creates the most impact on neighboring structures and the sky.

Prior Land Use Approval for Gardiner Middle School: GLUA-19-00025, CU 19-02, MAS-19-00003, MAS-19-00006

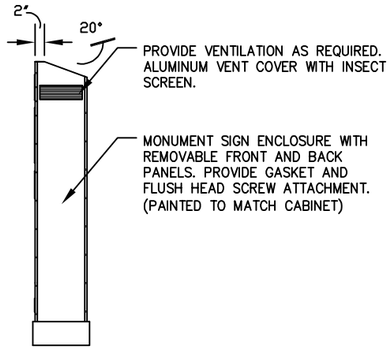
The following condition of approval from the construction of the new middle school building is applicable to this proposal:

Condition #13: The applicant shall ensure that any athletic field lighting is not greater than 80 feet tall, that no lighting on site adds more than 0.5 footcandles on any neighboring properties, and shall ensure that athletic lighting is not utilized past 9:30 PM.
Applicant's Response: As demonstrated in Exhibit C of Appendix "D", no lighting produced by the subject sign adds more than 0.5 footcandles on any neighboring properties. The application is in conformance with this condition of approval.

SUMMARY AND CONCLUSION
Based upon the materials submitted herein, the applicant respectfully requests recommendation of approval from the City's Planning Department of this application for a Type II Sign Variance Application.

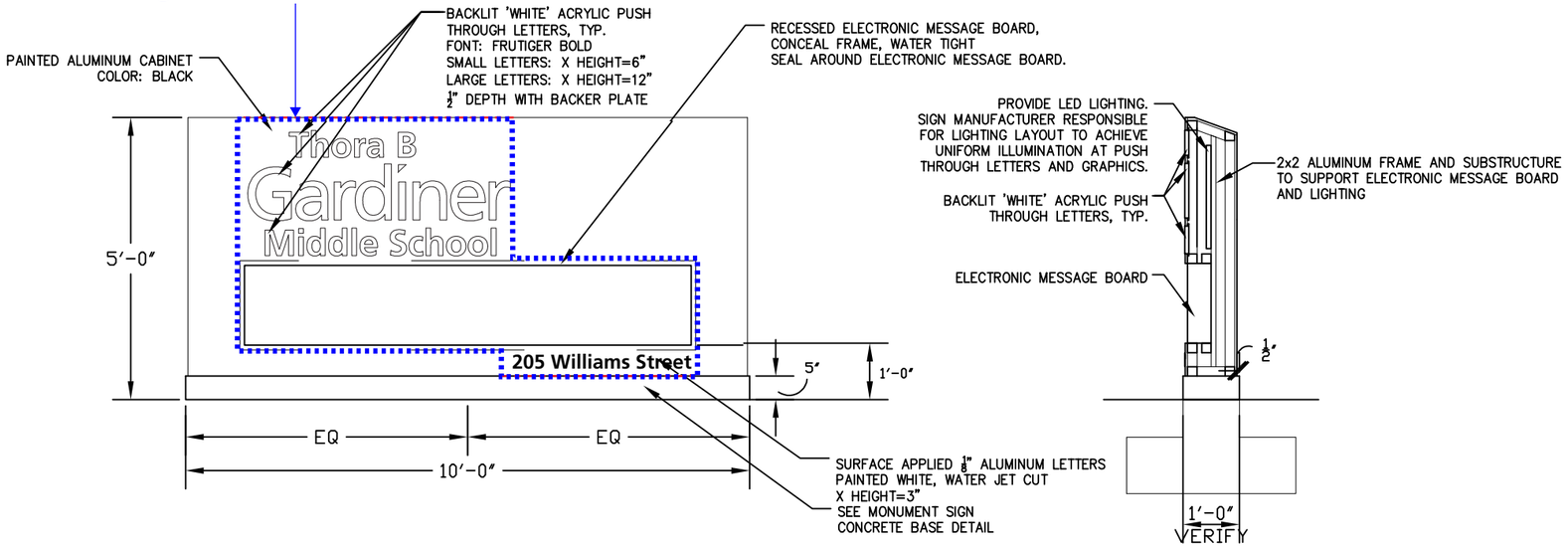


BACK



SIDE

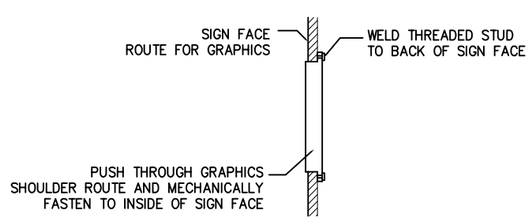
Sign Face = 25.5 sf



FRONT

SECTION

MONUMENT SIGN
SCALE: 3/8" = 1'-0"



SECTION AT PUSH THROUGH LETTERS

DETAIL AT BACKLIT LETTERS
SCALE: 1 1/2" = 1'-0"

GENERAL NOTES:
ELECTRONIC MESSAGE BOARD WITH LIGHT SENSORS FOR AUTOMATIC DIMMING, DIRECTIONAL LIGHT ILLUMINATION AND CONTROLS SET TO TIMERS WITH MANUAL OVERRIDES.
1'-7"H x 8'-1"W x 5"D

FREESTANDING SIGN: ALLOWED
64 SQFT SIGN
32 SQFT DISPLAY
10 FT MAXIMUM LENGTH

FONT: FRUTIGER BOLD
COORDINATE WITH GRAPHIC DESIGNER

SIGN MANUFACTURER TO PROVIDE:
PERMIT, ENGINEERING, SURVEY AND CODE RESEARCH.

NOTE: SIGN CONTRACTOR NOT RESPONSIBLE FOR CONCRETE SIGN BASE AND ELECTRICAL DATA CONDUIT.

LED LIGHTING:
GENERAL: MAKE CONNECTIONS AT POWER SUPPLY AND PERFORM ELECTRICAL WORK AT SIGN LIGHT FIXTURE. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF DIVISION 26. LEDs AND POWER SUPPLY SHALL BE ACCESSIBLE FOR MAINTENANCE. PROVIDE VENTILATION AS REQUIRED. LED FIXTURE CONTROLS SET TO TIMERS WITH MANUAL OVERRIDES.

A. WHITE ILLUMINATION (ACCEPTABLE PRODUCTS):

GE TETRA POWER MAX, WHITE, 5000K, TEMPERATURE TO BE VERIFIED WITH PRODUCT SAMPLES.

GE TETRA POWER STRIP (DS AS REQUIRED), WHITE, 5000K. TEMPERATURE TO BE VERIFIED WITH PRODUCT SAMPLES.
SLOANLED V-SERIES, WHITE, 5000K. TEMPERATURE TO BE VERIFIED WITH PRODUCT SAMPLES.

B. ACCEPTABLE LED MANUFACTURERS:
GE LIGHTING SOLUTIONS CORPORATE HEADQUARTERS
1975 NOBLE ROAD BUILDING 338E.
EAST CLEVELAND, OH 44112-6300 USA
T: 888-694-3533/ F: 216-266-2158
WWW.GELIGHTINGSOLUTIONS.COM

SLOANLED- CORPORATE OFFICE
5725 OLIVAS PARK DRIVE
VENTURA, CA 93003 USA
T: 888-747-4533/ F:805-676-3206
WWW.SLOANLED.COM
INFO@SLOANLED.COM

BILTRO
300 LODI ST.
HACKENSACK, NJ 07601 USA
TI 201-641-1004/ F: 201-641-0057
WWW.BILTROGROUP.COM

C. FURNISH AND INSTALL ALL LEDS FOR INITIAL INSTALLATION OF FIXTURES. ALL LEDS NOT IN WORKING ORDER AT COMPLETION OF INSTALLATION SHALL BE REPLACED WITH NO ADDED COST TO OWNER.

MONUMENT SIGN ENCLOSURE:
A: ⅛" THICK ALUMINUM PLATE, WELDED CONSTRUCTION
B: FINISH:

ALUMINUM: MATTHEWS ACRYLIC POLYURETHANE (MAP), ULTRA LOW VOC PRODUCT. PRIMERS, CATALYSTS AND REDUCERS ARE TO BE PER MANUFACTURER'S RECOMMENDATIONS. MATCH COLORS AND GLOSS AS INDICATED.

CLEARCOAT: PROVIDE PROTECTIVE CLEARCOAT OVER ALL PAINTED SURFACES. USE MATTHEWS ACRYLIC POLYURETHANE (MAP), SUPER SATIN CLEAR 290 228SP. MINIMUM COATING THICKNESS: DRY FILM THICKNESS AND APPLICATION PROCEDURES TO BE IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. APPLY EACH MATERIAL AT NOT THINNER THAN MANUFACTURER'S RECOMMENDED SPREADING RATE. PROVIDE A TOTAL DRY FILM THICKNESS OF ENTIRE COATING SYSTEM AS RECOMMENDED BY MANUFACTURER, UNLESS OTHERWISE INDICATED.

APPLY AN EVEN FILM, FREE OF SURFACE IMPERFECTIONS. COMPLETED WORK: MATCH APPROVED SAMPLES FOR COLOR, GLOSS, TEXTURE AND COVERAGE. REMOVE, REFINISH, OR RECOAT WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

BRIC ARCHITECTURE, INC.

Oregon City School District

Julie Jenson /graphic design

1209 N. Morgan Street
Portland, Oregon 97217

Gardiner Middle School

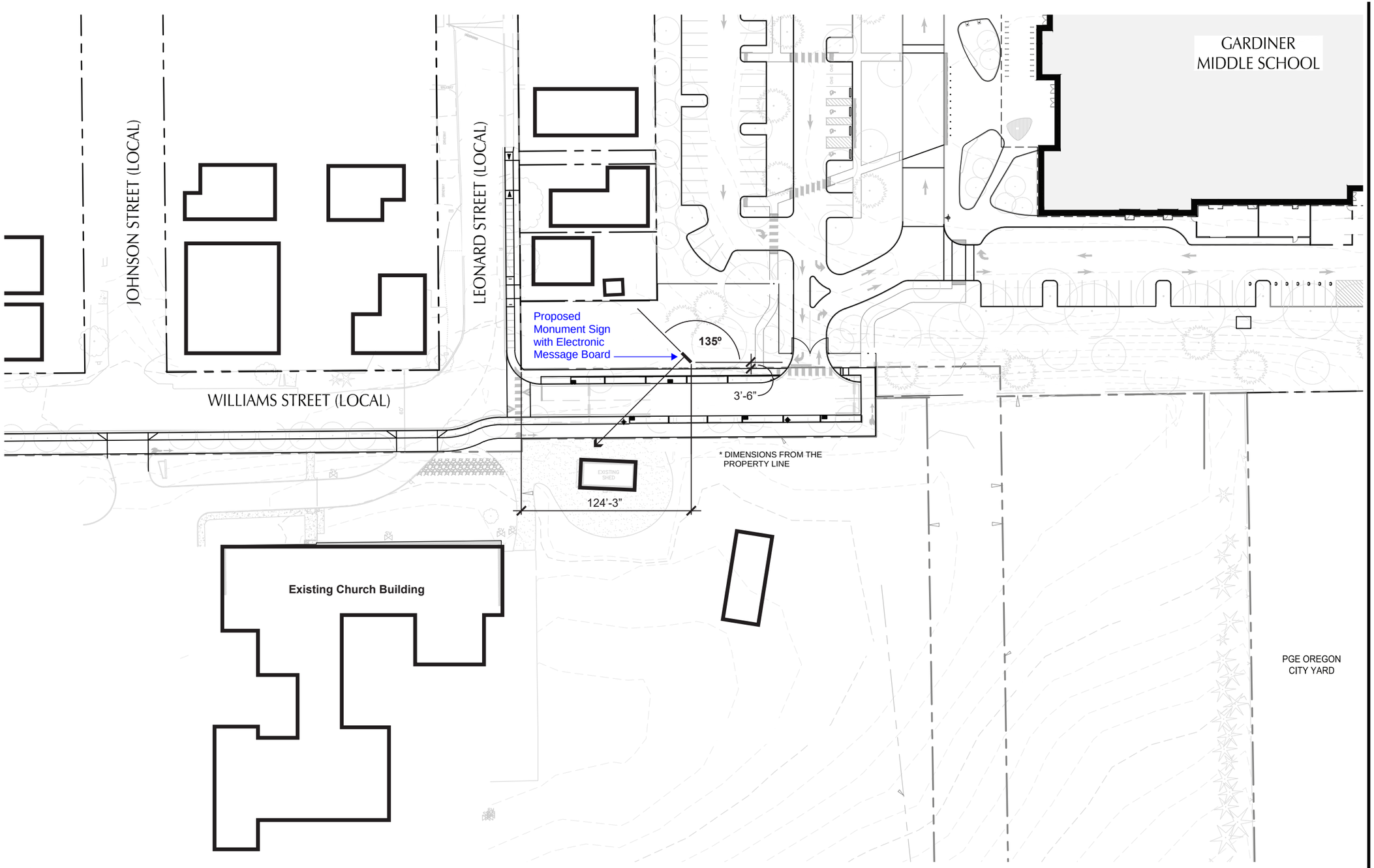
Thora B. Gardiner Middle School
205 Williams Street
Oregon City, OR 97045

Oregon City School District
1417 12th St.
Oregon City, OR 97045

date: October, 2021

MONUMENT SIGN

Exhibit A



SITE PLAN
SCALE: NOT TO SCALE

BR|IC
ARCHITECTURE, INC.

Julie Jenson /graphic design

1209 N. Morgan Street
Portland, Oregon 97217

Oregon City School District

Gardiner Middle School

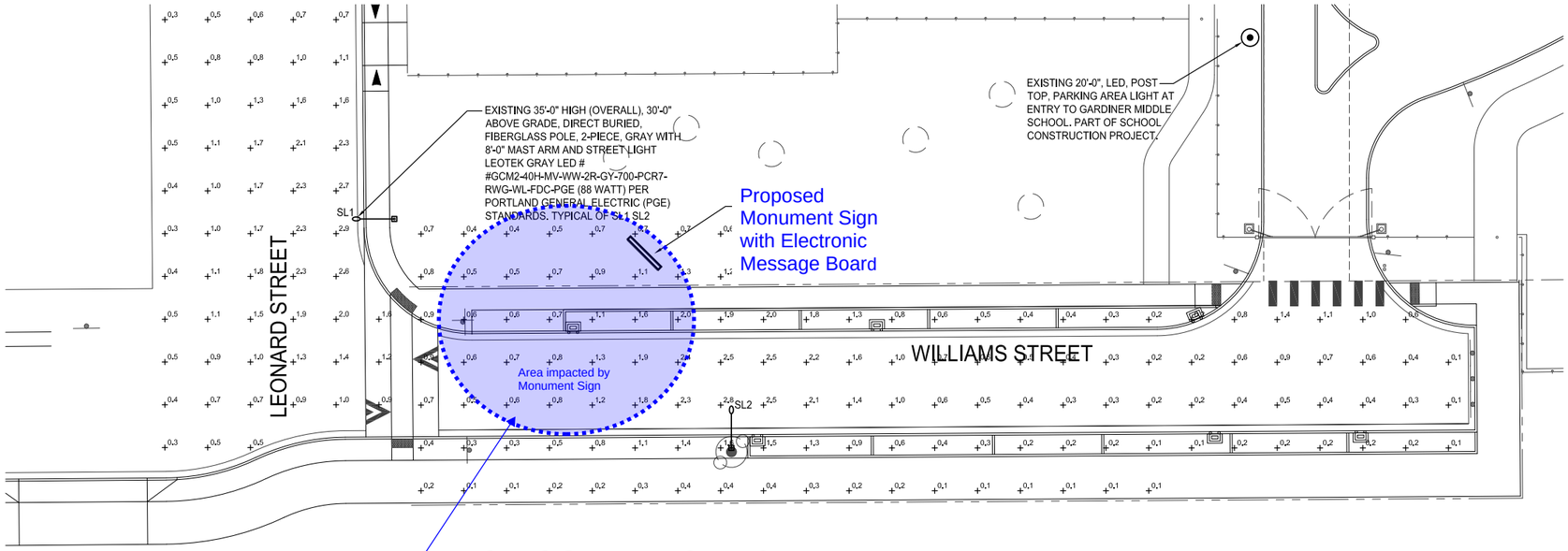
Thora B. Gardiner Middle School
205 Williams Street
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Oregon City School District
1417 12th St.
Oregon City, OR 97045

date: October, 2021

MONUMENT SIGN

Exhibit B



EXISTING STREET LIGHTING PHOTOMETRIC PLAN

SCALE: 1"=15'-0"

N

1"=15'-0"

GRAPHIC SCALE 15 0 15 30 scale feet

PHOTOMETRIC STREET LIGHTING SUMMARY:

WILLIAMS STREET DRIVE INTO NEW SCHOOL PARKING LOT:

AVERAGE = 0.7 FOOTCANDLES

MAXIMUM = 2.8 FOOTCANDLES

MINIMUM = 0.1 FOOTCANDLES

AVERAGE/MIN. = 7.0:1

WILLIAMS STREET/ LEONARD STREET INTERSECTION:

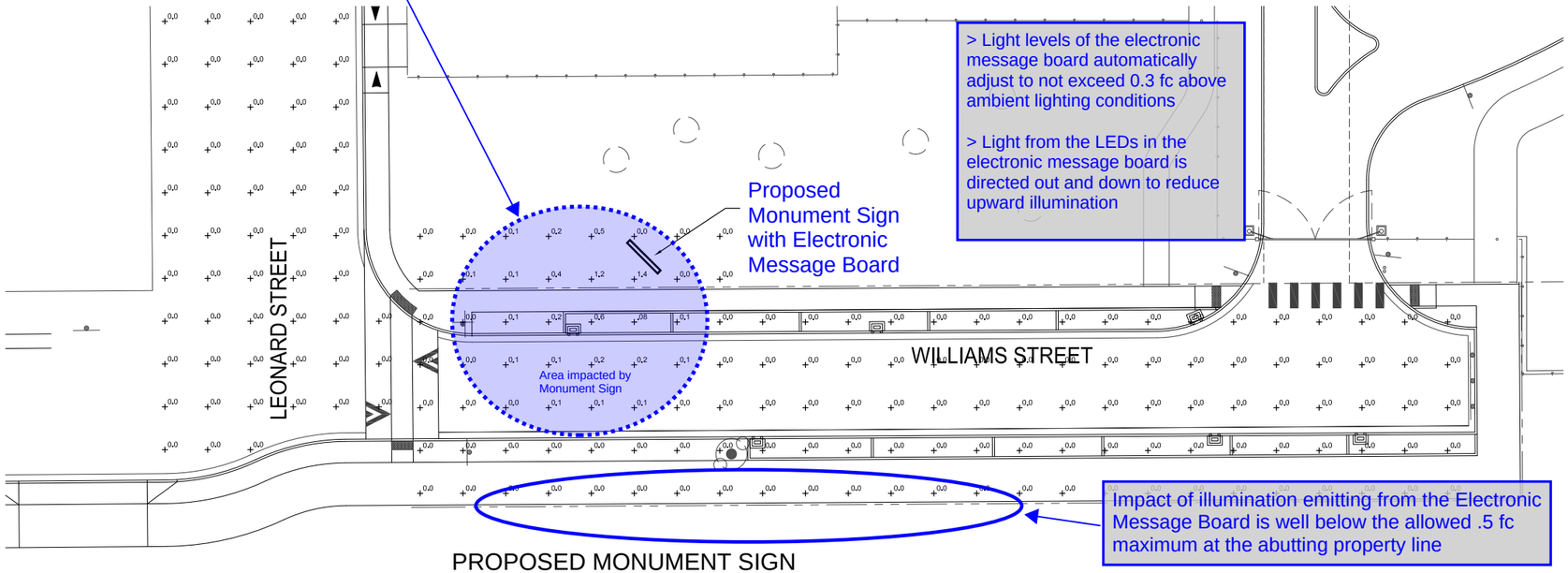
AVERAGE = 1.2 FOOTCANDLES

MAXIMUM = 2.9 FOOTCANDLES

MINIMUM = 0.3 FOOTCANDLES

AVERAGE/MIN. = 4.0:1

The relative impact of the electronic message board will be minimal



PROPOSED MONUMENT SIGN PHOTOMETRIC PLAN

SCALE: 1"=15'-0"

N

1"=15'-0"

GRAPHIC SCALE 15 0 15 30 scale feet

PHOTOMETRIC READERBOARD LIGHTING SUMMARY:

WILLIAMS STREET DRIVE INTO NEW SCHOOL PARKING LOT:

AVERAGE = 0.0 FOOTCANDLES

MAXIMUM = 1.4 FOOTCANDLES

MINIMUM = 0.0 FOOTCANDLES

AVERAGE/MIN. = NA

WILLIAMS STREET/ LEONARD STREET INTERSECTION:

AVERAGE = 0.0 FOOTCANDLES

MAXIMUM = 0.0 FOOTCANDLES

MINIMUM = 0.0 FOOTCANDLES

AVERAGE/MIN. = NA

IF SHEET IS LESS THAN 22" x 34" IT IS A REDUCED SET

BRIC ARCHITECTURE, INC.

Oregon City School District

Julie Jenson /graphic design

1209 N. Morgan Street
Portland, Oregon 97217

Gardiner Middle School

Thora B. Gardiner Middle School
205 Williams Street
Oregon City, OR 97045

Oregon City School District
1417 12th St.
Oregon City, OR 97045

date: October, 2021

MONUMENT SIGN

Exhibit C

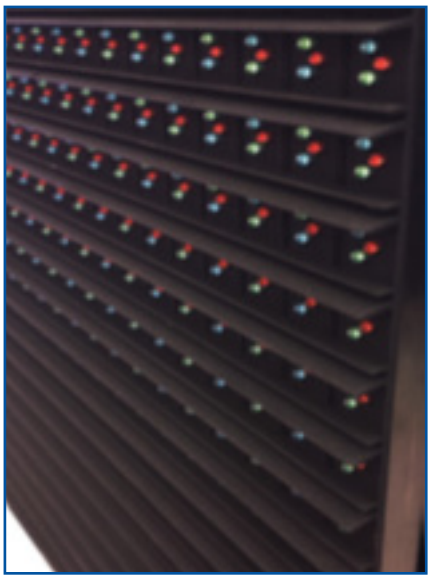
LIGHT SENSOR

The Daktronics light sensor (photocell) is the critical component that automatically dims or brightens an electronic message center (EMC) in direct correlation with ambient light conditions. The sensor adjusts the power sent to the LEDs to maintain appropriate brightness at all times.



BRIGHTNESS STANDARD

The Daktronics Galaxy® series is engineered to comply with the industry lighting standard for measuring EMC brightness. The standard suggests EMCs not exceed 0.3 footcandles above ambient lighting conditions when measured at the appropriate distance, depending on sign size. The International Sign Association (ISA) also recommends this standard.



DIRECTIONAL LIGHT ILLUMINATION

Daktronics EMCs produce directional illumination. The light from the LEDs travels out and down. This reduces upward illumination (sky glow) and limits illumination onto unintended areas.

For more information on Daktronics digital billboard brightness, please contact:
signagelegislation@daktronics.com

201 Daktronics Drive PO Box 5128 Brookings, South Dakota 57006-5128
1-800-DAKTRONICS 800-325-8766 605-692-0200 fax 605-697-4700
www.daktronics.com email sales@daktronics.com
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DAKTRO®

Rivercrest Neighborhood Association

October 21, 2021 Minutes

And Meeting History 2019-2021

Preface: The last in-person meeting of the Rivercrest Neighborhood Association (RNA) was held on November 21, 2019. The next regularly scheduled meeting was set for March 19, 2020. Prior to that meeting, in-person meetings were banned indoors in Oregon due to the outbreak of Covid-19. The March meeting was canceled, and no further meetings were held until October 2021.

As one of the oldest neighborhoods in the city, our steering committee consists of residents who have lived here 40-50 or more years who have stayed involved in the RNA. To protect their health and adjust to changing requirements for social distancing and masking, no further meetings had been scheduled as our most active members were not comfortable trying online meetings.

In order to address a request from the Oregon City School District and a presentation from Oregon City Public Works, our first Zoom meeting was held on October 21, 2021. Being unfamiliar with hosting a Zoom meeting, the Acting Secretary did not successfully set the meeting to record. The minutes from this meeting are from notes taken during the meeting and the memory of the Acting Secretary.

Minutes, October 21, 2021

Zoom meeting convened at 7:00 p.m.

Members admitted, but not all recorded by name, 14. Chair Ed Lindquist; Vice-Chair and Acting Secretary, Karin Morey. Neighborhood members OC Commissioner Adam Marl; Jeff & Jill Jones; Pam ?; Wesley Harper; Danielle Agrifolia and more.

Guests: Oregon City School District #62:

Wes Rogers, Director of Capital Projects

3J Consulting: Mercedes Serra, Senior Planner; Carlos Calava.

Oregon City Public Works:

Bob Balgos, Project Engineer

Presentations:

Oregon City School District #62: Lighted monument sign outside newly built Thora B. Gardiner Middle School. Staff and consultants presented a slide show providing location and design of new sign. Jeff Jones moved, and Karin Morey seconded, approval of the design as presented. Passed unanimously.

Oregon City Public Works: Staff presented information Sanitary Sewer I/I Rehabilitation Project in the RNA. It included new methods of replacing sewer lines and need for infrastructure replacement in Oregon City. Rivercrest developed post-WWII and has multiple needs to replace and repair aging pipes. Informational only. Several questions from attendees were answered. For more information see: https://www.orcity.org/publicworks/infiltration-inflow-ii-program-overview.

John Lewis was asked to explain the November 2nd ballot measures regarding water service. As a city official he was only able to present factual information from the measures but members appreciated the clarification.

Several participants left the meeting following the presentations. Remaining members did not have any specific questions about RNA business. Jeff Jones was asked for an update on speeding to and from Upper Waterboard Park and issues from 2019 when there were large groups congregating at the Overlook He reported that under all of the Covid restrictions and changes in large gatherings this is no longer a problem at this time.

By a consensus of remaining members, RNA will meet again on January 20, 2022 at 7:00 p.m. via Zoom. We hope that by then we may have an idea of when in-person meetings can resume and a meeting location be secured for our usual March, June, and September meetings and discuss a meeting schedule for 2022 with appropriate by-law revisions. Once we can begin meeting again we will also need to address membership in the Steering Committee and election of officers.

From: Karin Morey
To: Rogers, Wes
Cc: Mercedes Serra; Ed Lindquist
Subject: Re: Rivercrest NA Meeting Request
Date: Friday, October 1, 2021 3:27:54 PM

Wes- in order to get a postcard printed and delivered, I set the meeting for Thursday, October 21 at 7:00 p.m.

We also had a request from Public Works so I willl set up a ZOOM account for Rivercrest and practice allowing screen sharing, etc, I'll send you a link when I get the account set up. Actually something I should have done long ago :-)

Karin

On Wed, Sep 29, 2021 at 10:52 AM Rogers, Wes <wes.rogers@orecity.k12.or.us> wrote:

> Ed/Karin - Oregon City School District will be seeking a sign variance for the internally illuminated sign for the new Gardiner Middle School. Part of the variance application requires a meeting with the neighborhood association. We would like to have the meeting before the next regular meeting of Rivercrest NA. We can schedule a zoom meeting at the convenience of the neighborhood association. Look forward to your reply. Hope you're doing well.
> ..wes
>
> --
> Wes Rogers, Director of Capital Projects
> 503-785-8531 desk
> 503 732-6528 cell
> wes.rogers@orecity.k12.or.us
> Oregon City School District
> PO Box 2110
> Oregon City, OR 97045



CITY OF OREGON CITY

Staff Report

625 Center Street
Oregon City, OR 97045
503-657-0891

To: Planning Commission **Agenda Date:** 12/13/2021

From: Planner Kelly Reid

SUBJECT:

GLUA-21-00029: Serres Farm Planned Unit Development: MAS-21-00003 – Master Plan/Planned Unit Development, MAS-21-00004 – Detailed Development Plan – Phase I, MAS-21-00005 - Detailed Development Plan – Phase II, SUB-21-00001 – Subdivision – 123 lots, GEO-21-00010 Geologic Hazard Review & NROD-21-00006 – Natural Resources Overlay District

STAFF RECOMMENDATION:

Approval of GLUA-21-00029 (MAS-21-00003, MAS-21-00004, MAS-21-00005, SUB-21-00001, GEO-21-00010, NROD-21-00006) with conditions.

EXECUTIVE SUMMARY:

The application is for a 123-lot residential Planned Unit Development subdivision built in two phases, with common open space and adjustments to density and dimensional standards. The property is zoned R-10 Low-Density Residential, and the site is approximately 35 acres.

An updated issues matrix that includes the issues brought up at previous hearings is included in the agenda packet, as well as a revised staff report and recommendation. Staff also added a memorandum addressing emergency evacuation traffic concerns.

BACKGROUND:

This application proposes a 123-lot single-family residential Planned Unit Development subdivision. The project will be built in two phases, as shown on the site plan submitted with this application. The applicant proposes to make use of the Master Plan/Planned Unit Development provisions of Chapter 17.65 in order to allow for a phased approval and to allow for commonly owned open space and adjustments to dimensional standards. It is anticipated that the first phase of the project, containing 63 lots, will be developed in the summer of 2022. The second phase, containing the remaining 60 lots, will be developed the following summer.

This application requests the following land use approvals: Type II Subdivision, Type III Master Plan/Planned Unit Development, Type III Detailed Development Plans for both phases of the project, and a Type II Geologic Hazard review for a small area of steep slopes on the site. A Natural Resources (NROD) Verification/Review is also included for the off-site wetlands and associated buffer area at the northwest corner of the property. The applicant obtained approval from the Historic Review Board in June of 2021 for the alignment of the Barlow Trail corridor.

The development proposal includes the following:

- 123 lots, with 18 being proposed as corner duplex lots and 105 for single dwellings.
- Local street connections to Kaylyn Drive, future Godon Way, and street stubs leading into the properties outside the Urban Growth Boundary
- A left turn lane providing access into the development on Holcomb Blvd.
- A mid-block pedestrian/bicycle crossing of Holcomb Boulevard near the western edge of the site.
- A shared use path from Holcomb Boulevard to the north boundary of the site
- An open space adjacent to the trail corridor located between residential lots
- A Barlow Trail visual corridor that doubles as a pedestrian and bicycle accessway
- Three adjustments to standards: A 10% density adjustment, a 20% adjustment to the R-10 minimum lot size standard, reducing the minimum lot size from 10,000 sq. ft. to 8,000 sq. ft, and an adjustment to reduce the interior side yard setback from 8 feet to 7 feet

The staff recommendation for approval includes conditions for improvements to Holcomb Boulevard frontage, payments to the City for proportional contributions to transportation improvements at offsite intersections that will serve traffic from the development, mitigation for the requested adjustment to density, and other standard and typical conditions for residential subdivisions.

A full staff report and recommendation is included in the agenda packet.
An issues matrix that includes the issues brought up at previous hearings is included in the agenda packet, as well as a revised staff report and recommendation. Staff also added a memorandum addressing emergency evacuation traffic concerns.

OPTIONS:

1. Approve GLUA 21-00029 with the recommended conditions
2. Approve GLUA 21-00029 with revised conditions and findings
3. Deny GLUA 21-00029 with revised findings
4. Continue GLUA 21-00029 to a date certain and provide direction on needed information at the next hearing

OREGON CITY
Community Development – Planning
695 Warner Parrott Road | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

TYPE III STAFF REPORT AND RECOMMENDATION - REVISED
December 6, 2021

FILE NUMBER: GLUA-21-00029: Serres Farm Planned Unit Development: MAS-21-00003 – Master Plan/Planned Unit Development, MAS-21-00004 – Detailed Development Plan – Phase I, MAS-21-00005 - Detailed Development Plan – Phase II, SUB-21-00001 – Subdivision – 123 lots, GEO-21-00010 Geologic Hazard Review & NROD-21-00006 – Natural Resources Overlay District

Submitted: 5/23/21
Complete: 8/9/21
120 Day Deadline: 2/26/22
NOD:

HEARING DATE: Planning Commission
December 13, 2021 7:00 PM
1234 Linn Avenue, Oregon City, OR 97045

APPLICANT: Icon Construction & Development
c/o Mark Handris
1969 Willamette Falls Drive, Suite 260
West Linn, Oregon 97068

OWNER: Serres Family H, LLC
c/o Daniel Serres
14620 S Forsythe Road
Oregon City, Oregon 97045

REQUEST: 123-lot/141-unit residential Planned Unit Development subdivision built in two phases, with commonly owned open space and adjustments to density and dimensional standards.

LOCATION: N. Side of Holcomb Blvd, between Holcomb Elementary School and S. Winston Dr.
No Situs Address
Clackamas County Map 2-2E-28A, TL 500, 2200, & 2300
2-2E21D, TL 2100, 2200, 2300

REVIEWER: Kelly Reid, AICP, Planner
Sang Pau, Project Engineer

RECOMMENDATION: Approval with Conditions.

PROCESS: Type III decisions involve the greatest amount of discretion and evaluation of subjective approval standards, yet are not required to be heard by the city commission, except upon appeal. Applications evaluated through this process include conditional use permits. The process for these land use decisions is controlled by ORS 197.763. Notice of the application and the planning commission hearing is published and mailed to the applicant, recognized neighborhood association and property

owners within three hundred feet of the subject property. Notice must be issued at least twenty days pre-hearing, and the staff report must be available at least seven days pre-hearing. At the evidentiary hearing held before the planning commission, all issues are addressed. The decision is final unless appealed and description of the requirements for perfecting an appeal. The decision of the planning commission is appealable to the city commission within fourteen days of the issuance of the final decision. The city commission hearing on appeal is on the record and no new evidence shall be allowed. Only those persons or a city-recognized neighborhood association who have participated either orally or in writing have standing to appeal the decision of the planning commission. Grounds for appeal are limited to those issues raised either orally or in writing before the close of the public record. A city-recognized neighborhood association requesting an appeal fee waiver pursuant to OCMC 17.50.290.C must officially approve the request through a vote of its general membership or board at a duly announced meeting prior to the filing of an appeal. The city commission decision on appeal from the planning commission is the city's final decision and is appealable to the Land Use Board of Appeals (LUBA) within twenty-one days of when it becomes final.

Recommended Conditions of Approval
Planning File GLUA-20-00029

(P) = Verify that condition of approval has been met with the Planning Division.
(DS) = Verify that condition of approval has been met with the Development Services Division.
(B) = Verify that condition of approval has been met with the Building Division.
(F) = Verify that condition of approval has been met with Clackamas Fire Department.

<u>The applicant shall include the following information with submittal of a public improvement and/or grading permit associated with the proposed application. The information shall be approved prior to issuance.</u>

1. The development plans shall comply with all current Oregon City Public Works design standards, specifications, codes, and policies prior to receiving a permit and beginning construction. (DS)
2. The developer shall submit or address all items in section 16.12.014 of the Oregon City Municipal Code based on the timing requirements contained therein and as deemed applicable by the City. (DS)
3. The eastward extension of Godon Way shall have 28-foot-wide pavement, 0.5-foot-wide curb, 5-foot-wide sidewalk and 0.5-foot-wide buffer (totaling a 40-foot-wide right-of-way). (DS)
4. The development shall provide the following on the north-side of the centerline of the Holcomb Blvd right-of-way:
   (1) 12-foot travel lane, (1) 6-foot bike lane, a 0.5-foot-wide curb, an 8-foot-wide planter strip, 7-foot-wide sidewalk, 0.5-foot-wide buffer and additional pavement needed for a 12-foot-wide left turn lane for east-bound automobiles turning north into the new subdivision street. Right of way dedication and restriping of pavement shall be provided as needed to accommodate these improvements.
   The final street section shall result in the following: North of the existing south curb of Holcomb Blvd, (2) 12-foot travel lanes, (2) 6-foot bike lanes, a 0.5-foot-wide curb, an 8-foot-wide planter strip, 7-foot-wide sidewalk, 0.5-foot-wide buffer and a 12-foot-wide turn lane for east-bound automobiles turning north into the new subdivision street. (DS)
5. The Kaylyn Drive extension to the east of the site shall be constructed through the Clackamas County right-of-way (if not already existing up to the applicant's property) to connect and match with the existing section of Kaylyn Drive constructed within the Barlow Crest Phase 1 subdivision.

The applicant shall obtain permits required by Clackamas County for such work, if such work is required. (DS)

6. The west end of Jennetten Way shall be designed to support a westward extension which aligns with Ames Street and supports a future "T" intersection to a future northward street extension. (DS)
7. The ends of stub streets which are planned for future extension shall have ends which are perpendicular to the direction of travel (90 degree ends of pavement and sidewalk) and the developer shall pay a fee-in-lieu for the portion of street which is not constructed. The fee-in-lieu shall be used for a future extension of the stub street. The fee-in-lieu shall be based on a cost estimate provided by the developer's engineer approved by the City Engineer. (DS)
8. All sidewalks onsite and offsite shall be constructed with the public improvements prior to platting, excepting all lot frontages of building lots. Sidewalks along each frontage shall be installed prior to a final certificate of occupancy is issued for the home on that frontage. (DS)
9. The development shall provide street lighting plans with photometric information for Holcomb Boulevard and all new proposed streets which conforms with all City standards, specifications, codes, and policies and is approved by Portland General Electric (PGE) prior to receiving a permit and beginning construction. (DS)
10. All intersections shall have a curb ramp for each direction of travel which complies with Americans with Disabilities Act (ADA). Approved curb ramp design(s) will need to be included on engineering plans following proper engineering technical standards prior to receiving a permit and beginning construction. (DS)
11. The multi-use path crossing of Godon Way is considered an intersection and shall follow the ADA requirements of intersections. (DS)
12. To fulfill TSP project C5, the development shall provide a signalized pedestrian crosswalk on Holcomb Boulevard equipped with a Rapid Flashing Beacon for the mid-block crosswalk where the proposed Holcomb Boulevard-Forsythe Road Shared-Use Path (TSP project S11) meets Holcomb Boulevard. The pedestrian crosswalk shall have a curb ramp on both sides of Holcomb Boulevard which complies with Americans with Disabilities Act (ADA). Approved curb ramp design(s) will need to be included on engineering plans following proper engineering technical standards prior to receiving a permit and beginning construction. (DS)
13. All pedestrian crosswalks shall have a large vegetated or sidewalk area which extends into the street pavement as far as practicable to create a shorter crosswalk distance. (DS)
14. Accessway lighting shall be to a minimum level of one-half-foot-candles, a one and one-half foot-candle average, and a maximum to minimum ratio of seven-to-one and shall be oriented not to shine upon adjacent properties. Street lighting shall be provided at both entrances. (DS)
15. The planter strips on either side of the accessway shall be landscaped by installation of the following:
    1. Either an evergreen hedge screen of thirty to forty-two inches high or shrubs spaced no more than four feet apart on average; and
    2. Ground cover covering one hundred percent of the exposed ground. No bark mulch shall be allowed except under the canopy of shrubs and within two feet of the base of trees; and
    3. A two-inch minimum caliper tree for every thirty-five-feet along the accessway. Trees may be planted on either side of the accessway, provided they are spaced no more than thirty-five feet apart; and
    4. In satisfying the requirements of this section, evergreen plant materials that grow over forty-two inches in height shall be avoided. All plant materials shall be selected from the Oregon City Native Plant List. (DS)
16. The pedestrian accessways intended to supplement streets which exceed maximum block length standards (E.G. the Barlow Trail corridor pedestrian accessway) shall have slopes of no greater than ten percent. Flat landings shall be provided every 2.5 feet of elevation change.

17. The applicant shall design the streets intersecting the Barlow Trail accessway to have vegetated curb extensions where the trail intersects the street. The curb extensions will take the place of on-street parking in those locations. (DS)
18. The applicant shall make the following changes (based on the plans submitted on September 15th, 2021) to meet the block length standards in the three locations where block length is exceeded as follows:
    1. Provide an east-west street extending from Kaylyn Dr. to the property boundary, stubbing into the UGB. This street will be in the approximate location of the eyebrow curve currently shown in the plans.
    2. Provide a pedestrian accessway in accordance with 16.12.032 from Jennetten Way north towards the UGB boundary centrally located on the block. Alternatively, the street configuration could be adjusted to provide a block length of 530 feet or less.
    3. Provide a pedestrian accessway in accordance with 16.12.032 from Laurel Hill Way west toward the shared use path, in the vicinity of Lot 19.
19. All driveways shall meet the minimum driveway spacing standards identified in Table 16.12.035.A. (DS)
20. All driveways (curb cuts), new and existing, shall meet the minimum driveway width standards identified in Table 16.12.035.D. (DS)
21. The applicant shall design a sanitary sewer system according to the Oregon City Sanitary Sewer Design Standards and according to design calculations to prove proper sizing of the system. The applicant shall obtain all required permits and approvals from all affected jurisdictions (Clackamas County or the Oregon City School District) prior to final plan approval. A public utility easement shall be provided to the City from all necessary landowners to provide the right for the City to maintain this sewer in the future. (DS)
22. The applicant shall provide written confirmation from Clackamas River Water (CRW) that there is adequate volume and pressure to serve the portions of the development which are not able to be served by Oregon City. The applicant shall design and install a water system to serve all lots or parcels within a development in accordance with the Oregon City water system design standards, and shall connect those lots or parcels to the City's water system using a looped system which connects to Holcomb Boulevard. If any of the development cannot be served by the City due to elevation, those properties may be served by CRW upon approval of the City. (DS)
23. The development shall provide new fire hydrant(s) in, and around, the property as required by Clackamas Fire District Number 1 and extend water main(s) (public and/or private) as necessary to supply required fire hydrants. (DS)
24. The engineering plans shall provide a local benchmark, onsite, using the NAVD88 datum prior to receiving a permit and beginning construction. (DS)
25. The applicant shall provide finalized engineered drainage plan(s), drainage report(s), and design flow calculation report(s) stamped and signed by a licensed engineer addressing all items from the Section 9.3 & 9.4 of the Public Works Stormwater and Grading Design Standards. The final stormwater system design and report shall address and satisfy all criteria identified in section 5.2.4 of the Oregon City Stormwater and Grading Design Standards. The finalized report shall assume the maximum lot coverage when accounting for new impervious surfaces added on each new lot. The applicant shall also obtain all required permits and approvals from all affected jurisdictions (Clackamas County or the Oregon City School District) prior to final plan approval. (DS)
26. A public utility easement shall be provided to the City for public storm sewer proposed on property not owned by the developer from the applicable landowner(s) which gives the right for the City to maintain and access such storm sewer infrastructure. (DS)

27. The developer shall provide a Residential Lot Grading Plan adhering to the State of Oregon Structural Specialty Code, Chapter 18 and the Oregon City Public Works Stormwater and Grading Design Standards. (DS)
28. A city issued erosion and sediment control permit shall be obtained prior to commencement of any earth disturbing activities. (DS)
29. Additional Erosion and sediment control permit(s) shall be obtained from applicable governing jurisdictions, where necessary, prior to commencement of any earth disturbing activities. (DS)
30. Erosion and sediment control plans shall be submitted for review and approval by the City prior to issuance of an erosion and sediment control permit. (DS)
31. The developer shall obtain a 1200-C (NPDES) permit from Oregon Department of Environmental Quality (DEQ) for construction activities one acre or greater prior to receiving a permit and beginning construction. (DS)
32. Performance Guarantee which is equal to 120% of the estimated cost for construction of public improvements as shown in city approved construction plans shall be provided prior to receiving a permit and beginning construction. The estimated costs shall be supported by a verified engineering estimate and approved by the city engineer. The guarantee shall be in a form identified in Code 17.50.140.A of the Oregon City Municipal Code. The guarantee shall remain in effect until the construction of all required improvements are completed and accepted by the city. (DS)
33. All facilities and improvements shall be designed to City standards as set out in the City's facility master plan, public works design standards, or other City ordinances or regulations. (DS)
34. Public services for transportation water supply, police, fire, sanitary waste disposal and storm-water disposal shall be made capable by the time each phase of the development is completed. (DS)
35. Street trees shall be included on the construction plan utility drawings. At the applicant's expense, a certified arborist shall review and sign the construction plan drawing. At the time of planting, the applicant shall document the root barrier installation and planting details through photographs and shall submit the documentation to the City. A certified arborist's letter or report certifying that the correct trees were placed in the correct location and in the correct manner shall be required prior to the release or reduction of the performance guarantee. (DS)
36. Final street tree species shall be based on the planting location in accordance with the city's street tree list or another approved jurisdiction's list. Any larger planter strips shall use a species that is suited for larger planting areas, in accordance with the City's street tree list. (P)
37. Street trees on the Godon Way frontage may be placed behind the sidewalk in accordance with 12.08.035.C. (P)
38. Street tree spacing shall be evenly distributed throughout the total development in accordance with OCMC 12.08, or the City may fee-in-lieu of planting pursuant to OCMC 12.08 if site or other constraints prevent meeting the required total number of tree plantings. The final street tree plan shall include 95% of all required street trees planted either in a planter strip or in the front yard, with only 5% utilizing the fee-in-lieu option. (P)
39. The applicant shall submit a final tree mitigation plan in accordance with OCMC 17.41 prior to final plat, ensuring that all trees with trunks outside of the construction area are counted as such, and updating the table to reflect all the trees proposed to be removed with the exception of the 8 trees that are dead, dying, diseased, or hazardous. (P)
40. The applicant shall submit a final tree mitigation plan in accordance OCMC 17.41 prior to final plat, including the proposed species, size, and ensuring that the multiple Oregon white oak *(Quercus garryana)* trees proposed for removal are mitigated with the same species. (P)
41. The applicant shall provide a shadow plat demonstrating how street patterns within the proposed land division will extend into adjacent properties in compliance with block length standards in 16.12.030 and how adjacent properties can be developed. The site plan may include up to one flag lot to allow for compliance with block length standards. (P, DS)

42. Prior to issuance of development permits the applicant shall submit documentation demonstrating compliance with the tree protection standards in OCMC 17.41.130. The community development director may impose conditions to avoid disturbance to tree roots from grading activities and to protect trees and other significant vegetation identified for retention from harm. Such conditions may include, if necessary, the advisory expertise of a qualified consulting arborist or horticulturist both during and after site preparation, and a special maintenance/management program to provide protection to the resource as recommended by the arborist or horticulturist. (P)
43. The applicant shall ensure that all impervious street, driveways, and parking areas are located at least ten feet away from the approved Natural Resource Overlay District boundary. (P)
44. Staff recommends the following options to mitigate for the requested adjustment to density:
    A. Provide two additional amenities from the following list in the open space between Lots 11 and 12:
        a. At least eight large native tree species including Oregon White Oak, Douglas Fir, or Western Red Cedar, planted with a minimum of 1.5" caliper
        b. Pedestrian-scaled lighting along the shared use path
        c. Paved courtyard or plaza
        d. Gazebos or other decorative shelters
        e. Play structures for children
        f. Sports courts
    B. Plant one large native tree species from the city's heritage tree list in the backyard of each lot that does not already have a required mitigation tree. (P)
45. Costs associated with geologic hazard review of the land use application by the City's geotechnical engineer shall be paid by the applicant. (DS)
46. The applicant shall submit to Clackamas Fire District a Fire Access and Water Supply plan showing fire apparatus access, fire lanes, fire hydrants, fire lines, available fire flow, FDC location (if applicable), building square footage, type of construction, and fire flow tests no older than 12 months per NFPA 291 or hydraulic model when applicable. The final access plan may utilize fire sprinklers for Phase 1 homes, an alternative emergency access connecting to Kaylyn Drive, or the shared use path as the temporary access for Phase 1 as alternatives to the proposed temporary emergency access location. (F)
47. Prior to the start of combustible construction required fire hydrants shall be operational and accessible. (F)
48. Prior to the start of combustible construction, fire access roads shall be required with the ability to support 75,000 lbs during all weather conditions. (F)
49. Before construction permits are issued, the applicant shall add "no parking" signage along the Kaylyn Drive half street segment east of the subject site. (DS, F)
50. The applicant shall ensure the ten-foot-wide path proposed along the west side of the development property is paved, and shall coordinate shared use path design with the Oregon City School District to ensure access to the Holcomb Elementary property from the proposed shared use path. The applicant shall either dedicate the path as right-of-way, or shall record an easement and maintenance agreement to give maintenance and operation responsibilities for the path to the City. (P, DS)

<u>The following conditions of approval shall be met to the satisfaction of the City during construction of the proposed development.</u>

51. All traffic control devices, such as signage and pavement markings shall be in conformance with all applicable City regulations and standards. (DS)

52. Pavement cuts or other improvement made in a City street or alley shall be done in accordance with the City of Oregon City Public Works Pavement Cut Standards and restored in accordance with the City of Oregon City Public Works Pavement Cut Standards. (DS)
53. The workmanship and materials for any work performed under permits issued by Oregon City Public Works shall be in accordance with the edition of the "Oregon Standard Specifications for Construction" as prepared by the Oregon Department of Transportation (ODOT) and the Oregon Chapter of American Public Works Association (APWA) and as modified and adopted by the city. (DS)
54. Underground utilities, waterlines, sanitary sewers and storm drains proposed to be installed in streets shall be constructed and inspected as directed prior to the surfacing of the streets. Stubs for service connections for underground utilities, such as, storm, water and sanitary sewer shall be placed beyond the ten-foot-wide franchise utility easement within private property. (DS)
55. Permitted hours of construction shall be set forth by the City Engineer in the pre-construction meeting. (DS)
56. All new franchise utilities shall be placed underground. All existing overhead utilities adjacent to the property frontage shall be relocated underground unless deemed infeasible by the City and franchise utilities. (DS)
57. The applicant shall prepare a Development Agreement in association with a Phasing Plan that describes and shows timing of each phase of improvements and associated performance and maintenance bonds. The agreement shall be executed by both the developer and the City prior to approval of Engineering Plans. The elements of the phases shall be reflected on engineering plans and the city has the right to work with the developer to vary the details of the phasing to ensure public improvements are accessible, maintainable, and useable by the public. (DS)

<u>The following conditions of approval shall be met to the satisfaction of the City prior to recording of the plat associated with the proposed development or as noted.</u>

58. Street names shall conform to the established standards in the City and shall be subject to the approval of the City. Only approved street names shall be included on the final plat prior to recording. (DS)
59. The applicant shall record an easement over the shared-use paths and accessways located within the development property which allows for use by the public and specifically requires the property owner and future property owners to provide for the liability and maintenance of the accessway. All fees associated with processing and recording of the easement shall be paid by the applicant. (DS)
60. All streets which are to end at the boundary of the development or in the case of half-streets dedicated along a boundary shall have an access control granted to the City as a City controlled plat restriction for the purposes of controlling ingress and egress to the property adjacent to the end of the dedicated street. The access control restriction shall exist until such time as a public street is created, by dedication and accepted, extending the street to the adjacent property. (DS)
61. The plat shall contain the following access control language or similar on the face of the map at the end of each street for which access control is required: "Access Control (See plat restrictions)." (DS)
62. The plat shall contain a plat restriction note stating that access through the access control shall be controlled by the City of Oregon City. The development shall use language provided by the City of Oregon City for the plat restriction note. (DS)
63. The property owner(s) shall sign a Restrictive Covenant Non-Remonstrance Agreement for the purpose of making storm sewer, sanitary sewer, water or street improvements in the future that benefit the property and all fees associated with processing and recording the Non-Remonstrance Agreement shall be paid prior to platting. (DS)

64. Responsibility for maintenance of the public stormwater pond including all landscaping, irrigation systems, structures and appurtenances shall remain with the property owner/developer for two years (known as the warranty or maintenance period). The owner/developer shall provide the city a separate two-year landscaping maintenance bond equal to one hundred ten percent of the landscaping costs or pay a fee-in-lieu and sign a contract with the City to cover the maintenance period prior to platting. (DS)
65. If any lot in the development is proposed with a total impervious area greater than the area assumed in the finalized stormwater report, the development or individual building permit applicant shall provide a private stormwater facility for said lot(s) and the owner of the lot shall execute a stormwater maintenance agreement and access easement for said lot(s) and pay associated recording fees. The agreement shall include a site plan identifying all privately-owned stormwater management facilities and an operation and maintenance plan for each type of stormwater facility in accordance with the Public Works Stormwater and Grading Design Standards. The agreement shall run with the land and be applicable to subsequent property owners. The agreement shall be reviewed and accepted by the City prior to issuance of building permits. (DS)
66. Public improvements shall be constructed according to approved final engineering plans prior to platting. (DS)
67. Improvements shall be constructed under the inspection and approval of the City. Expenses incurred thereby shall be borne by the applicant and paid prior to final approval. The applicant's project engineer also shall inspect construction. (DS)
68. Maintenance Guarantee equal to fifteen percent of the estimated cost for construction of public improvements as shown in city approved construction plans shall be provided prior to platting. The estimated costs shall be supported by a verified engineering estimate approved by the City Engineer. The guarantee shall be in a form identified in Code 17.50.140.A of the Oregon City Municipal Code. The maintenance guarantee shall warrant to the City of Oregon City that construction of public improvements will remain, for a period of twenty-four (24) months from the date of acceptance, free from defects in materials and workmanship. (DS)
69. The applicant shall demonstrate compliance with approved adjusted lot dimensional standards for all lots prior to final plat approval. (P)
70. The applicant shall record a conservation easement or place the Natural Resource Overlay District area in a lot or tract dedicated solely for unimproved open space or conservation purposes. If a conservation easement is utilized, it shall be recorded prior to or along with the final plat. (P)
71. The applicant shall inform buyers of the homes on Lots 61 through 63 of the provision for exterior lighting in 17.49.100.H or shall ensure that the CC&Rs include this restriction. (P)
72. In order to ensure that the 18 corner lots are developed with duplex uses, the applicant shall submit, for city review and approval, all proposed deed restrictions or other legal instruments used to ensure that the lots will be developed with duplexes. (P)
73. The applicant shall utilize a covenant or some other legal instrument to ensure future maintenance and availability of the open space, including provision for and maintenance of the minimum required recreational elements as set forth in the application or otherwise required as conditions of approval. Prior to final plat, the applicant shall submit, for city review and approval, all proposed deed restrictions or other legal instruments used to reserve open space and maintenance of open space and any related landscaping and facilities. (P)
74. The applicant shall make every effort to gain approval from the County to make such adjustments to striping. If approved, the applicant shall pay the costs to alter the pavement markings to increase queue storage at the intersection of Redland Road/ Holcomb

Boulevard/Abernethy Road where it is indicated as deficient within the applicant's traffic study. This shall occur prior to the final plat of Phase 2. (P)

75. The applicant shall pay a proportional share for transportation improvements at impacted intersections, as listed in Exhibit 5, Letter from John Replinger, in the amount of $74,322 for Phase 1 and $60,933 for Phase 2. (P)
76. The applicant shall comply with the decision of the Historic Review Board, GLUA-21-00034/HR-21-00013. (P)

The following conditions of approval shall be met to the satisfaction of the City within 90 days of the completing the public improvements associated with the proposed development.

77. As-built construction plans and digital copies of as-built drawings shall be filed with the City Engineer within 90 days of completing improvements. (DS)

I. BACKGROUND:

1. Existing Conditions

The applicant provided the following description of the site:

The project site is located on the north side of Holcomb Blvd. between Godon Way, to the west, and Winston Drive, to the east. The property is comprised of a total of six tax lots: Assessor's Map 22E28A, Tax Lots 500, 2200, and 2300. Assessor's Map 22E21D, Tax Lots 2100, 2200 and 2300.
The northern portion of the subject property is presently used by the Serres family for agricultural purposes, primarily the production of row crops. The southerly portion of the property is vacant land that is not presently in any use. The northern portion of the subject property has been actively farmed for decades by the Serres family. All of the property presently remains in the ownership of a Serres family trust. Tomatoes and other row crops have been grown on the property. The upper portion of the site is undeveloped vacant land. It is primarily vegetated with brush, blackberries and grass. There are a few old deciduous trees and a pocket of conifers near Kaylyn Drive on the east side of the site. There are no structures on the property.

The topography of the property is gently sloping in a general pattern from southeast to northwest. Slopes are predominantly in the five to fifteen percent range, but there is a band of steeper slopes just below the northwest corner of the Winston Acres subdivision. City mapping shows that a small segment of this area is above twenty-five percent grade, but the survey of the property shows that it is just below that slope category.

There is a 50-foot-wide powerline easement that passes through the property near its western border. PGE has an overhead line that is centered in this easement with wooden poles approximately every 300 feet.
City GIS mapping indicates the presence of two Natural Resources Overlay District (NROD) areas near the site. One is shown along Holcomb Blvd. This area was the subject of an NROD verification application in 2020 and was found not to exist. The second area is located off-site to the north of the subject property on Tax Lot 22E21D 02000.

Surrounding land uses include Holcomb Elementary School, County-zoned agricultural land outside of the City limits, and other residential properties, as follows:

To the west: Existing zoning of properties to the west is R-10. Holcomb Elementary School is adjacent to most of the western border of the property. There are three large lots, Tax Lots 22E28AB 500, 600 and 700, that lie between the subject property and the Godon Estates subdivision. These lots are developed with single-family homes but are large enough that they can be redeveloped at a higher density.

To the south: Across Holcomb Blvd. the Wasko Acres and Tracey Heights subdivisions are developed with single-family detached homes. Existing zoning in these neighborhoods is R-6.
To the north: The area to the north of the subject property is presently outside of the city limits and Urban Growth Boundary. Zoning is a mixture of Clackamas County FU-10 (Future Urbanizable-10 acres) and RRFF-5 (Rural Residential Farm Forest – 5 acres).
To the east: The Winston Hills subdivision is adjacent to the east of the site along Holcomb Blvd. This area is outside of the UGB and city limits. Lots are approximately ½ acre in size and the zoning is Clackamas County FU-10. The Barlow Crest subdivision, which is zoned R-10 lies to the east of the Winston Hills neighborhood and is adjacent to the subject property for a short distance on the eastern border. Kaylyn Drive is a half-street that extends towards the subject property. To the northeast, a rural residential property abuts the site and is zoned RRFF-5.

Prior Land Use reviews:

Annexation: AN-16-04/ZC-16-01 (Exhibit 8)
Annexation and Zone Change totaling 35.65 acres; Zone Change from Future Urban to R-10 Single Family Residential. Approved in 2017. The following is part of the Annexation approval:

In accordance with City, County and State transportation requirements, no development, except that permitted under the County's Future Urban FU-10 zoning designation, in effect as of the date of this application's submittal, shall be allowed until the following occurs and the Applicant demonstrates compliance with these requirements:

a. Highway 213 at Redland Road intersection (an Oregon Highway intersection) is forecasted to fall below adopted performance standards prior to year 2035. As a result, a new Refinement Plan, including elements such as financially constrained projects and alternative mobility standards, and amendments to OCMC Chapter 12.04 implementing the new Refinement Plan, shall be adopted and acknowledged.

b. Redland Road at Holcomb Boulevard/Abernethy Road (a non-Oregon Highway intersection) is forecasted to fall below adopted performance standards prior to year 2035. As a result, the City must do one of the following:

(1) Adopt amendments to the City's Transportation System Plan and OCMC Chapter 12.04 to include projects that satisfy the then-applicable performance standards and these standards must be acknowledged; or
(2) Condition the approval of a land division application that satisfies then-applicable OCMC Chapter 12.04 by including proportional mitigation of the application's impacts on that intersection, or such other mitigation measure(s) as may be approved which assure(s) that the intersection will either meet, or perform no worse than, the then-applicable performance standards.

See findings in 16.12.033 for findings and conditions related to the conditions of approval from AN-16-04.

Natural Resource Overlay District Review NR-20-00018 (Exhibit 9)
In 2020, the City approved a Type I Verification of the location of the NROD on the property (NROD-20-00018). The staff report explains:

> This application is for verification of the NROD map pursuant to OCMC 17.49.250. The project site is indicated as affected by the NROD in two locations. One is located along the site's Holcomb Boulevard frontage and is associated with a roadside drainage ditch. The other NROD location is along the northern property line and is associated with a verified off-site wetland feature. AKS Engineering & Forestry, LLC prepared a Type I NROD Verification Memo, dated September 2, 2020, concluding that natural intermittent or perennial streams are not present along Holcomb Boulevard, nor is there a water body meeting the definition of a Protected Water Feature. Therefore, the applicant is proposing that the vegetated corridor buffer should not extend onto the project site. Furthermore, the applicant provided a memo and maps to refine and delineate the actual on-site boundary for the vegetated corridor associated with the verified off-site wetland to the north.

Historic Review: GLUA-21-00034/HR 21-00013 (Exhibit 10)
The Historic Review Board granted approval for the realignment of the Barlow Trail Corridor shown in Option 2 as part of the Serres Farm PUD. The Board found that the site does not contain any physical evidence of the trail, therefore a slight adjustment to the alignment was found to be appropriate. The Board found that the alignment should follow the east portion of the corridor more closely in order to provide continuity with other segments of the trail through other subdivisions to the east. On the west side of the property next to the Holcomb school property, the Board found that a larger deviation as shown in the applicant's revised layout ("Option 2, shown below") was appropriate, given the lack of easement on the school property and the location of the school building. The Board also found that the interpretive kiosk and open space proposed in the development was a mitigating factor for adjustment of the corridor on the west side of the property. Approved in 2021.

The proposed layout is consistent with the Historic Review Board's approval. The applicant shall comply with the decision of the Historic Review Board, GLUA-21-00034/HR-21-00013.



Figure 1: Historic Review Board approved Barlow trail alignment (Option 2) referenced in conditions of approval.

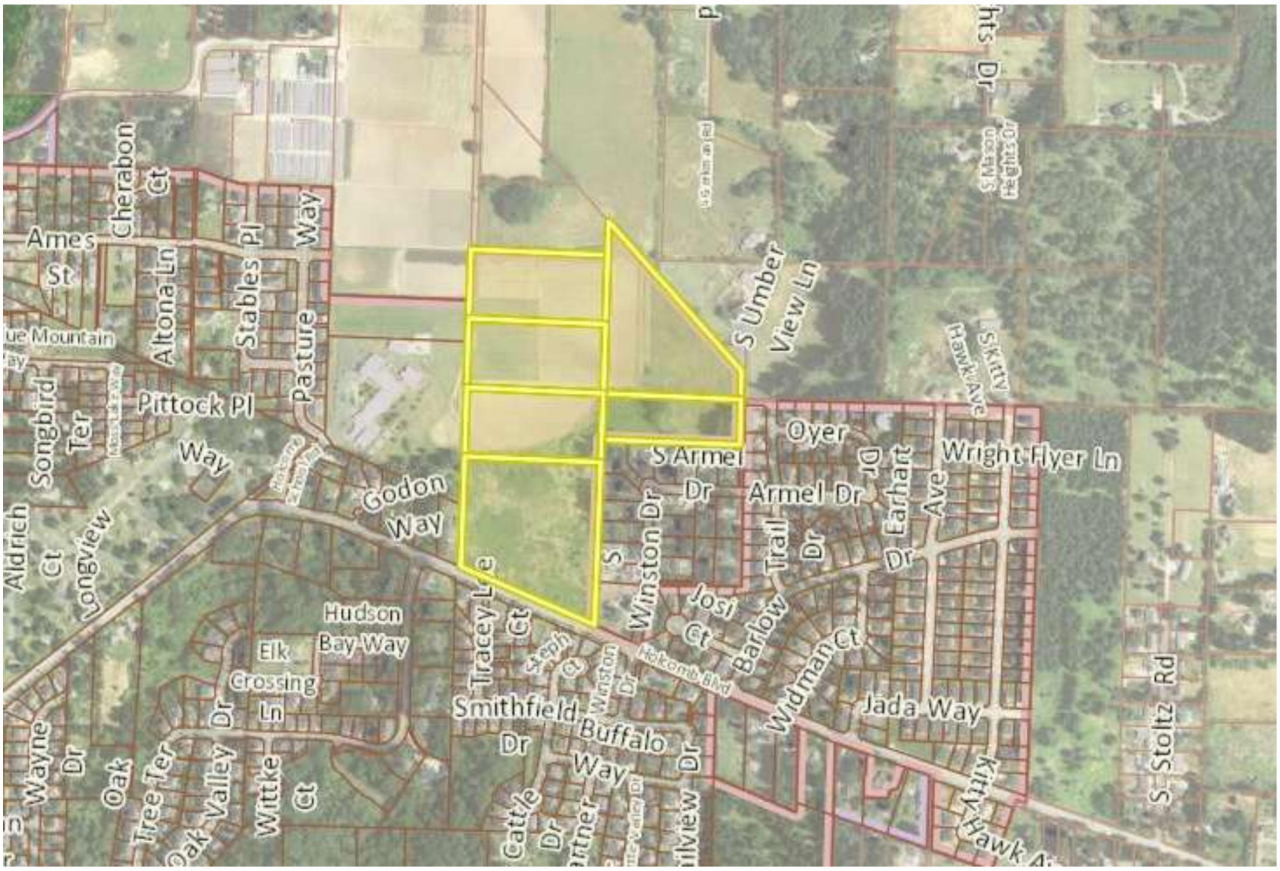


Figure 2. Vicinity Map

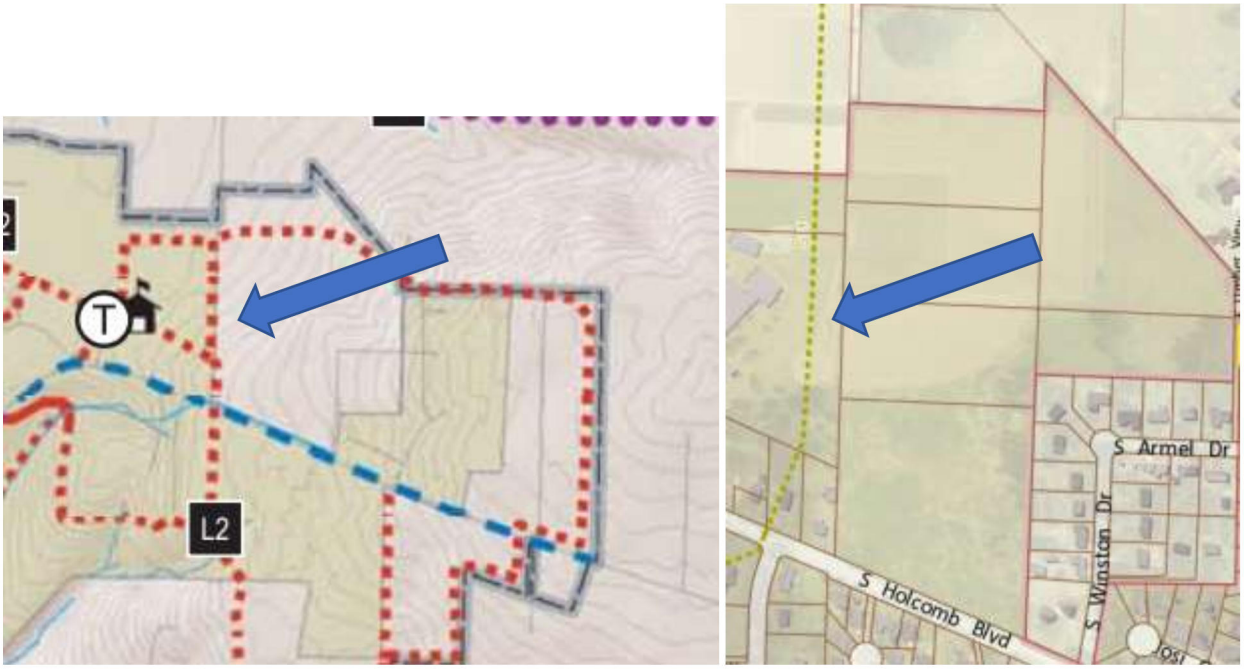


Figure 3. Trails Master Plan (left) and TSP Project S11 project shown (right)

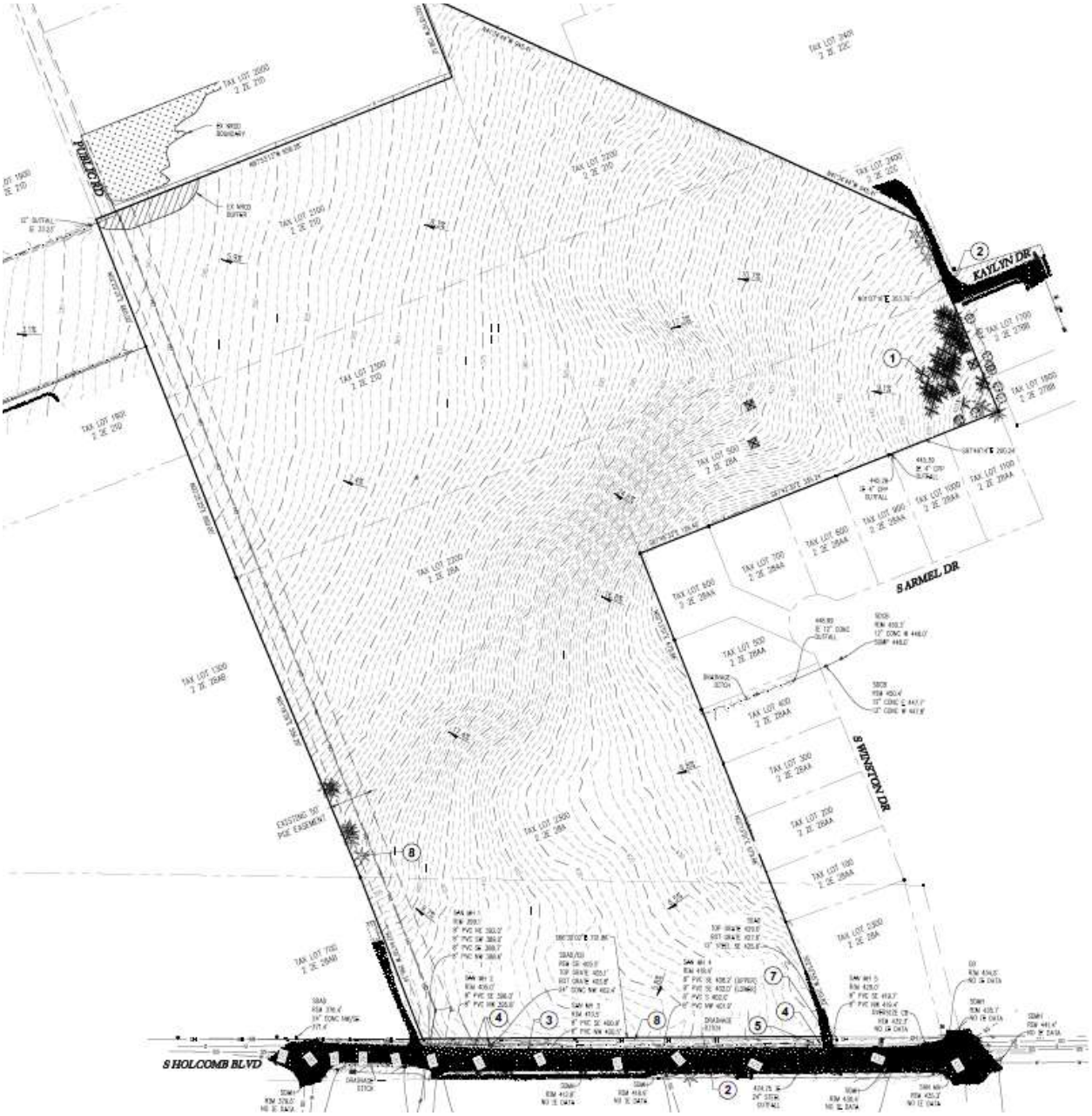


Figure 4. Existing Conditions Plan

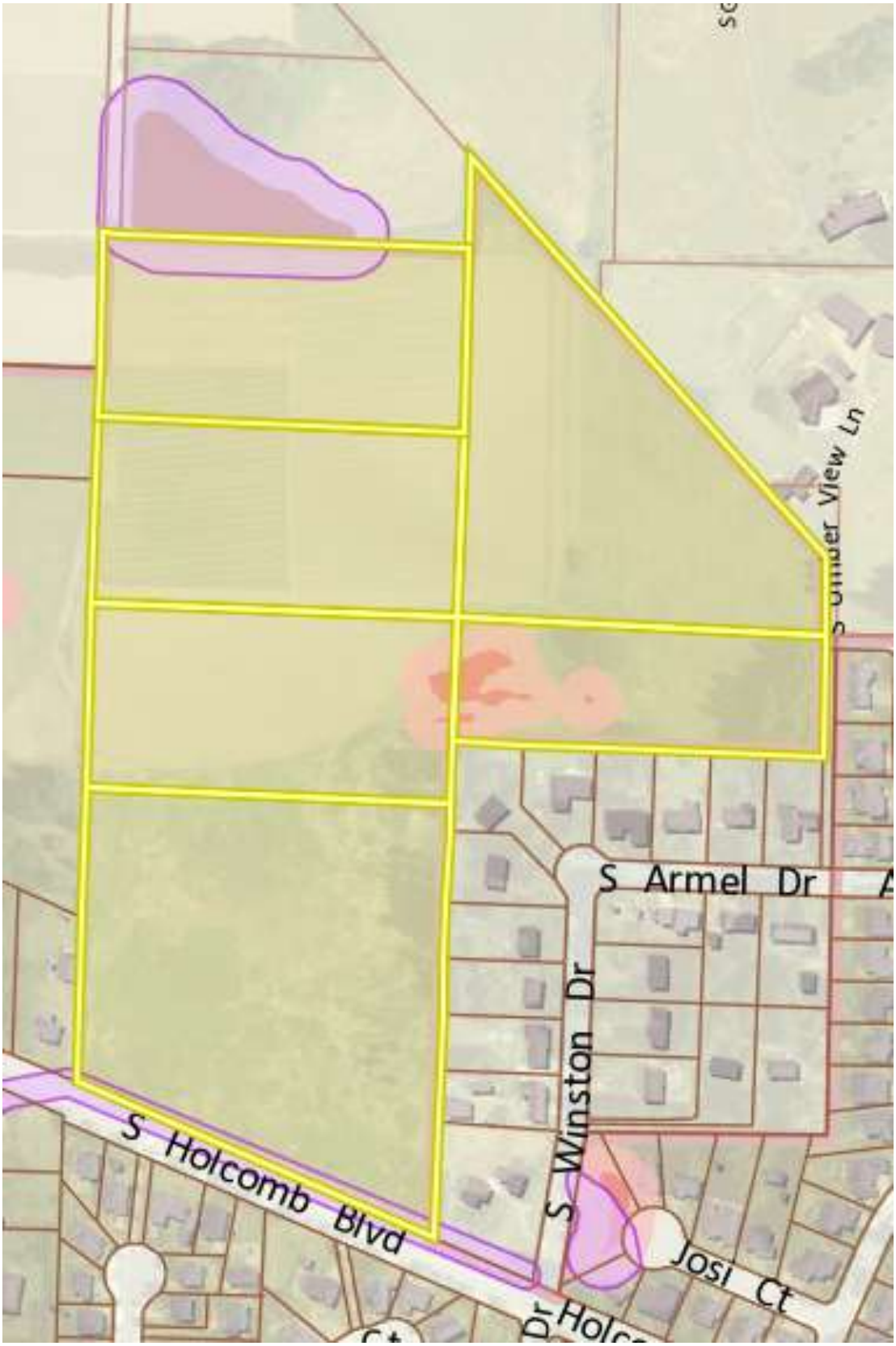


Figure 5. NROD (purple) and Geologic Hazard (red/pink) Overlays



Figure 6. 2013 Aerial



Figure 7.2016 Aerial



Figure 8. 2020 Aerial

2. Project Description

The applicant provided the following narrative description:

> This application proposes a 123-lot single-family residential Planned Unit Development subdivision. The project will be built in two phases, as shown on the site plan submitted with this application. The applicant proposes to make use of the Master Plan/Planned Unit Development provisions of Chapter 17.65 in order to allow for a phased approval and to allow for commonly owned open space and adjustments to dimensional standards. It is anticipated that the first phase of the project, containing 63 lots, will be developed in the summer of 2022. The second phase, containing the remaining 60 lots, will be developed the following summer.
> This application requests the following land use approvals: Type II Subdivision, Type III Master Plan/Planned Unit Development, Type III Detailed Development Plans for both phases of the project, and a Type III Historic Review relating to the Barlow Trail view corridor. A Natural Resources (NROD) Verification/Review is also included for the off-site wetlands and associated buffer area at the northwest corner of the property.

The development proposal includes the following:

- 123 lots, with 18 being proposed as corner duplex lots and 105 for single dwellings.
- Local street connections to Kaylyn Drive, future Godon Way, and street stubs leading into the properties outside the Urban Growth Boundary
- A left turn lane providing access into the development on Holcomb Blvd.
- A mid-block pedestrian/bicycle crossing of Holcomb Boulevard near the western edge of the site.
- A shared use path from Holcomb Boulevard to the north boundary of the site
- An open space adjacent to the trail corridor and located between residential lots
- A Barlow Trail visual corridor that doubles as a pedestrian and bicycle accessway
- Three adjustments to standards: A 10% density adjustment, a 20% adjustment to the R-10 minimum lot size standard, reducing the minimum lot size from 10,000 sq. ft. to 8,000 sq. ft, and an adjustment to reduce the interior side yard setback from 8 feet to 7 feet

Note: There is a property listed on the land use application form outside of the City limits: Taxlot 2000 (Herbst property), which is included on the application form because the delineated wetland is located on this property. No development is proposed on this property.

Full application materials are found in Exhibit 2 and Exhibit 4.

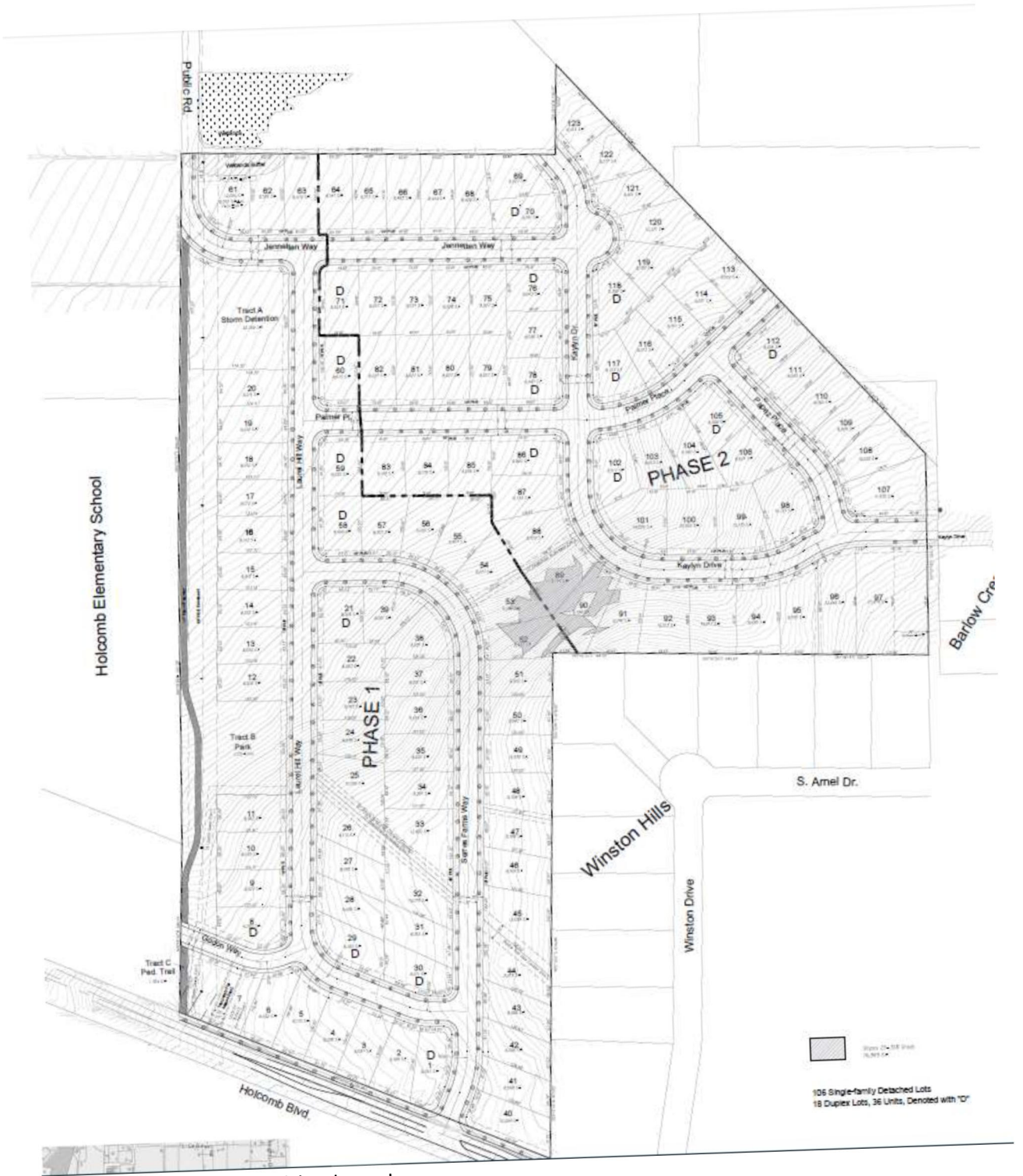


Figure 9: Proposed Subdivision Layout



Figure 10. Proposed Layout with aerial image (note this is an earlier version that includes 124 lots, but is generally similar)

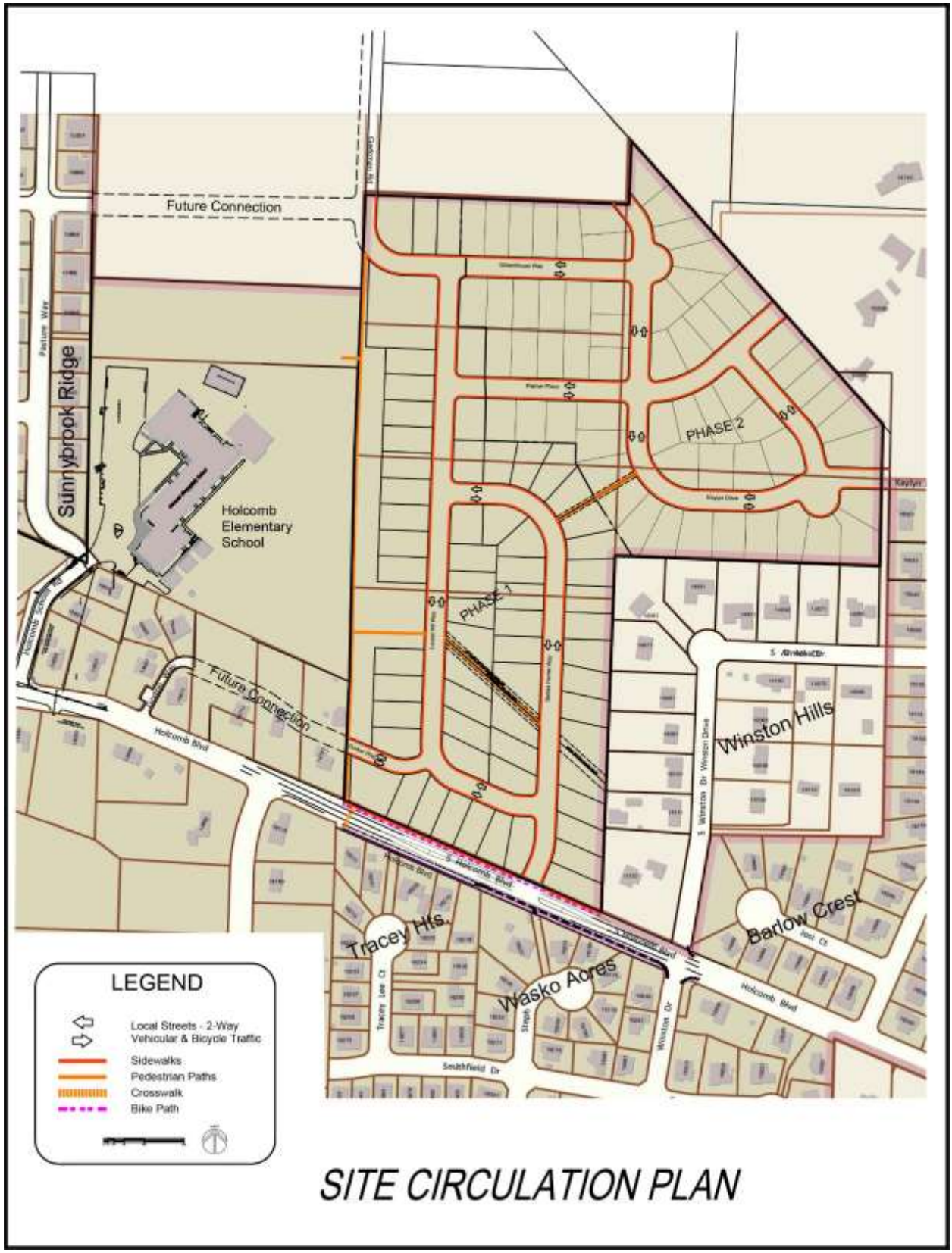


Figure 11. Site Circulation Plan

3. **Permits and Approvals:** The applicant is responsible for obtaining approval and permits from each applicable governmental agency and department at Oregon City including but not limited to the Engineering and Building Divisions.

4. **Public Comment**
Public comments submitted include (Exhibit 3):

The Oregon City Building Official commented that the proposal does not conflict with their interests.

Erik Bertram with Clackamas Water Environment Services commented that several of the subject properties would need to annex into the Tri-City sewer service district before sanitary sewer service can be provided. A condition of approval has been added to require this annexation.

Betty Johnson of Clackamas River Water comments that the proposal does not conflict with CRW's interests and that "Per the "HOPP Area" Intergovernmental Cooperative Agreement Clackamas River Water is available to serve those properties that are at elevation 450-feet and higher." The staff report explains how the property will be served with water in more detail.

Kendall Reid, Oregon City Parks and Recreation Director commented that the size of the proposed open space does not meet the minimum size required for the Parks Department to be able to accept it as a public park.

Mike Boumann of Clackamas Fire District submitted correspondence (See Exhibit 7) discussing the emergency fire access road, fire sprinklers, and requesting a few specific conditions of approval. This correspondence is reflected in the staff report.

Ed and Lynda Kulawiak and Karen (Kulawiak) Streeter submitted a letter about drainage concerns downstream of the subject site, along with comments about the gravel road that ends at the site in the NW corner of the property within the PGE easement.

- Drainage concerns: The Kulawiaks request further analysis of the downstream effects of the stormwater report, including whether the drainage ditches offsite that are planned to receive the stormwater discharge are sized appropriately to handle the stormwater from the site. This comment is addressed within the findings in Chapter 13.12.
- Gravel roadway concerns: The Kulawiaks request that the roadway not be used for access to the development, even during construction. While the applicant's plans show a connection from Jenneten way to this gravel roadway, which is a public road, the applicant does not intend to construct such a connection. Correspondence with the applicant includes the following statement from Rick Givens, the applicant's land use planner: "we are proposing that the improvements for the street that stubs to the northwest corner of the site stop at the border of the NROD and a barricade be provided at that location. It is uncertain at this time whether future development in the areas to the north of our site that are currently outside of the UGB will actually need this connection or whether the road will simply turn to the west to connect to Ames Street. Given that, it is not appropriate to impact the wetlands buffer by providing street improvements that may not be needed." The

City accepts the proposal to construct Jenneten Way as a dead end in this location with no connection to the off-site road.

Public testimony submitted after the initial public hearing and provided during each of the hearings is summarized, analyzed for compliance with the applicable approval standard, and addressed in Exhibit 11: Planning Commission Issues Matrix, which is adopted by reference as part of this staff report.

None of the comments provided indicate that an approval criterion has not been met or cannot be met through the Conditions of Approval attached to this Staff Report.

II. ANALYSIS AND FINDINGS:

Municipal Code Standards and Requirements: The following sections of the Oregon City Municipal Code are applicable to this land use approval:

CHAPTER	PAGE
CHAPTER 12.04 STREETS, SIDEWALKS, AND PUBLIC PLACES	21
CHAPTER 13.12 STORMWATER MANAGEMENT	23
CHAPTER 15.48 - GRADING, FILLING AND EXCAVATING	29
CHAPTER 16.12 MINIMUM PUBLIC IMPROVEMENTS AND DESIGN STANDARDS FOR DEVELOPMENT	30
CHAPTER 17.47 EROSION CONTROL	64
CHAPTER 12.08 - PUBLIC AND STREET TREES	66
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CHAPTER 17.08 LOW DENSITY RESIDENTIAL DISTRICTS	74
CHAPTER 17.41 TREE PROTECTION, PRESERVATION, REMOVAL AND REPLANTING STANDARDS	76
CHAPTER 17.44 - US—GEOLOGIC HAZARDS	83
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CHAPTER 17.65 MASTER PLANS AND PLANNED UNIT DEVELOPMENTS	102

CHAPTER 12.04 – STREETS SIDEWALKS AND PUBLIC SPACES

12.04.005 - Jurisdiction and management of the public rights-of-way.

A. The City has jurisdiction and exercises regulatory management over all public rights-of-way within the City under authority of the City Charter and state law by issuing separate public works right-of-way permits or permits as part of issued public infrastructure construction plans. No work in the public right-of-way shall be done without the proper permit. Some public rights-of-way within the city are regulated by the State of Oregon Department of Transportation (ODOT) or Clackamas County and as such, any work in these streets shall conform to their respective permitting requirements.

C. The City has jurisdiction and exercises regulatory management over each public right-of-way whether the City has a fee, easement, or other legal interest in the right-of-way. The City has jurisdiction and regulatory management of each right-of-way whether the legal interest in the right-of-way was obtained by grant, dedication, prescription, reservation, condemnation, annexation, foreclosure or other means.

D. No person may occupy or encroach on a public right-of-way without the permission of the City. The City grants permission to use rights-of-way by franchises, licenses and permits.

E. The exercise of jurisdiction and regulatory management of a public right-of-way by the City is not official acceptance of the right-of-way, and does not obligate the City to maintain or repair any part of the right-of-way.

Finding: Applicable. The City of Oregon City has jurisdiction over Holcomb Boulevard.

12.04.025 - Driveways.

Driveways shall be reviewed in accordance with OCMC 16.12.035. Driveway requirements may be modified through the procedures in OCMC 16.12.013.

Finding: Applicable. See 16.12.035 for more information.

12.04.030 - Maintenance and repair.

Finding: Not applicable. There is no existing sidewalk on the street abutting the development property.

12.04.032 - Required sidewalk repair.

Finding: Not applicable. There is no existing sidewalk on the street abutting the development property.

12.04.050 - Retaining walls—Required.

Finding: Not Applicable. No retaining walls exist or are proposed on this project adjacent to the public sidewalk.

12.04.100 - Excavations—Restoration of pavement.

Whenever any excavation shall have been made in any pavement or other street improvement on any street or alley in the City for any purpose whatsoever under the permit granted by the engineer, it shall be the duty of the person making the excavation to restore the pavement in accordance with the City of Oregon City Public Works Pavement Cut Standard in effect at the time a right-of-way permit is granted. The City Commission may adopt and modify the City of Oregon City Public Works Pavement Cut Standards by resolution as necessary to implement the requirements of this chapter.

Finding: Complies with Condition. Pavement cuts are proposed within Holcomb Boulevard due to road construction and utility service installation. Pavement cuts or other improvement made in a City street or alley shall be done in accordance with the City of Oregon City Public Works Pavement Cut Standards and restored in accordance with the City of Oregon City Public Works Pavement Cut Standards. (Also written in findings for 16.12.029. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

12.04.120 - Obstructions—Permit required.

Finding: Not Applicable. No obstructions are proposed within the right of way.

12.04.150 - Street and alley vacations—Cost.

Finding: Not Applicable. No street or alley vacations are proposed as part of this application.

12.04.170 - Street design—Purpose and general provisions.

All development shall be in conformance with the city's public facility master plans, public works policies, standard drawings and engineering specifications. All streets shall be reviewed and approved by the city engineer prior to construction. All streets and driveway connections to another jurisdiction's facility or right-of-way must be reviewed by the appropriate jurisdiction as a condition of the preliminary plat or site planning and when required by law or intergovernmental agreement shall be approved by the appropriate jurisdiction.

Finding: Complies with condition. See findings from chapter 16.12 of this report.

12.04.270 - Standard construction specifications.

The workmanship and materials for any work performed under permits issued per this chapter shall be in accordance with the current edition of the "Oregon Standard Specifications for Construction" as prepared by the Oregon Department of Transportation (ODOT) and the Oregon Chapter of American Public Works Association (APWA) and as modified and adopted by the City in accordance with this ordinance, in effect at the time of application. The exception to this requirement is where this chapter and the Public Works Street Standard Drawings provide other design details, in which case the requirements of this chapter and the Public Works Street Standard Drawings shall control. In the case of work within ODOT or Clackamas County rights-of-way, work shall be in conformance with their respective construction standards.

Finding: Complies with Condition. The workmanship and materials for any work performed under permits issued by Oregon City Public Works shall be in accordance with the edition of the "Oregon Standard Specifications for Construction" as prepared by the Oregon Department of Transportation (ODOT) and the Oregon Chapter of American Public Works Association (APWA) and as modified and adopted by the city. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

CHAPTER 13.12 – STORMWATER MANAGEMENT

13.12.010 Purpose.
The purpose of this chapter is to define policies, minimum requirements, minimum standards and design procedures and permits for the construction and maintenance of stormwater conveyance and quantity and quality control facilities in order to:

- *A. Minimize increased stormwater runoff rates from any development so as to minimize the impact upon any downstream natural channel that may exist between the subject area and the Willamette or Clackamas Rivers;*
- *B. Prevent water runoff generated by development from exceeding the capacity of downstream stormwater facilities;*
- *C. Reduce stormwater runoff rates and volumes, soil erosion and pollution, wherever possible, from developed and developing lands;*
- *D. Prevent the uncontrolled or irresponsible discharge of stormwater from new development onto adjoining public or private property;*
- *E. Maintain the integrity of stream channels for their biological functions, as well as for drainage and other purposes;*
- *F. Have stormwater conveyance facilities of adequate design to manage all volumes of water generated in the contributing drainage area, for both the existing condition and the anticipated future condition;*
- *G. Have all stormwater facilities:*
  - *1. Designed to mimic natural hydrologic conditions, to the maximum extent practicable;*
  - *2. Designed in a manner to allow economical future maintenance;*
  - *3. If city owned or maintained, designed for maintenance with city owned equipment;*
  - *4. Designed using materials that will ensure a minimum practical design life of seventy-five years; and*
  - *5. Designed to have sufficient structural strength to resist erosion and all external loads (construction, traffic, seismic) which may be imposed;*
- *H. Establish maintenance easements with the owners of privately owned/maintained stormwater facilities to ensure an appropriate level of maintenance and to help minimize public safety hazards;*
- *I. Have all new stormwater facilities comply with applicable National Pollutant Discharge Elimination System (NPDES) requirements;*
- *J. Minimize the deterioration of existing watercourses, culverts, bridges, dams and other structures;*
- *K. Minimize increases in stormwater pollution;*
- *L. Allow for periodic inspections of both private and public stormwater quantity control and quality control facilities to verify that they are functioning in substantial conformance with the approved design intent; and*
- *M. Allow issuance of engineering permits for stormwater work in the right-of-way or public easements either as a separate public works permit or as part of overall issued public infrastructure construction plans. The various fees for these permits are approved and modified from time to time by the city commission. Failure to meet the conditions of the issued permit shall constitute a violation of the municipal code.*

Finding: The applicant can achieve compliance with stormwater management regulations through the conditions of approval discussed below. See findings in OCMC 13.12.090 through 13.12.170.

13.12.050 - Applicability and exemptions.
This chapter establishes performance standards for stormwater conveyance, quantity and quality. Additional performance standards for erosion prevention and sediment control are established in OCMC 17.47.
A. Stormwater Conveyance. The stormwater conveyance requirements of this chapter shall apply to all stormwater systems constructed with any development activity, except as follows:
1. The conveyance facilities are located entirely on one privately owned parcel;
2. The conveyance facilities are privately maintained; and
3. The conveyance facilities receive no stormwater runoff from outside the parcel's property limits.
Those facilities exempted from the stormwater conveyance requirements by the above subsection will remain subject to the requirements of the Oregon Uniform Plumbing Code. Those exempted facilities shall be reviewed by the Building Official.
Finding: Applicable. Connection to a public stormwater conveyance system is required to serve this development.

B. Water Quality and Flow Control. The water quality and flow control requirements of this chapter shall apply to the following proposed uses or developments, unless exempted under subsection C:
1. Activities located wholly or partially within water quality resource areas pursuant to OCMC 17.49 that will result in the creation of more than five hundred square feet of impervious surface within the NROD or will disturb more than one thousand square feet of existing impervious surface within the NROD as part of a commercial or industrial redevelopment project. These square footage measurements will be considered cumulative for any given five-year period; or
2. Activities that create or replace more than five thousand square feet of impervious surface, cumulated over any given five-year period.
Finding: Applicable. The proposed development will create or replace more than 5000 square feet of impervious area.

C. Exemptions. The following exemptions to subsection B of this section apply:
1. An exemption to the flow control requirements of this chapter will be granted when the development site discharges to the Willamette River, Clackamas River or Abernethy Creek; and either lies within the one hundred-year floodplain or is up to ten feet above the design flood elevation as defined in OCMC 17.42, provided that the following conditions are met:
a. The project site is drained by a conveyance system that is comprised entirely of manmade elements (e.g. pipes, ditches, culverts outfalls, outfall protection, etc.) and extends to the ordinary high water line of the exempt receiving water; and
b. The conveyance system between the project site and the exempt receiving water has sufficient hydraulic capacity and erosion stabilization measures to convey discharges from the proposed conditions of the project site and the existing conditions from non-project areas from which runoff is collected.
2. Projects in the following categories are generally exempt from the water quality and flow control requirements:
a. Stream enhancement or restoration projects approved by the City.
b. Farming practices as defined by ORS 30.960 and farm use as defined in ORS 214.000; except that buildings associated with farm practices and farm use are subject to the requirements of this chapter.
c. Actions by a public utility or any other governmental agency to remove or alleviate an emergency condition.
d. Road and parking area preservation/maintenance projects such as pothole and square cut patching, surface sealing, replacing or overlaying of existing asphalt or concrete pavement, provided the preservation/maintenance activity does not expand the existing area of impervious coverage above the thresholds in subsection B of this section.
e. Pedestrian and bicycle improvements (sidewalks, trails, pathways, and bicycle paths/lands) where no other impervious surfaces are created or replaced, built to direct stormwater runoff to adjacent vegetated areas.
f. Underground utility projects that replace the ground surface with in-kind material or materials with similar runoff characteristics.
g. Maintenance or repair of existing utilities.

Finding: Not Applicable. The proposed development does not meet the criteria for exemption to the flow control requirements of this chapter.

D. Uses Requiring Additional Management Practices. In addition to any other applicable requirements of this chapter, the following uses are subject to additional management practices, as defined in the Public Works Stormwater and Grading Design Standards:
1. Bulk petroleum storage facilities;
2. Above ground storage of liquid materials;
3. Solid waste storage areas, containers, and trash compactors for commercial, industrial, or multi-family uses;
4. Exterior storage of bulk construction materials;
5. Material transfer areas and loading docks;
6. Equipment and/or vehicle washing facilities;
7. Development on land with suspected or known contamination;
8. Covered vehicle parking for commercial or industrial uses;
9. Industrial or commercial uses locating in high traffic areas, defined as average daily count trip of two thousand five hundred or more trips per day; and
10. Land uses subject to DEQ 1200-Z Industrial Stormwater Permit Requirements.
Finding: Not Applicable. The development has not proposed use of the land that requires additional management practices as defined in the Public Works Stormwater and Grading Design Standards.

13.12.080 - Submittal requirements.
A. Applications subject to stormwater conveyance, water quality, and/or flow control requirements of this chapter shall prepare engineered drainage plans, drainage reports, and design flow calculation reports in compliance with the submittal requirements of the Public Works Stormwater and Grading Design Standards.
B. Each project site, which may be composed of one or more contiguous parcels of land, shall have a separate valid city approved plan and report before proceeding with construction.
Finding: Complies with Condition. The applicant's preliminary drainage plan and report provided submittals required for land use approval as required by the Public Works Stormwater and Grading Design Standards. However, the report is preliminary and a finalized version of the report reflective of a separate valid city approved plan is required. Requirements of this code section can be met by meeting approval criteria outlined in section 13.12.090 of this report. **See findings from section 13.12.090 of this report.**

13.12.090 - Approval criteria for engineered drainage plans and drainage report.
An engineered drainage plan and/or drainage report shall be approved only upon making the following findings:
A. The plan and report demonstrate how the proposed development and stormwater facilities will accomplish the purpose statements of this chapter.
B. The plan and report meet the requirements of the Public Works Stormwater and Grading Design Standards adopted by resolution under OCMC 13.12.020.
C. The storm drainage design within the proposed development includes provisions to adequately control runoff from all public and private streets and roof, footing, and area drains and ensures future extension of the current drainage system.
D. Streambank erosion protection is provided where stormwater, directly or indirectly, discharges to open channels or streams.
E. Specific operation and maintenance measures are proposed that ensure that the proposed stormwater quantity control facilities will be properly operated and maintained.
Finding: Complies with Condition. A "preliminary stormwater report for Serres Farms Subdivision Phases I & II" dated 5-13-2021 and preliminary engineering plan containing a "composite utility plan" and various utility profiles dated 07/2021 has been prepared for the project by Emerio Design. The submitted preliminary stormwater report has been prepared in accordance with the above criteria and demonstrates that the proposed development includes provisions to adequately control runoff from all drive aisles and roof, footing, and area drains and ensures future extension of the current drainage

system. A public comment from a neighboring property owner was submitted raising concerns about added stormwater flows that may impact the property at 14720 S Forsythe Rd. It is correct that the applicant's drainage plan includes an outfall to a ditch north of the Holcomb School property. However, based on the topography of the area it does not appear that 14720 S Forsythe Rd is in the path of the downstream stormwater discharge area of the development. The address of 14720 S Forsythe Rd is within Clackamas County jurisdiction; drainage areas outside of Oregon City's jurisdiction must comply with Oregon Drainage Law. Under this doctrine, adjoining landowners are entitled to have the normal course of natural drainage maintained. The lower owner must accept water which naturally comes to his land from above, but he or she is entitled not to have the normal drainage changed or substantially increased. The City's stormwater standards require that the resulting discharge from a storm pond equal the discharge present prior to development, which means the impact to offsite properties will not be increased by the development. The applicant's final stormwater plan and report will be required to demonstrate compliance with this rule. The recommended condition is that "The final stormwater system design and report shall address and satisfy all criteria identified in section 5.2.4 of the Oregon City Stormwater and Grading Design Standards." The criteria in 5.2.4 is explicit about having adequate downstream facilities.
The same public comment also called for the City to require the applicant maintain storm ditches offsite and downstream of the property. The City does not have jurisdiction to require such an action and furthermore, impacts to the off-site areas will be avoided if the applicant is able to meet the city's stormwater standards. Thus, there are no recommended conditions of approval for offsite maintenance of stormwater facilities.
Staff finds that the final stormwater report will contain a downstream analysis and will address the drainage concerns of the neighboring property owner.

A final stormwater report was not provided by the applicant. A final drainage report must be provided to be reviewed for compliance with requirements of the Public Works Stormwater and Grading Design Standards. The applicant shall provide finalized engineered drainage plan(s), drainage report(s), and design flow calculation report(s) stamped and signed by a licensed engineer addressing all items from the Section 9.3 & 9.4 of the Public Works Stormwater and Grading Design Standards. The final stormwater system design and report shall address and satisfy all criteria identified in section 5.2.4 of the Oregon City Stormwater and Grading Design Standards. The downstream discharge area extends into Clackamas County jurisdiction. The applicant shall also obtain all required permits and approvals from all affected jurisdictions (Clackamas County or the Oregon City School District) prior to final plan approval. The finalized report shall assume the maximum lot coverage when accounting for new impervious surfaces added on each new lot. The plans also show a proposed easement which will be needed if public storm sewer is to exist on a different property not owned by the developer. A public utility easement shall be provided to the City for public storm sewer proposed on property not owned by the developer from the applicable landowner(s) which gives the right for the City to maintain and access such storm sewer infrastructure. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

13.12.100 - Alternative materials, alternative design and methods of construction.
The provisions of this chapter are not intended to prevent the use of any material, alternate design or method of construction not specifically prescribed by this chapter or the Public Works Stormwater and Grading Design Standards, provided any alternate has been approved and its use authorized by the City Engineer. The City Engineer may approve any such alternate, provided that the City Engineer finds that the proposed design is satisfactory and complies with the intent of this chapter and that the material, method, or work offered is, for the purpose intended, at least the equivalent of that prescribed by this chapter in effectiveness, suitability, strength, durability and safety. The City Engineer shall require that sufficient evidence or proof be submitted to substantiate any claims that may

be made regarding its use. The details of any action granting approval of an alternate shall be recorded and entered in the City files.

Finding: Not Applicable. The applicant has not proposed alternative design methods requiring special approval by the City Engineer. However, should the applicant propose such methods with the public facilities construction plan submittal, the proposal will be reviewed and approved by the City Engineer as required.

13.12.110 - Transfer of engineering responsibility.

Project drainage plans shall always have a project engineer. If the project engineer is changed during the course of the work, the City shall be notified in writing and the work shall be stopped until the replacement engineer has agreed to accept the responsibilities of the project engineer. The new project engineer shall provide written notice of accepting project responsibility to the City within seventy-two hours of accepting the position as project engineer.

Finding: Not applicable. The developer is already required to execute a "Developer/Engineer Agreement for Public Works Improvements" per section 16.12.014.

13.12.120 - Standard construction specifications.

The workmanship and materials shall be in accordance with the current edition of the "Standard Specifications for Public Works Construction," as prepared by the Oregon Chapter of American Public Works Association (APWA) and as modified and adopted by the City, in effect at the time of application. The exception to this requirement is where this chapter and the Public Works Stormwater and Grading Design Standards provide other design details, in which case the requirements of this chapter and the Public Works Stormwater and Grading Design Standards shall be complied with.

Finding: Complies with Condition. The workmanship and materials for any work performed under permits issued by Oregon City Public Works shall be in accordance with the edition of the "Oregon Standard Specifications for Construction" as prepared by the Oregon Department of Transportation (ODOT) and the Oregon Chapter of American Public Works Association (APWA) and as modified and adopted by the city. (Also written in the findings of section 12.04.270) **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

13.12.140 - Maintenance of public stormwater facilities.

A. A stormwater facility that receives stormwater runoff from a public right-of-way shall be a public facility. Upon expiration of the warranty period and acceptance by the City as described below, the City shall be responsible for maintenance of those public stormwater facilities. Access for maintenance of the stormwater facilities shall be provided to the City through the granting of a stormwater easement or other means acceptable to the City.

Finding: Complies as Proposed. The applicant has proposed a stormwater tract with a public stormwater pond on the preliminary drainage plans. Access has been proposed for maintenance. The City will maintain the facility after the maintenance period. The development has also proposed roadside stormwater facilities which will receive stormwater runoff from the public right-of-way. Roadside facilities are required to be maintained as roadway improvements by a two-year warranty provided by the developer per provision within section 17.50.141. Upon expiration of the warranty period provided by section 17.50.141, the City will maintain roadside facilities along city ROW.

B. Responsibility for maintenance of stormwater facilities including all landscaping, irrigation systems, structures and appurtenances shall remain with the property owner/developer for two years (known as the warranty period). The owner/developer shall provide the City a separate two-year landscaping maintenance surety bond for one hundred ten percent of the landscaping cost. Transfer of maintenance of stormwater conveyance systems shall occur when the City accepts the stormwater conveyance system.

Finding: Complies with Condition. The applicant has proposed a stormwater tract with a public stormwater pond. Responsibility for maintenance of the public stormwater pond including all

landscaping, irrigation systems, structures and appurtenances shall remain with the property owner/developer for two years (known as the warranty or maintenance period). The owner/developer shall provide the city a separate two-year landscaping maintenance bond equal to one hundred ten percent of the landscaping costs or pay a fee-in-lieu and sign a contract with the City to cover the maintenance period prior to platting. Once the maintenance period is over, the tract will become owner and maintained by the City. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

13.12.145 - Maintenance of private stormwater facilities.
A. An applicant shall submit an operation and maintenance plan for each proposed stormwater facilities, unless exempted in the Public Works Stormwater and Grading Design Standards. The information in the operation and maintenance plan shall satisfy the requirements of the Public Works Stormwater and Grading Design Standards.
B. Private owners are required to inspect and maintain stormwater facilities on their property in accordance with an approved operation and maintenance plan. A maintenance log is required to document facility inspections and specific maintenance activities. The log shall be available to City inspection staff upon request.
C. Failure to operate or maintain a stormwater facility according to the operation and maintenance plan may result in an enforcement action under Section 13.12.150.
Finding: Not applicable. The development has not proposed any private stormwater facilities.

13.12.170 - Permits from other jurisdictions.
A. The Oregon State Department of Environmental Quality (DEQ) currently issues NPDES 1200-C permits for projects that cover areas of one acre or greater. No permit shall be issued for projects of this size (or any other size as modified by DEQ) without a copy of said DEQ permit being on file with Oregon City. DEQ is responsible for policing its own permits; however, if City personnel observe conditions that are believed to be in violation of any such permit, and cannot get corrections made, the City will bring such conditions to the attention of the appropriate DEQ representatives.
Finding: Complies with Condition. The development exceeds 1.0 acre in disturbed area. The developer shall obtain a 1200-C (NPDES) permit from Oregon Department of Environmental Quality (DEQ) for construction activities one acre or greater prior to receiving a permit and beginning construction. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

B. Projects may require Oregon State Division of State Lands (DSL) and/or United States Army Corps of Engineers (USACE) permits. If such permits are required, no permission to construct will be granted until such a time as a copy of such permit is on file with the City or notice is received from those agencies that a permit is not required. DSL/USACE is responsible for enforcing its own permits; however, if City personnel observe conditions that are believed to be in violation of any such permit, and cannot get corrections made, the City will bring such conditions to the attention of the appropriate DSL/USACE representatives.
Finding: Not Applicable. A permit from DSL or USACOE is not required of this project.

C. Projects may require Oregon State Department of Fish and Wildlife (ODFW) permits. When ODFW permits are required, no work will be authorized until the receipt of a copy of the ODFW permit. ODFW is responsible for policing its own permits; however, if City personnel observe conditions that are believed to be in violation of any such permit, and cannot get corrections made, the City will bring such conditions to the attention of the appropriate ODFW representatives.
Finding: Not Applicable. A permit from ODFW is not required of this project.

CHAPTER 15.48 – GRADING, FILLING AND EXCAVATING

15.48.030 Applicability—Grading permit required.

A. A city-issued grading permit shall be required before the commencement of any of the following filling or grading activities:
1. Grading activities in excess of ten cubic yards of earth;
2. Grading activities which may result in the diversion of existing drainage courses, both natural and man-made, from their natural point of entry or exit from the grading site;
3. Grading and paving activities resulting in the creation of impervious surfaces greater than two thousand square feet or more in area;
4. Any excavation beyond the limits of a basement or footing excavation, having an unsupported soil height greater than five feet after the completion of such a structure; or
5. Grading activities involving the clearing or disturbance of one-half acres (twenty-one thousand seven hundred eighty square feet) or more of land.
B. Those fill and grading activities proposed to be undertaken in conjunction with a land use application, including but not limited to subdivisions, planned unit developments, partitions and site plan reviews, are subject to the standards of this chapter. However, a separate grading permit is not required. Approval of the construction plans submitted through the land use application process shall constitute the grading permit required under this chapter.
Finding: Applicable. The preliminary plan presents grading and paving activities that will result in the disturbance of more than one-half acre. Fill and grading activities are proposed to be undertaken in conjunction with a land use application. A separate grading permit is not required. Approval of the construction plans submitted through the land use application process shall constitute the grading permit required under this chapter.

15.48.040 - Grading permit exemptions.
The following filling and grading activities shall not require the issuance of a grading permit:
A. Excavation for utilities, or for wells or tunnels allowed under separate permit by other governmental agencies;
B. An excavation below finished grade for basements and footings of a building, retaining wall or other structure authorized by a valid building permit. The placement of any fill material removed from such an excavation requires a grading permit if:
1. It exceeds fifty cubic yards,
2. More than ten cubic yards are removed from the site, or
3. The fill is placed on the site to a depth greater than one foot;
C. Farming practices as defined in ORS 30.930 and farm uses as defined in ORS 215.203, except that buildings associated with farm practices and farm uses are subject to the requirements of this chapter;
D. Excavation for cemetery graves;
E. Sandbagging, diking, ditching, filling or similar work when done to protect life or property during an emergency;
F. Repaving of existing paved surfaces that does not alter existing drainage patterns;
G. Maintenance work on public roads performed under the direction of the city, Clackamas County or Oregon State Department of Transportation personnel.
Finding: Not Applicable. The application does not qualify for an exemption.

15.48.090 Submittal requirements.
An engineered grading plan or an abbreviated grading plan shall be prepared in compliance with the submittal requirements of the Public Works Stormwater and Grading Design Standards whenever a city approved grading permit is required. In addition, a geotechnical engineering report and/or residential lot grading plan may be required pursuant to the criteria listed below.
A. Abbreviated Grading Plan. The city shall allow the applicant to submit an abbreviated grading plan in compliance with the submittal requirements of the Public Works Stormwater and Grading Design Standards if the following criteria are met:
1. No portion of the proposed site is within the flood management area overlay district pursuant to Chapter 17.42, the unstable soils and hillside constraints overlay district pursuant to Chapter 17.44, or a water quality resource area pursuant to Chapter 17.49; and
2. The proposed filling or grading activity does not involve more than fifty cubic yards of earth.

B. Engineered Grading Plan. The city shall require an engineered grading plan in compliance with the submittal requirements of the Public Works Stormwater and Grading Design Standards to be prepared by a professional engineer if the proposed activities do not qualify for abbreviated grading plan.
C. Geotechnical Engineering Report. The city shall require a geotechnical engineering report in compliance with the minimum report requirements of the Public Works Stormwater and Grading Design Standards to be prepared by a professional engineer who specializes in geotechnical work when any of the following site conditions may exist in the development area:
1. When any publicly maintained facility (structure, street, pond, utility, park, etc.) will be supported by any engineered fill;
2. When an embankment for a stormwater pond is created by the placement of fill;
3. When, by excavation, the soils remaining in place are greater than three feet high and less than twenty feet wide.
D .Residential Lot Grading Plan. The city shall require a residential lot grading plan in compliance with the minimum report requirements of the Public Works Stormwater and Grading Design Standards to be prepared by a professional engineer for all land divisions creating new residential building lots or where a public improvement project is required to provide access to an existing residential lot.

Finding: Complies with Conditions. 123 new residential building lots are proposed as part of this land division. The developer shall provide a Residential Lot Grading Plan adhering to the State of Oregon Structural Specialty Code, Chapter 18 and the Oregon City Public Works Stormwater and Grading Design Standards. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

CHAPTER 16.12 – MINIMUM PUBLIC IMPROVEMENTS AND DESIGN STANDARDS FOR DEVELOPMENT

16.12.010 - Purpose and general provisions.
The purpose of this chapter is to identify the standards for development in and adjacent to spaces which benefit the public including right-of-way, access to the right-of-way, public off-street pedestrian and bicycle accessways, and easements. All development shall be in conformance with the policies and design standards established by this chapter and with applicable standards in the City's public facility master plans and City design standards and specifications. In reviewing applications for development, the City Engineer shall take into consideration any approved development and the remaining development potential of adjacent properties. All street, water, sanitary sewer, storm drainage and utility plans associated with any development shall be reviewed and approved by the City Engineer prior to construction. All streets, driveways or storm drainage connections to another jurisdiction's facility or right-of-way shall be reviewed by the appropriate jurisdiction as a condition of the preliminary plat and when required by law or intergovernmental agreement shall be approved by the appropriate jurisdiction.

Finding: Complies with Condition. Compliance with the "purpose and general provisions" of chapter 16.12 can be met by adhering to the following: The development plans shall comply with all current Oregon City Public Works design standards, specifications, codes, and policies prior to receiving a permit and beginning construction. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

16.12.011 - Applicability.

A. Compliance with this chapter is required for all development including land divisions, site plan and design review, master plan, detailed development plan and conditional use applications and all public improvements that are required in conjunction with a land use decision.

B. Compliance with this chapter is also required for new construction or additions which exceed fifty percent of the existing square footage of all 3-4 plexes, single and two-family dwellings living space. Garages, carports, sheds, and porches may not be included in the calculation if these spaces are not living spaces. Accessory dwelling units are not subject to compliance with this chapter. All applicable 3-4 plexes, single and two -family dwellings shall provide any necessary dedications, easements or agreements as identified in the transportation system plan and this chapter, subject to constitutional limitations. In addition, the street frontage shall be improved to include the following priorities for improvements:
    1. Improve street pavement, construct curbs, gutters, sidewalks and planter strips; and

2. Plant street trees.

The cost of compliance with the standards identified in 16.12.011.B.1 and 16.12.011.B.2 is calculated based on the square footage valuation from the State of Oregon Building Codes Division and limited to ten percent of the total construction costs. The value of the alterations and improvements is based on the total construction costs for a complete project rather than costs of various project component parts subject to individual building permits. The entire proposed construction project cost includes engineering and consulting fees and construction costs. It does not include permit fees, recording fees, or any work associated with drafting or recording dedications or easements.

C. Exemptions. The following are exempt from review by this chapter unless public improvements, driveways, PUEs, or other items regulated by this chapter are proposed.

1. Minor Site Plan and Design Review applications

2. Work within the right-of-way

3. Lot Line Adjustments and Abandonments

4. Public capital improvement projects

Finding: Applicable. The application is a land division development; therefore, the development shall follow the standards set forth in OCMC 16.12.

16.12.012 - Jurisdiction and management of the public rights-of-way.

The City has jurisdiction and exercises regulatory management over all public rights-of-way as defined and outlined within 12.04 of the Oregon City Municipal Code.

Finding: Applicable. The city has exercised its regulatory management authority by providing findings within this staff report with conditions to be met by the applicant prior to working within all public rights-of-way.

16.12.013 - Modifications.

The applicant may request and the review body may consider modification of the standards in this chapter resulting from constitutional limitations restricting the City's ability to require the dedication of property or for any other reason, based upon the criteria listed below and other criteria identified in the standard to be modified. All modifications, except for adjustments approved by the City Engineer for tree preservation purposes pursuant to 16.12.013.A, shall be processed through a Type II Land Use application and may require additional evidence from a transportation engineer or others to verify compliance. Compliance with the following criteria is required:

Finding: Applicable. The applicant has requested multiple modifications. Findings and analysis of each one is included separately below.

<u>MODIFICATION 1: Godon Way</u>

The applicant proposed the following modification:

A modification is proposed for the construction of Godon Way. This is a minor local street that provides a stub to the west, just north of Holcomb Blvd., which will provide for a future connection to Godon Way when intervening properties are developed. The request is to use a constrained street section with a 40-foot-wide right-of-way and a 26-foot-wide pavement section for this street. Godon Way as it exists to the west uses a constrained street section. The proposal conforms to the approval criteria of this section as follows:

A. The modification meets the intent of the standard;

Applicant's comment: The proposed modification is consistent with the intent of the standard in that it provides for adequate pedestrian and vehicular traffic, is compatible with the existing design of Godon Way to the west, and facilitates future connectivity from the subject property through to the existing terminus of Godon Way.

Finding: Complies as conditioned. City staff concurs with the applicant's stated reasons for a reduction in the right-of-way. However, to meet city standards for a 40-foot-wide right-of-way, the eastward extension of Godon Way shall have 28-foot-wide pavement, 0.5-foot-wide curb, 5-foot-wide sidewalk

and 0.5-foot-wide buffer (totaling a 40-foot-wide right-of-way). **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

B. The modification provides safe and efficient movement of pedestrians, motor vehicles, bicyclists and freight;

Applicant's comment: The proposed modification provides room for two travel lanes and sidewalks on both sides. This will provide for the safe and efficient movement of all of these modes of transportation.

Finding: Complies as conditioned. See findings from 16.12.013.A.

C. The modification is consistent with an adopted transportation or utility plan; and

Applicant's comment: The proposed modification will provide a standard that allows connectivity through a relatively restricted section of infill residential properties. Godon Way is presently a constricted street in its configuration to the west of the subject property. In order to extend through to the subject property, it must pass through three parcels that are each about .8 acre in size. This will only happen if the development is economically feasible, which means leaving sufficient room for lots. A standard road section would not allow for this to happen as readily as would a reduced-width street section. Connectivity is of greater importance in achieving transportation goals than is having a full-standard street section.

Finding: Complies as conditioned. See findings from 16.12.013.A.

D. The modification is complementary with a surrounding street design; or, in the alternative;

Applicant's comment: As mentioned above, Godon Way to the west of this site is developed with a constrained street section, with a right-of-way measuring 28 feet in width at the eastern end of its stub. The proposed right-of-way width of 40 feet is complementary to that design and can be adjusted as need be when the intervening properties are further divided.

Finding: Complies as conditioned. See findings from 16.12.013.A.

E. If a modification is requested for constitutional reasons, the applicant shall demonstrate the constitutional provision or provisions to be avoided by the modification and propose a modification that complies with the state or federal constitution. The city shall be under no obligation to grant a modification in excess of that which is necessary to meet its constitutional obligations.

Finding: Not applicable. The applicant is not requesting the modification for constitutional reasons.
Note: An additional modification is requested for the grades of two pedestrian pathways that cannot meet ADA requirement due to site topography. This modification is discussed in findings from section 16.12.032.

<u>MODIFICATION #2: Holcomb Blvd.</u>

A deviation from specifications of 16.12.016 has been prescribed for improvements on Holcomb Blvd.
Applicant's comments:

Table 16.12.016 lists street section standards for varying categories of city streets. Holcomb Blvd. is a minor arterial in a residential area. Notes provided by Development Services at the pre-application conference provide the following guidance for the improvement of this road: "Per direction of the City Engineer after the 2020 pre-application meeting, in accordance with the proposed Safe Route to School along Holcomb Boulevard, the required roadway improvements along Holcomb Boulevard on the subject side of the centerline shall consist of 16 feet of asphalt pavement (11-foot-wide travel lane and 5-foot-wide bike lane), 0.5-foot-wide curb, and a 7.5-footwide curb-tight sidewalk. Dedication of ROW along Holcomb Boulevard may be required for the associated frontage improvements."

The existing width of the right-of-way along the project frontage is 70 feet. As discussed above, this width is adequate to accommodate planned a left turn lane into the property, 11' travel lane, 5'-wide bike lane, .5' curb and 7.5'-wide sidewalk). No additional right-of-way is needed. For local residential streets, Table 16.12.016 calls for a 54'-wide right-of-way with 32' of pavement, and .5' curbs, 5.5' planter strips, and 5' sidewalks on both sides of the street.

A. The modification meets the intent of the standard;

Applicant's comments:

The modification is consistent with the intent of the standard in that it provides for adequate pedestrian and vehicular traffic, is compatible with the existing design of Holcomb Blvd to the east.

Finding: Complies as conditioned. Improvements for Holcomb Blvd must be prescribed to closer meet specifications of 16.12.016 while also being complimentary to the most recent improvements found on Holcomb Blvd. The development shall provide the following on the north-side of the centerline of the Holcomb Blvd right-of-way:

(1) 12-foot travel lane, (1) 6-foot bike lane, a 0.5-foot-wide curb, an 8-foot-wide planter strip, 7-foot-wide sidewalk, 0.5-foot-wide buffer and additional pavement needed for a 12-foot-wide left turn lane for east-bound automobiles turning north into the new subdivision street. Right of way dedication and restriping of pavement shall be provided as needed to accommodate these improvements.

The final street section shall result in the following:

North of the existing south curb of Holcomb Blvd, (2) 12-foot travel lanes, (2) 6-foot bike lanes, a 0.5-foot-wide curb, an 8-foot-wide planter strip, 7-foot-wide sidewalk, 0.5-foot-wide buffer and a 12-foot-wide turn lane for east-bound automobiles turning north into the new subdivision street. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

B. The modification provides safe and efficient movement of pedestrians, motor vehicles, bicyclists and freight;

Applicant's comment: The proposed modification provides room for, two bike lanes, two travel lanes, a center turn lane and sidewalks on both sides. This will provide for the safe and efficient movement of all of these modes of transportation.

Finding: Complies as proposed. See previous finding.

C. The modification is consistent with an adopted transportation or utility plan; and

Holcomb Boulevard is classified as a minor arterial. The Holcomb Boulevard Pedestrian Enhancement Concept Plan, which was adopted in 1999, before the current Transportation System plan, is not necessarily the guiding document for Holcomb Boulevard for all development projects. The plan includes substandard elements and does not assume the ability to gain more right-of-way. Rather, the standard for residential minor arterials in Table 16.12.016 shall apply. The modification seeks to better match table 16.12.016 while also fulfilling the intent of the Holcomb Boulevard Pedestrian Enhancement Concept Plan.

Finding: Complies as proposed. See previous finding.

D. The modification is complementary with a surrounding street design; or, in the alternative;

The south side of Holcomb Blvd is developed with a street section which has a 7-foot-wide sidewalk and a half street pavement measuring 26 feet in width which accommodates (1) 6-foot-wide bike lanes, (1) 11-foot-wide travel lanes and leaves extra space for a turn lane.

Finding: Complies as proposed. See previous finding.

E. If a modification is requested for constitutional reasons, the applicant shall demonstrate the constitutional provision or provisions to be avoided by the modification and propose a modification that complies with the state or federal constitution. The city shall be under no obligation to grant a modification in excess of that which is necessary to meet its constitutional obligations.

Finding: Not applicable. Not requested for constitutional reasons.

16.12.014 - Administrative provisions.

An applicant shall submit the following items to the City and complete the following tasks prior to proceeding with construction of proposed development plans. These items include the following:

A. Pre-Design Meeting;
B. Final Engineering Plans, Stamped and Signed by an Oregon Licensed Professional Engineer;
C. Stormwater Report, Stamped and Signed by an Oregon Licensed Professional Engineer;
D. Geotechnical Report, Stamped and Signed by an Oregon Licensed Professional Engineer (if applicable);
E. Engineer's Preliminary and Final Cost Estimates (also may be known as engineer's opinion of probable construction cost);
F. Plan Check and Inspection Fees (as set by City resolution);
G. Certificate of Liability Insurance for City funded public projects contracted by the City (not less than one million dollars single incident and two million dollars aggregate);
H. Preconstruction Meeting;
I. Financial Guarantee(s) per OCMC 17.50.140;
J. Applicable Approvals/Permits from other agencies or entities;
K. Developer/Engineer Agreement for public works improvements.

An applicant shall submit the following additional items to the City and complete the following tasks prior to completing construction of proposed development plans. These items include the following:

L. Project Engineer's Certificate of Completion;
M. Stormwater Operation and Maintenance Easement (if applicable);
N. Deed of Dedication (Bargain and Sale Deed);
O. Recorded Plat and/or Easements (if applicable);
P. Recorded Non-Remonstrance Covenant Agreement;
Q. Land Division Compliance Agreement (if applicable);
R. Permanent Stabilization and/or Restoration of the impact from the development;
S. Fulfillment of all Conditions of Approval;
T. Payment of all Outstanding Fees;
U. Maintenance Guarantee(s). per OCMC 17.50.141;
V. Indemnity Agreement (if applicable);
W. Completed Punchlist;
X. As-Built Drawings;

Details on individual items required by this subsection can be obtained by contacting Public Works. Many items, such as the engineer's cost estimate and plan check and inspection fee, maybe be submitted in conjunction with documentation for other infrastructure improvements that are done with the development (such as street, sanitary sewer, and water).

Finding: Complies with Condition. The developer shall submit or address all items in section 16.12.014 of the Oregon City Municipal Code based on the timing requirements contained therein and as deemed applicable by the City. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

16.12.015 - Street design—Generally.

Development shall be required to provide existing or future connections to adjacent sites through the use of vehicular and pedestrian access easements where applicable. Development shall provide any necessary dedications, easements or agreements as identified in the Transportation System Plan, Trails Master Plan, and/or Parks and

Recreation Master Plan and this chapter, subject to constitutional limitations. The location, width and grade of street shall be considered in relation to: existing and planned streets, topographical conditions, public convenience and safety for all modes of travel, existing and identified future transit routes and pedestrian/bicycle accessways, overlay districts, and the proposed use of land to be served by the streets. The street system shall assure an adequate traffic circulation system with intersection angles, grades, tangents and curves appropriate for the traffic to be carried considering the terrain. To the extent possible, proposed streets shall connect to all existing or approved stub streets that abut the development site. The arrangement of streets shall either:
A. Provide for the continuation or appropriate projection of existing principal streets in the surrounding area and on adjacent parcels or conform to a plan for the area approved or adopted by the City to meet a particular situation where topographical or other conditions make continuance or conformance to existing streets impractical;
B. Where necessary to give access to or permit a satisfactory future development of adjoining land, streets shall be extended to the boundary of the development and the resulting dead-end street (stub) may be approved with a temporary turnaround as approved by the City Engineer. Notification that the street is planned for future extension shall be posted on the stub street until the street is extended and shall inform the public that the dead-end street may be extended in the future. Access control in accordance with OCMC 16.12.017 shall be required to preserve the objectives of street extensions.
C. Adequate right-of-way and improvements to streets, pedestrian ways, bike routes and bikeways, and transit facilities shall be provided and be consistent with the City's Transportation System Plan. Consideration shall be given to the need for street widening and other improvements in the area of the proposed development impacted by traffic generated by the proposed development. This shall include, but not be limited to, improvements to the right-of-way, such as installation of lighting, signalization, turn lanes, median and parking strips, traffic islands, paving, curbs and gutters, sidewalks, bikeways, street drainage facilities and other facilities needed because of anticipated vehicular and pedestrian traffic generation.

Finding: Complies with Condition.

Applicant's comments:

> Existing streets in the area that have impacted the design of the subdivision include: Godon Way (to the west of the site near Holcomb Blvd.), Ames Street (to the west of the site in the Sunnybrook subdivision), Kaylyn Drive (a ½ street in the Barlow Crest neighborhood to the east of the site), and an unimproved rural public road right-of-way that terminates at the northwest corner of the property. The site plan provides for future connectivity to all of these streets.
> The site plan provides for additional street stubs to undeveloped properties outside of the Urban Growth Boundary along the north and east borders of the subject property. These street stubs will provide for future connectivity at such time as these properties are brought into the UGB and annexed to the city.
> All interior streets have been designed in conformance with City local street standards, with the exception of Godon Way (for which a modification has been requested). The existing right-of-way width of Holcomb Blvd. will accommodate full improvement to City standards (including a left turn lane into the property, travel lane, bike path, and 7'-wide sidewalk). No additional right-of-way is needed.

The site plan provides for future connections to adjacent undeveloped or underdeveloped properties, as shown on the GDP. All streets will be dedicated to the City of Oregon City. Necessary easements are provided for public utilities and pedestrian access. See findings from 16.12.016 for specifics on dimensional requirements for street improvements on Holcomb Boulevard and 16.12.013 for Godon Way. See findings in 16.12.030 for specific findings on block length standards and additional connections required.

The connection of the existing half street Kaylyn Drive to the segment of Kaylyn Drive proposed by the applicant will be constructed on a 20-foot wide strip of land that is outside of the City limits. This 20-foot wide strip of property is owned by the applicant but was not included in the 2016 annexation. The applicant submitted correspondence indicating:

"We anticipate making the connection to the existing half-street of Kaylyn Drive and anticipate either dedicating to the City the area of the 20' strip that is needed to make that connection or providing a road easement if the City does not wish to take the dedication of this land that is outside of the city limits. Clackamas County is not likely to accept the dedication of this area as it is not contiguous to any other County Road. They would not be involved in the dedication of right-of-way or roadway easement to the City."

It is unknown whether the existing improvements of Kaylyn Drive have been built to the property line of the proposed development. The following condition has been written to ensure a seamless connection between existing Kaylyn Drive and proposed Kaylyn Drive extension.

The Kaylyn Drive extension to the east of the site shall be constructed through the Clackamas County right-of-way (if not already existing up to the applicant's property) to connect and match with the existing section of Kaylyn Drive constructed within the Barlow Crest Phase 1 subdivision. The applicant shall obtain permits required by Clackamas County for such work, if such work is required.

The proposed alignment for the west end of Jennetten Way does not support continuation or appropriate projection of Ames Street, the existing principal street west of the project site.

The west end of Jennetten Way shall be designed to support a westward extension which aligns with Ames Street and supports a future "T" intersection to a future northward street extension.

Oregon City requires stub streets to have pavement edges which are perpendicular to the direction of travel but not all stub streets are perpendicular to the development property. Therefore, not all street stub streets can be constructed to the edge of the development property. In some cases, topography may also limit how close to the edge of the property boundary such roads can be constructed. The following proposed stub streets end at the edge of the development property:

- The ends of Jennetten Way.
- The north end of the road which lies between lots 66 & 76.
- The east end of Papez Place.
- The west end of Godon way.

The ends of stub streets which are planned for future extension shall have ends which are perpendicular to the direction of travel (90 degree ends of pavement and sidewalk) and the developer shall pay a fee-in-lieu for the portion of street which is not constructed. The fee-in-lieu shall be used for a future extension of the stub street. The fee-in-lieu shall be based on a cost estimate provided by the developer's engineer approved by the City Engineer.

Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.

16.12.016 - Street design.

All development regulated by this chapter shall provide street improvements in compliance with the standards in Table 16.12.016 depending on the street classification set forth in the Transportation System Plan and the Comprehensive Plan designation of the adjacent property, unless an alternative plan has been adopted. The table implements the adopted Transportation System Plan and illustrates the maximum design standards. These standards may be reduced with an alternative street design which may be approved based on the modification criteria in OCMC 16.12.013. The steps for reducing the street design are found in the Transportation System Plan.

Table 16.12.016 Street Design

Table 16.12.016 Street Design. To read the table select the road classification as identified in the Transportation System Plan and the Comprehensive Plan designation of the adjacent properties to find the maximum design standards for the road cross section. If the Comprehensive Plan designation for lands on either side of the street differs, the wider right-of-way standard shall apply.

Road Classification	Comprehensive Plan Designation	Right-of-Way Width	Pavement Width	Public Access	Sidewalk	Landscape Strip	Bike Lane	Street Parking	Travel Lanes	Median
Major Arterial	Mixed Use, Commercial or Public/Quasi Public	116 ft.	94 ft.	0.5 ft.	10.5 ft. sidewalk including 5 ft. x 5 ft. tree wells		6 ft.	8 ft.	(5) 12 ft. Lanes	6 ft.
	Industrial	120 ft.	88 ft.	0.5 ft.	5 ft.	10.5 ft.	6 ft.	N/A	(5) 14 ft. Lanes	6 ft.
	Residential	126 ft.	94 ft.	0.5 ft.	5 ft.	10.5 ft.	6 ft.	8 ft.	(5) 12 ft. Lanes	6 ft.

Road Classification	Comprehensive Plan Designation	Right-of-Way Width	Pavement Width	Public Access	Sidewalk	Landscape Strip	Bike Lane	Street Parking	Travel Lanes	Median
Minor Arterial	Mixed Use, Commercial or Public/Quasi Public	116 ft.	94 ft.	0.5 ft.	10.5 ft. sidewalk including 5 ft. x 5 ft. tree wells		6 ft.	8 ft.	(5) 12 ft. Lanes	6 ft.
	Industrial	118 ft.	86 ft.	0.5 ft.	5 ft.	10.5 ft.	6 ft.	7 ft.	(5) 12 ft. Lanes	N/A
	Residential	100 ft.	68 ft.	0.5 ft.	5 ft.	10.5 ft.	6 ft.	7 ft.	(3) 12 ft. Lanes	6 ft.

Road Classification	Comprehensive Plan Designation	Right-of-Way Width	Pavement Width	Public Access	Sidewalk	Landscape Strip	Bike Lane	Street Parking	Travel Lanes	Median
Collector	Mixed Use, Commercial or Public/Quasi Public	86 ft.	64 ft.	0.5 ft.	10.5 ft. sidewalk including 5 ft. x 5 ft. tree wells		6 ft.	8 ft.	(3) 12 ft. Lanes	N/A
	Industrial	88 ft.	62 ft.	0.5 ft.	5 ft.	7.5 ft.	6 ft.	7 ft.	(3) 12 ft. Lanes	N/A
	Residential	85 ft.	59 ft.	0.5 ft.	5 ft.	7.5 ft.	6 ft.	7 ft.	(3) 11 ft. Lanes	N/A

Road Classification	Comprehensive Plan Designation	Right-of-	Pavement Width	Public Access	Sidewalk	Landscape Strip	Bike Lane	Street Parking	Travel Lanes	Media n

		Way Width								
Local	*Mixed Use, Commercial or Public/Quasi Public*	*62 ft.*	*40 ft.*	*0.5 ft.*	*10.5 ft. sidewalk including 5 ft. x 5 ft. tree wells*		*N/A*	*8 ft.*	*(2) 12 ft. Lanes*	*N/A*
	Industrial	*60 ft.*	*38 ft.*	*0.5 ft.*	*5 ft.*	*5.5 ft.*	*(2) 19 ft. Shared Space*			*N/A*
	Residential	*54 ft.*	*32 ft.*	*0.5 ft.*	*5 ft.*	*5.5 ft.*	*(2) 16 ft. Shared Space*			*N/A*

1. Pavement width includes, bike lane, street parking, travel lanes and median.
2. Public access, sidewalks, landscape strips, bike lanes and on-street parking are required on both sides of the street in all designations. The right-of-way width and pavement widths identified above include the total street section.
3. A 0.5 foot curb is included in landscape strip or sidewalk width.
4. Travel lanes may be through lanes or turn lanes.
5. The 0.5 foot public access provides access to adjacent public improvements.
6. Alleys shall have a minimum right-of-way width of twenty feet and a minimum pavement width of sixteen feet. If alleys are provided, garage access shall be provided from the alley.
7. A raised concrete median or landscape median shall be utilized for roads identified to have access restrictions.

Finding: Complies with Condition.

Applicant's comments:

> Table 16.12.016 lists street section standards for varying categories of city streets. Holcomb Blvd. is a minor arterial in a residential area. Notes provided by Development Services at the pre-application conference provide the following guidance for the improvement of this road: "Per direction of the City Engineer after the 2020 pre-application meeting, in accordance with the proposed Safe Route to School along Holcomb Boulevard, the required roadway improvements along Holcomb Boulevard on the subject side of the centerline shall consist of 16 feet of asphalt pavement (11-foot-wide travel lane and 5-foot-wide bike lane), 0.5-foot-wide curb, and a 7.5-footwide curb-tight sidewalk. Dedication of ROW along Holcomb Boulevard may be required for the associated frontage improvements."
>
> The existing width of the right-of-way along the project frontage is 70 feet. As discussed above, this width is adequate to accommodate planned a left turn lane into the property, 11' travel lane, 5'-wide bike lane, .5' curb and 7.5'-wide sidewalk). No additional right-of-way is needed. For local residential streets, Table 16.12.016 calls for a 54'-wide right-of-way with 32' of pavement, and .5' curbs, 5.5' planter strips, and 5' sidewalks on both sides of the street.

The applicant's proposal for the local residential streets (excluding Godon Way) shall comply with Table 16.12.016. See "MODIFICATION #1: Godon Way" in section 16.12.013 regarding required street improvements for Godon Way.

Holcomb Boulevard is classified as a minor arterial. The Holcomb Boulevard Pedestrian Enhancement Plan, which was adopted in 2005, before the current Transportation System plan, is not necessarily be the guiding document for Holcomb Boulevard for all development projects. The plan includes substandard elements and does not assume the ability to gain more right-of-way. Rather, the standard for residential minor arterials in Table 16.12.016 shall apply.

The applicant's narrative references improvements to Holcomb Blvd of a 5-foot bike lane, 11-foot travel lane, and a 7.5-foot curb tight sidewalk. The applicant's narrative references comments from a pre-application conference which are not binding because, the pre-application notes stated that "No land use decision is rendered at the pre-application conference." Proposed street improvements along

Holcomb Blvd do not meet specifications found in 16.12.016 for residential minor arterial streets. Improvements for Holcomb Blvd must be prescribed to closer meet specifications of 16.12.016 while also being complimentary to the most recent improvements found on Holcomb Blvd.
See "MODIFICATION #2: Holcomb Blvd" in section 16.12.013 regarding required street improvements along Holcomb Blvd.
Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.

A. Sidewalks. The applicant shall provide for sidewalks on both sides of all public streets, on any private street if so required by the decision-maker, and in any special pedestrian way within the development. Both sidewalks and curbs are to be constructed to City standards and at widths set forth above, and according to plans and specifications provided by the City Engineer. Exceptions to this requirement may be allowed in order to accommodate topography, trees or some similar site constraint. In the case of major or minor arterials, the decision-maker may approve a development without sidewalks where sidewalks are found to be dangerous or otherwise impractical to construct or are not reasonably related to the applicant's development. The decision-maker may require the applicant to provide sidewalks concurrent with the issuance of the initial building permit within the area that is the subject of the development application. Applicants for partitions may be allowed to meet this requirement by providing the City with a financial guarantee per OCMC 16.12.110.
Finding: Complies as conditioned. The plan submitted with the application proposes sidewalks on both sides of all public streets and along all fronting rights-of-way. All sidewalks onsite and offsite shall be constructed with the public improvements prior to platting, excepting all lot frontages of building lots. Sidewalks along each frontage shall be installed prior to a final certificate of occupancy is issued for the home on that frontage. . **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

B. Pedestrian and Bicycle Accessways Routes. If deemed appropriate to extend pedestrian and bicycle routes, existing or planned, the decision-maker may require the installation of separate pedestrian and bicycle facilities.
Finding: Complies as conditioned. Transportation System Plan (TSP) project S11 is located along the west side of the development property. This project is for a Holcomb Boulevard-Forsythe Road Shared-Use Path. In a subsequent City staff meeting, the City Engineer confirmed that this section of the shared-use path is intended to be located along the power line easement on the applicant's property. The Oregon City Trails Master Plan designates this shared-use path as a local trail. Standards for local trails found on Page 13 of the Oregon City Trails Master Plan indicate that this type of trail may be 6' to 12' in width. The development has proposed a 10-foot wide trail. The trail width is consistent with the guidance in the Oregon City Trails Master Plan. The applicant shall ensure the ten-foot path is paved, and shall coordinate shared use path design with the Oregon City School District to ensure access to the Holcomb Elementary property from the proposed shared use path. The applicant shall either dedicate the path as right-of-way, or shall record an easement and maintenance agreement to give maintenance and operation responsibilities for the path to the City. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

C. Street Name Signs and Traffic Control Devices. The applicant shall install street signs and traffic control devices as directed by the City Engineer. Street name signs and traffic control devices shall be in conformance with all applicable City regulations and standards.
Finding: Complies with Condition. All traffic control devices, such as signage and pavement markings shall be in conformance with all applicable City regulations and standards. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

D. Street Lights. The applicant shall install street lights which shall be served from an underground source of supply. Street lights shall be in conformance with all City regulations.

Finding: Complies with Condition. The development shall provide street lighting plans with photometric information for Holcomb Boulevard and all new proposed streets which conforms with all City standards, specifications, codes, and policies and is approved by Portland General Electric (PGE) prior to receiving a permit and beginning construction. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

E. Any new street proposed with a pavement width of less than thirty-two feet shall be processed through OCMC 16.12.013 and meet minimum life safety requirements, which may include fire suppression devices as determined by the Fire Marshall to assure an adequate level of fire and life safety. The modified street shall have no less than a twenty-foot wide unobstructed travel lane.

Finding: Complies as proposed. A new street with a pavement width of less than thirty-two feet has been proposed and processed through OCMC 16.12.013. The modified street has no less than a twenty-foot wide unobstructed travel lane.

F. All development shall include vegetated planter strips that are five feet in width or larger and located between the sidewalk and curb unless otherwise approved pursuant to this chapter. All development shall utilize the vegetated planter strip for the placement of street trees or place street trees in other acceptable locations, as prescribed by OCMC 12.08. Development proposed along a collector, minor arterial, or major arterial roads may place street trees within tree wells within a wider sidewalk in lieu of a planter strip. In addition to street trees per OCMC 12.08, vegetated planter strips shall include ground cover and/or shrubs spaced four feet apart and appropriate for the location. No invasive or nuisance plant species shall be permitted.

Finding: Complies with Condition. The applicant has proposed 5-foot wide planter strips throughout the local streets in the development, with the exception of Godon Way. See findings under Table 16.12.016 Street Design regarding Godon Way and Holcomb Boulevard. See section 16.12.015 regarding options for stormwater management areas between the curb and sidewalk or vegetated areas outside of the sidewalk area. See section 12.08 regarding placement of street trees. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

G. Vehicle and pedestrian access easements may serve in lieu of streets when approved by the decision maker and only where dedication of a street is deemed impracticable.

Finding: Not Applicable. The decision maker has not approved access easements in lieu of streets nor has dedication of a street been deemed impracticable.

H. Vehicular and pedestrian easements shall allow for public access and shall comply with all applicable pedestrian access requirements.

Finding: Not Applicable. No vehicular or pedestrian easements are proposed.

16.12.017 - Street design—Access control.

A. A street which is dedicated to end at the boundary of the development or in the case of half-streets dedicated along a boundary shall have an access control granted to the City as a City controlled plat restriction for the purposes of controlling ingress and egress to the property adjacent to the end of the dedicated street. The access control restriction shall exist until such time as a public street is created, by dedication and accepted, extending the street to the adjacent property.

Finding: Complies as conditioned. The development has proposed multiple stub streets or half-streets which are at the boundary of the development. All streets which are to end at the boundary of the development or in the case of half-streets dedicated along a boundary shall have an access control granted to the City as a City controlled plat restriction for the purposes of controlling ingress and egress

to the property adjacent to the end of the dedicated street. The access control restriction shall exist until such time as a public street is created, by dedication and accepted, extending the street to the adjacent property. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

B. The City may grant a permit for the adjoining owner to access through the access control.
Finding: Not Applicable. The City will not grant a permit for the adjoining owner to access through the access control; adjoining owner has access via Forsythe Road.

C. The plat shall contain the following access control language or similar on the face of the map at the end of each street for which access control is required: "Access Control (See plat restrictions)."
Finding: Complies as conditioned. The plat shall contain the following access control language or similar on the face of the map at the end of each street for which access control is required: "Access Control (See plat restrictions)." **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

D. Said plats shall also contain the following plat restriction note(s): "Access to (name of street or tract) from adjoining tracts (name of deed document number[s]) shall be controlled by the City of Oregon City by the recording of this plat, as shown. These access controls shall be automatically terminated upon the acceptance of a public road dedication or the recording of a plat extending the street to adjacent property that would access through those Access Controls."
Finding: Complies as conditioned. Said plats shall also contain a plat restriction note stating that access through the access control shall be controlled by the City of Oregon City. The development shall use language provided by the City of Oregon City for the plat restriction note. **Staff bhas determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

16.12.018 - Street design—Alignment.
The centerline of streets shall be:
A. Aligned with existing streets by continuation of the centerlines; or
B. Offset from the centerline by no more than five feet, provided appropriate mitigation, in the judgment of the City Engineer, is provided to ensure that the offset intersection will not pose a safety hazard.
C. Driveways that are at least twenty-four feet wide shall align with existing or planned streets on adjacent sites.
Finding: Complies as proposed. Proposed street alignments align with existing streets by continuation of the centerlines. No offset from the centerlines of roads of more than five feet, have been proposed. Driveway have not been proposed and do not appear to be out of alignment with existing or planned streets on adjacent sites where applicable.

16.12.019 - Traffic sight obstructions.
All new streets shall comply with the Traffic Sight Obstructions in Chapter 10.32.
Finding: Complies as Proposed. Applicant acknowledges streets will be designed per this standard.

16.12.020 - Street design—Intersection angles.
Except where topography requires a lesser angle, streets shall be laid out to intersect at angles as near as possible to right angles. In no case shall the acute angles be less than eighty degrees unless there is a special intersection design. An arterial or collector street intersecting with another street shall have at least one hundred feet of tangent adjacent to the intersection unless topography requires a lesser distance. Other streets, except alleys, shall have at least fifty feet of tangent adjacent to the intersection unless topography requires a lesser distance. All street intersections shall be provided with a minimum curb return radius of twenty-five feet for local streets. Larger radii shall be required for higher street classifications as determined by the City Engineer. Additional right-of-way

shall be required to accommodate curb returns and sidewalks at intersections. Ordinarily, intersections should not have more than two streets at any one point.

Finding: Complies as Proposed. The applicant has provided plans that show all street intersections with a minimum curb return radius of twenty-five feet for local streets. Larger radii have not been required for higher street classifications as determined by the City Engineer.

16.12.021 - Street design—Grades and curves.
Grades and center line radii shall conform to standards approved by the City Engineer.

Finding: Complies as proposed. The grades and centerline radii are designed to City standards. The maximum street grade is 12 percent and the minimum centerline radius is 100 feet. The proposed maximum street grade of 12 percent meets standards approved by the City Engineer. The minimum centerline radius of 100 feet proposed meets standards approved by the City Engineer.

16.12.022 - Street design—Development abutting arterial or collector street.
Where development abuts or contains an existing or proposed arterial or collector street, the decision maker may require: access control; screen planting or wall contained in an easement or otherwise protected by a restrictive covenant in a form acceptable to the decision maker along the rear or side property line; or such other treatment it deems necessary to adequately protect residential properties or afford separation of through and local traffic. Reverse frontage lots with suitable depth may also be considered an option for residential property that has arterial frontage. Where access for development abuts and connects for vehicular access to another jurisdiction's facility then authorization by that jurisdiction may be required.

Finding: Complies as proposed. The subject property abuts Holcomb Boulevard, a minor arterial street, along its southern border. Lots 1 through 7 are adjacent to this street. These lots are reverse frontage lots that are 130 feet deep, consistent with a listed design option. No driveway access will be allowed onto Holcomb Blvd. from these lots.

16.12.023 - Street design—Pedestrian and bicycle safety.
Where deemed necessary to ensure public safety, reduce traffic hazards and promote the welfare of pedestrians, bicyclists and residents of the subject area, the decision maker may require that local streets be so designed as to discourage their use by nonlocal automobile traffic.
The City Engineer may require that crosswalks include a large vegetated or sidewalk area which extends into the street pavement as far as practicable to provide safer pedestrian crossing opportunities. These curb extensions can increase the visibility of pedestrians and provide a shorter crosswalk distance as well as encourage motorists to drive slower. The City Engineer may approve an alternative design that achieves the same standard for constrained sites.

Finding: Complies as conditioned. The City Engineer has required that crosswalks include a large vegetated or sidewalk area which extends into the street pavement as far as practicable to provide safer pedestrian crossing opportunities. These curb extensions are intended to increase the visibility of pedestrians and provide a shorter crosswalk distance as well as encourage motorists to drive slower. All pedestrian crosswalks shall have a large vegetated or sidewalk area which extends into the street pavement as far as practicable to create a shorter crosswalk distance. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

16.12.024 - Street design—Half street.
Half streets, while generally not acceptable, may be approved where essential to the development, when in conformance with all other applicable requirements, and where it will not create a safety hazard. When approving half streets, the decision maker shall first determine that it will be practical to require the dedication of the other half of the street when the adjoining property is divided or developed. Where the decision maker approves a half street, the applicant shall construct a half street with at least twenty feet of pavement width and provide signage prohibiting street parking so as to make the half street safe until such time as the other half is constructed.

Whenever a half street is adjacent to property capable of being divided or developed, the other half of the street shall be provided and improved when that adjacent property divides or develops. Access control may be required to preserve the objectives of half streets.
When the remainder of an existing half-street improvement is completed it shall include the following items: dedication of required right-of-way, construction of the remaining portion of the street including pavement, curb and gutter, landscape strip, sidewalk, street trees, lighting and other improvements as required for that particular street. It shall also include at a minimum the pavement replacement to the centerline of the street. Any damage to the existing street shall be repaired in accordance with the City's "Pavement Cut Standards" or as approved by the City Engineer.
Finding: Complies as proposed. The development has proposed as small section of half-street (approximately 120 feet in length at the northwest corner of the development. This half-street is a not intended to serve any new lots but is intended to be a stub street intended to be extended when the adjoining property is divided or developed. See findings from 16.12.017 regarding required access controls. See findings in 16.12.013, 16.12.015 and 16.12.016 for half street and full street improvements.

16.12.025 - Street design—Cul-de-sacs and dead-end streets.
The City discourages the use of cul-de-sacs and permanent dead-end streets except where construction of a through street is found by the decision maker to be impracticable due to topography or some significant physical constraint such as geologic hazards, wetland, natural or historic resource areas, pre-existing dedicated open space, pre-existing development patterns, arterial access restrictions or similar situation as determined by the decision maker. This section is not intended to preclude the use of curvilinear eyebrow widening of a street where needed.
A. When permitted, access from new cul-de-sacs and permanent dead-end streets shall be limited to a maximum of twenty-five dwelling units.
B. Cul-de-sacs and permanent dead-end streets shall include pedestrian/bicycle accessways to meet minimum block width standards as prescribed in OCMC 16.12.030.
C. Cul-de-sacs shall have sufficient radius to provide adequate turn-around for emergency vehicles in accordance with fire district and City adopted street standards.
D. Permanent dead-end streets shall provide public street right-of-way/easements sufficient to provide a sufficient amount of turn-around space complete with appropriate no-parking signs or markings to accommodate waste disposal, sweepers, emergency and other long vehicles in the form of a hammerhead or other design to be approved by the decision maker.
E. In the case of dead-end stub streets that will connect to streets on adjacent sites in the future, notification that the street is planned for future extension shall be posted on the stub street until the street is extended and shall inform the public that the dead-end street may be extended in the future. A dead-end street shall include signage or barricade meeting Manual on Uniform Traffic Control Devices (MUTCD).
Finding: Complies as proposed. No cul-de-sacs or permanent dead-end streets are proposed. Two semi-circular bubbles are shown where needed to provide sufficient frontage for the adjacent lots, but they are not deep enough to be considered cul-de-sacs. Where streets are stubbed to the boundaries of the site and are intended to serve future development, the development proposes a sign to be posted containing a notification that the street may be extended to allow for future development. The applicant proposes to provide a barricade or signage per the MUTCD at all street stubs.

16.12.026 - Street design—Alleys.
Alleys with public access easements on private property shall be provided in the Park Place and South End concept plan areas for the following districts R-5, R-3.5, R-2, MUC-1, MUC-2 and NC zones unless other permanent provisions for private access to off-street parking and loading facilities are approved by the decision maker. All alleys intended to provide access for emergency vehicles shall be a minimum width of twenty feet. The corners of alley intersections shall have a radius of not less than ten feet and shall conform to standards approved by the City Engineer. Access easements and maintenance agreements shall be recorded on affected properties.
Finding: Not Applicable. The subject property is not located in the Park Place or South End concept plan areas so alleys are not required. No alleys are proposed in this project.

16.12.027 - Street design—Off-site street improvements.
During consideration of the preliminary plan for a development, the decision maker shall determine whether existing streets impacted by, adjacent to, or abutting the development meet the applicable design or dimensional requirements. Where such streets fail to meet these requirements, the decision-maker shall require the applicant to make proportional improvements sufficient to achieve conformance with minimum applicable design standards required to serve the proposed development.
Finding: Not Applicable. Off-site street improvements are not proposed or required for this development. Please refer to the Traffic Impact Study regarding off-site impacts.

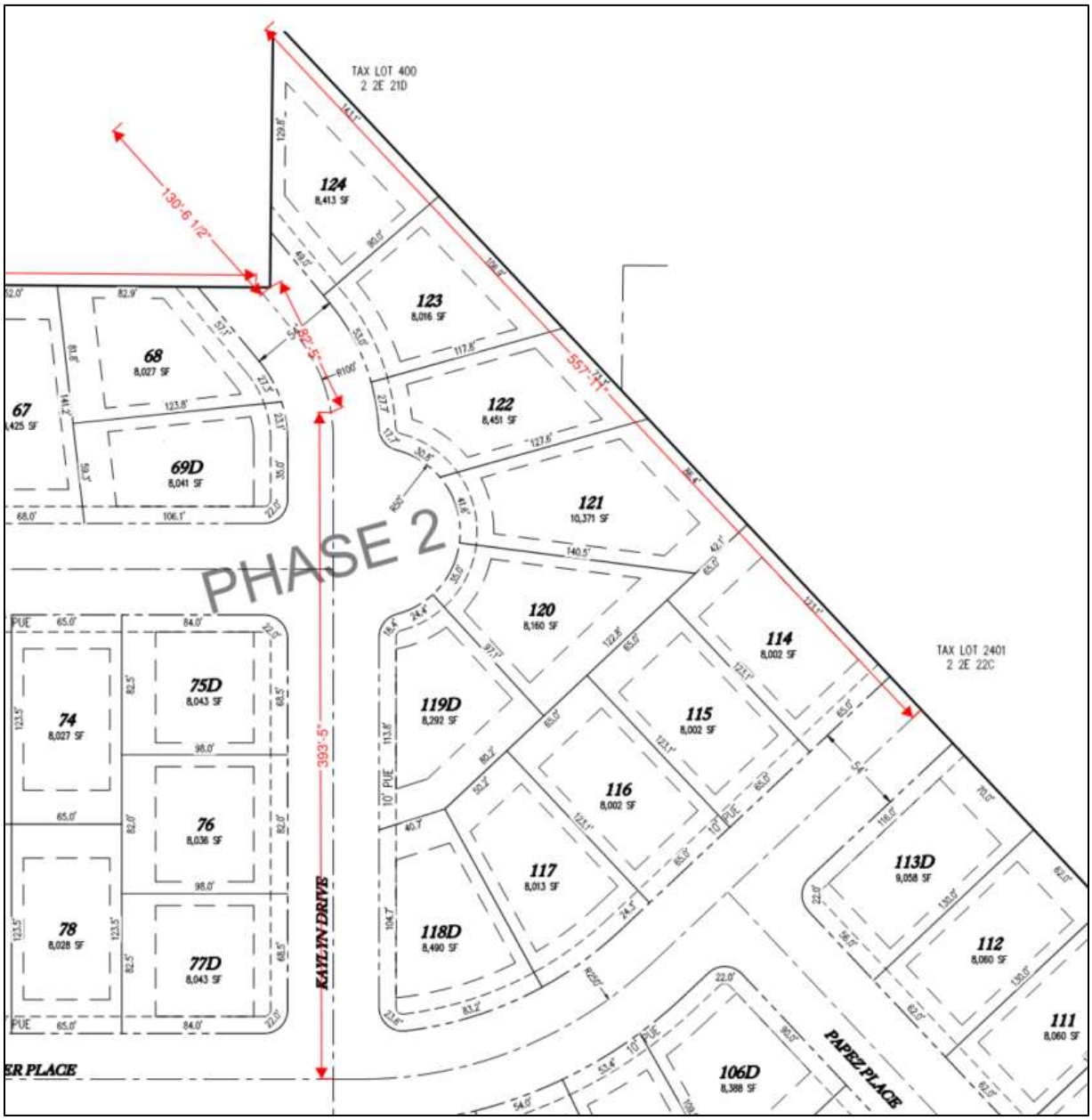
16.12.028 - Street design—Transit.
Streets shall be designed and laid out in a manner that promotes pedestrian and bicycle circulation. The applicant shall coordinate with transit agencies where the application impacts transit streets as identified in OCMC 17.04.1310. Pedestrian/bicycle access ways shall be provided as necessary to minimize the travel distance to transit streets and stops and neighborhood activity centers. The decision maker may require provisions, including easements, for transit facilities along transit streets where a need for bus stops, bus pullouts or other transit facilities within or adjacent to the development has been identified.
Finding: Complies as Proposed. All streets within the proposed development are local streets that provide for bicycle circulation in a shared manner with automobile traffic. A bike lane will be provided along Holcomb Boulevard. Sidewalks are provided on all streets to address pedestrian needs. The local transit provider (Trimet) does not have bus service available on Holcomb Boulevard east of Holcomb Elementary School.

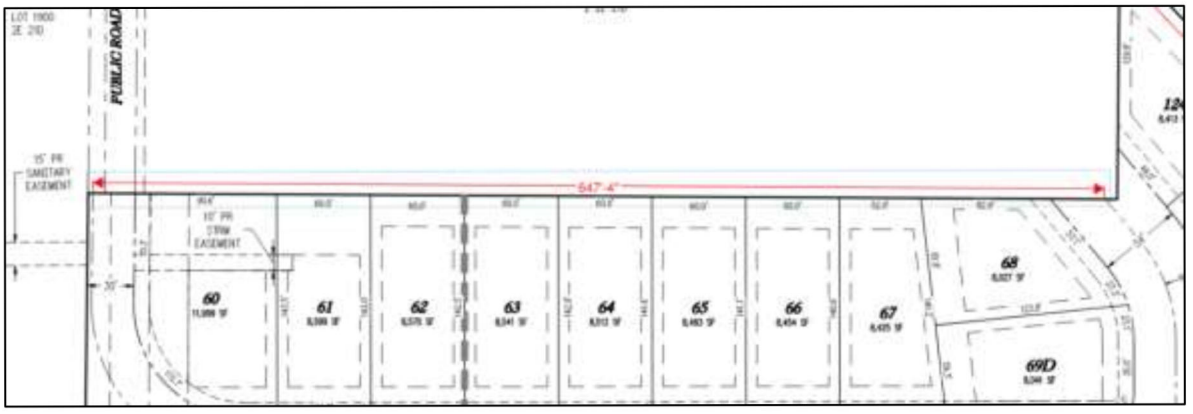
16.12.029 - Excavations—Restoration of pavement.
Whenever any excavation shall have been made in any pavement or other street improvement on any street or alley in the City for any purpose whatsoever under the permit granted by the engineer, it shall be the duty of the person making the excavation to restore the pavement in accordance with the City of Oregon City Public Works Pavement Cut Standards in effect at the time the permit is granted. The City Commission may adopt and modify the City of Oregon City Public Works Pavement Cut Standards by resolution as necessary to implement the requirements of this chapter.
Finding: Complies with Condition. Pavement cuts are proposed within Holcomb Boulevard due to proposed utility service installations and required frontage improvements. Pavement cuts or other improvement made in a City street or alley shall be done in accordance with the City of Oregon City Public Works Pavement Cut Standards and restored in accordance with the City of Oregon City Public Works Pavement Cut Standards. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

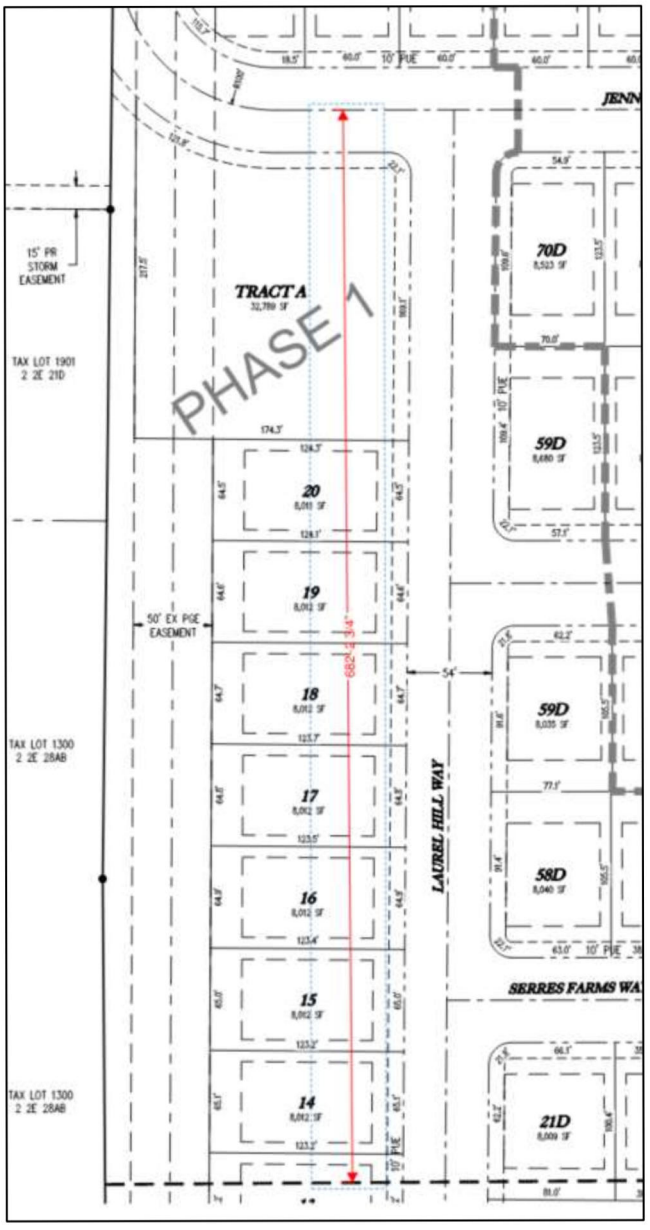
16.12.030 - Blocks—Width.
The width of blocks shall ordinarily be sufficient to allow for two tiers of lots with depths consistent with the type of land use proposed. The length, width and shape of blocks shall take into account the need for adequate building site size, convenient motor vehicle, pedestrian, bicycle and transit access, control of traffic circulation, and limitations imposed by topography and other natural features.
All new streets shall be designed as local streets unless otherwise designated as arterials and collectors in the current adopted Transportation System Plan. The maximum block spacing between streets is 530 feet and the minimum block spacing between streets is 150 feet as measured between the right-of-way centerlines except in zones GI, CI, MUE, I, and WFDD where determining the appropriate street spacing will be determined by the City Engineer. If the maximum block size is exceeded, pedestrian accessways shall be provided every 330 feet. The spacing standards within this section do not apply to alleys.
Finding: Complies as conditioned. The block lengths have been designed in conformance with these standards with the exception of three areas where the block length exceeds 530 feet: 1. Along Kaylyn Drive in the NE portion of the development 2. Along the Northern edge of the site and 3. Along Laurel Hill Way between Tract B and the intersection with Jennetten Way. The maps below show the

measurements of these block lengths. The applicant can make some minor layout changes to meet the block length standards in the three locations where block length is exceeded as follows:

1. Provide an east-west street extending from Kaylyn Dr. to the property boundary, stubbing into the UGB. This street will be in the approximate location of the eyebrow curve currently shown in the plans.
2. Provide a pedestrian accessway in accordance with 16.12.032 from Jennetten Way north towards the UGB boundary centrally located on the block. Alternatively, the street configuration could be adjusted to provide a block length of 530 feet or less.
3. Provide a pedestrian accessway in accordance with 16.12.032 from Laurel Hill Way west toward the shared use path, in the vicinity of Lot 19.




PUBLIC ROAD
15' PR SANITARY EASEMENT
10' PR STORM EASEMENT
547'-4"
60
61
62
63
64
65
66
67
68
69D


15' PR STORM EASEMENT
TRACT A
PHASE 1
TAX LOT 1901
2 2E 21D
50' EX PGE EASEMENT
TAX LOT 1300
2 2E 28AB
TAX LOT 1300
2 2E 28AB
LAUREL HILL WAY
SERRES FARMS WA
70D
59D
59D
58D
21D
20
19
18
17
16
15
14

Two pedestrian accessways are proposed. One is located along the proposed Barlow Trail view corridor. The second accessway ties together the upper and lower sections of the site between Phases 1 and 2. Although the pedestrian accessways are located at intervals exceeding 330 feet, the path has been provided to align with the Barlow Trail view corridor and where existing topography has more gentler slopes. The paths have been spaced to not exceed 530 feet from a street. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

16.12.031 - Street design—Street names.
Except for extensions of existing streets, no street name shall be used which will duplicate or be confused with the name of an existing street. Street names shall conform to the established standards in the City and shall be subject to the approval of the City.
Finding: Complies with Condition. The proposed street names are shown on the site plan submitted with this application. The existing street name of Kaylyn Drive has been continued on the extension of that street into the site. Similarly, the street named Godon Way will eventually connect to the street stub of Godon Way to the west of the subject property. All other street names proposed are new and do not duplicate other street names in the city. Street names shall conform to the established standards in the City and shall be subject to the approval of the City. Only approved street names shall be included on the final plat prior to recording. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

16.12.032 – Public off-street pedestrian and bicycle accessways.
Pedestrian/bicycle accessways are intended to provide direct, safe and convenient connections between residential areas, retail and office areas, institutional facilities, industrial parks, transit streets, neighborhood activity centers, rights-of-way, and pedestrian/bicycle accessways which minimize out-of-direction travel, and transit-orientated developments where public street connections for automobiles, bicycles and pedestrians are unavailable. Pedestrian/bicycle accessways are appropriate in areas where public street options are unavailable, impractical or inappropriate. Pedestrian and bicycle accessways are required through private property or as right-of-way connecting development to the right-of-way at intervals not exceeding 330 feet of frontage; or where the lack of street continuity creates inconvenient or out of direction travel patterns for local pedestrian or bicycle trips.
Finding: Complies as Proposed. Two pedestrian accessways are proposed. One is located along the proposed Barlow Trail view corridor. The second accessway ties together the upper and lower sections of the site between Phases 1 and 2. Although the pedestrian accessways are located at intervals exceeding 330 feet, the path has been provided to align with the Barlow Trail view corridor and where existing topography has more gentler slopes and is acceptable. The development has also proposed a shared-use path along the west side of the development property to fulfill TSP project S11.

A. Entry points shall align with pedestrian crossing points along adjacent streets and with adjacent street intersections.
Finding: Complies as proposed. The entry point of one of the proposed pedestrian accessway aligns with the Barlow Trail View Corridor. There are no other pedestrian crossing points or street intersections to align with.

B. Accessways shall be free of horizontal obstructions and have a nine foot six inch high vertical clearance to accommodate bicyclists. To safely accommodate both pedestrians and bicycles, accessway right-of-way widths shall be as follows:
1. Accessways shall have a fifteen- foot wide right-of-way with a seven-foot wide paved surface with a minimum four-foot planter strip on either side.
2. If an accessway also provides secondary fire access, the right-of-way width shall be at least twenty- four feet wide with a - sixteen foot paved surface between four-foot planter strips on either side.

Finding: Complies as Proposed. The proposed accessways are centered in 15-foot-wide easements. They do not serve as secondary fire accesses. The applicant proposes to use these design specifications of this section will be used in the final engineering.

C. Accessways shall be direct with at least one end point of the accessway always visible from any point along the accessway. On-street parking shall be prohibited within fifteen feet of the intersection of the accessway with public streets to preserve safe sight distance and promote safety.
Finding: Complies as Proposed. Proposed accessways are straight lines that will maintain visibility of both ends. On-street parking will be marked and limited per this standard.

D. To enhance pedestrian and bicycle safety, accessways shall be lighted with pedestrian-scale lighting. Accessway lighting shall be to a minimum level of one-half-foot-candles, a one and one-half foot-candle average, and a maximum to minimum ratio of seven-to-one and shall be oriented not to shine upon adjacent properties. Street lighting shall be provided at both entrances.
Finding: Complies as condition. The applicant proposes to provide lighting as required by this section of code. To ensure compliance the following condition has been written: Accessway lighting shall be to a minimum level of one-half-foot-candles, a one and one-half foot-candle average, and a maximum to minimum ratio of seven-to-one and shall be oriented not to shine upon adjacent properties. Street lighting shall be provided at both entrances. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

E. Accessways shall comply with Americans with Disabilities Act (ADA).
Finding: Complies as proposed. The applicant has stated, "Due to topographic constraints, it is not feasible to comply with ADA standards." The applicant provided a modification to this requirement at the end of this section." **See findings in 16.12.032.J.**

F. The planter strips on either side of the accessway shall be landscaped along adjacent property by installation of the following:
1. Either an evergreen hedge screen of thirty to forty-two inches high or shrubs spaced no more than four feet apart on average; and
2. Ground cover covering one hundred percent of the exposed ground. No bark mulch shall be allowed except under the canopy of shrubs and within two feet of the base of trees; and
3. A two-inch minimum caliper tree for every thirty-five -feet along the accessway. Trees may be planted on either side of the accessway, provided they are spaced no more than thirty-five feet apart; and
4. In satisfying the requirements of this section, evergreen plant materials that grow over forty-two inches in height shall be avoided. All plant materials shall be selected from the Oregon City Native Plant List.
Finding: Complies as conditioned.
The planter strips on either side of the accessway shall be landscaped by installation of the following:

1. Either an evergreen hedge screen of thirty to forty-two inches high or shrubs spaced no more than four feet apart on average; and
2. Ground cover covering one hundred percent of the exposed ground. No bark mulch shall be allowed except under the canopy of shrubs and within two feet of the base of trees; and
3. A two-inch minimum caliper tree for every thirty-five-feet along the accessway. Trees may be planted on either side of the accessway, provided they are spaced no more than thirty-five feet apart; and
4. In satisfying the requirements of this section, evergreen plant materials that grow over forty-two inches in height shall be avoided. All plant materials shall be selected from the Oregon City Native Plant List.

Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.

G. Accessways shall be designed to prohibit unauthorized motorized traffic. Curbs and removable, lockable bollards are suggested mechanisms to achieve this.

Finding: Complies as Proposed. The applicant proposes curbs and lockable bollards as specified in this section.

H. Accessway surfaces shall be paved with all-weather materials as approved by the City. Pervious materials are encouraged. Accessway surfaces shall be designed to drain stormwater runoff to the side or sides of the accessway. Minimum cross slope shall be two percent.

Finding: Complies as Proposed. The applicant proposes accessways to be paved as specified in this section.

I. In parks, greenways or other natural resource areas, accessways may be approved with a five-foot wide gravel path with wooden, brick or concrete edgings.

Finding: Not Applicable. The layout of the proposed development shows pedestrian and bicycle accessways with no impact to parks, greenways, or natural resource areas.

J. The decision maker may approve an alternative accessway design due to existing site constraints through the modification process set forth in OCMC 16.12.013.

Finding: Complies with Condition. A modification to allow for greater grades than would otherwise be allowed by ADA standards is being requested. The applicant has requested the following modifications to the requirement of OCMC 16.12.032.F:

> "The modification is being requested in order to allow for grades that exceed ADA standards on the two pedestrian accessways in the project and the pedestrian trail in Tract C that connects from Godon Way to Holcomb Blvd. Site topography does not permit compliance with ADA maximum grade standards (7.5% for standalone walkways). The pathway between Lots 53 and 54 and Lots 88 and 89 complies with the running grade standard, but for both of these accessways we need flexibility to exceed grade standards at the intersection with the sidewalks at intersecting streets that are in excess of the ADA standard. For the walkway in Tract C, we request a maximum trail running slope of 10%.
>
> For the accessway that runs between Lots 25 and 26 & Lots 32 and 33, we request a maximum trail running slope of 10.5%.
>
> The requested modification complies with the approval standards of OCMC 16.12.13 as follows:
>
> *A. The modification meets the intent of the standard;*
>
> Applicant's comment: The proposed modification is consistent with the intent of the standard in that it provides for adequate pedestrian connectivity through longer blocks than would otherwise be permitted.
>
> B. *The modification provides safe and efficient movement of pedestrians, motor vehicles, bicyclists and freight;*
>
> Applicant's comment: The proposed modification provides for a fully improved paved pathway that is consistent with all City standards. The modification would allow for a maximum 10 percent design grade for the pathways. While steeper than the ADA standard, it is similar to sidewalk grades on sections of streets within the project that approach 12 percent grade.
>
> *C. The modification is consistent with an adopted transportation or utility plan; and*
>
> Applicant's comment: The proposed modification will allow for connectivity that is consistent with the City's Transportation Systems Plan.
>
> *D. The modification is complementary with a surrounding street design; or, in the alternative;*
>
> Applicant's comment: The proposed grades are similar to what is allowed by City standards on the steeper stretches of roadways within the project. Site terrain dictates these grades.

E. If a modification is requested for constitutional reasons, the applicant shall demonstrate the constitutional provision or provisions to be avoided by the modification and propose a modification that complies with the state or federal constitution. The city shall be under no obligation to grant a modification in excess of that which is necessary to meet its constitutional obligations.
Applicant's comment: Not applicable. The modification is not being sought for constitutional reasons.

The city finds with the proposed modifications to be consistent with these standards. The intent of the ADA requirements is to provide accessibility; however, the natural topography of the area is sloped. The amount of grading or switchback ramps that would be required to meet ADA standards is extreme and would lead to other conflicts with the standard, such as the standard for pedestrian accessways to be straight. The pedestrian trail proposed along the west of the development property to fulfill TSP project S11 is intended to be a Local Trail and is not intended as a primary mode of travel for the region. Therefore, the trail is not required to be fully ADA compliant. Since the accessway proposed through the Barlow View corridor and other pedestrian accessways are intended to supplement public streets which exceed maximum block length standards. Streets are permitted to have grades not to exceed 10%. The pedestrian accessways intended to supplement streets which exceed maximum block length standards (E.G. the Barlow Trail corridor pedestrian accessway) shall have slopes of no greater than ten percent. Flat landings shall be provided every 2.5 feet of elevation change. The Barlow Trail corridor pedestrian accessway shall have a pedestrian crosswalk with curb extensions at its west end to align perpendicularly with Tract B (crossing Laurel Hill Way). **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

K. Ownership, liability and maintenance of accessways. To ensure that all pedestrian/bicycle accessways will be adequately maintained over time, the City Engineer shall require one of the following:
1. Dedicate the accessways to the public as public right-of-way prior to the final approval of the development; or
2. The developer incorporates the accessway into a recorded easement or tract that specifically requires the property owner and future property owners to provide for the ownership, liability and maintenance of the accessway.

Finding: Complies as conditioned. The applicant has proposed that the accessways will be contained within easements on adjacent lots and that maintenance requirements will be incorporated into the easements. However, the pedestrian trail proposed along the west of the development property to fulfill TSP project S11 is not contained within any lots and is within a separate easement, tract and/or right-of-way. To ensure compliance the following has been conditioned. The developer shall record an easement over the shared-use paths (or accessways) located within the development property which allows for its use by the public and specifically requires the property owner and future property owners to provide for the liability and maintenance of the accessway. All fees associated with processing and recording of the easement shall be paid by the applicant.
Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.

16.12.033 - Mobility standards.
Development shall demonstrate compliance with intersection mobility standards. When evaluating the performance of the transportation system, the City of Oregon City requires all intersections, except for the facilities identified in subsection E below, to be maintained at or below the following mobility standards during the two-hour peak operating conditions. The first hour has the highest weekday traffic volumes and the second hour is the next highest hour before or after the first hour. Except as provided otherwise below, this may require the installation of mobility improvements as set forth in the Transportation System Plan (TSP) or as otherwise identified by the City Engineer.
A. For intersections within the regional center, the following mobility standards apply:

1. During the first hour, a maximum v/c ratio of 1.10 shall be maintained. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches.
2. During the second hour, a maximum v/c ratio of 0.99 shall be maintained at signalized intersections. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches.
3. Intersections located on the Regional Center boundary shall be considered within the Regional Center.
B. For intersections outside of the Regional Center but designated on the Arterial and Throughway Network, as defined in the Regional Transportation Plan, the following mobility standards apply:
1. During the first hour, a maximum v/c ratio of 0.99 shall be maintained. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches.
2. During the second hour, a maximum v/c ratio of 0.99 shall be maintained at signalized intersections. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches.
C. For intersections outside the boundaries of the Regional Center and not designated on the Arterial and Throughway Network, as defined in the Regional Transportation Plan, the following mobility standards apply:
1. For signalized intersections:
a. During the first hour, LOS "D" or better will be required for the intersection as a whole and no approach operating at worse than LOS "E" and a v/c ratio not higher than 1.0 for the sum of the critical movements.
b. During the second hour, LOS "D" or better will be required for the intersection as a whole and no approach operating at worse than LOS "E" and a v/c ratio not higher than 1.0 for the sum of the critical movements.
2. For unsignalized intersections outside of the boundaries of the Regional Center:
a. For unsignalized intersections, during the peak hour, all movements serving more than twenty vehicles shall be maintained at LOS "E" or better. LOS "F" will be tolerated at movements serving no more than twenty vehicles during the peak hour.
D. For the intersection of OR 213 & Beavercreek Road, the following mobility standards apply:
1. During the first, second & third hours, a maximum v/c ratio of 1.00 shall be maintained. Calculation of the maximum v/c ratio will be based on an average annual weekday peak hour.
E. Until the City adopts new performance measures that identify alternative mobility targets, the City shall exempt proposed development that is permitted, either conditionally, outright, or through detailed development master plan approval, from compliance with the above-referenced mobility standards for the following state-owned facilities:
I-205/OR 99E Interchange
State intersections located within or on the Regional Center Boundaries
1. In the case of conceptual development approval for a master plan that impacts the above references intersections:
a. The form of mitigation will be determined at the time of the detailed development plan review for subsequent phases utilizing the Code in place at the time the detailed development plan is submitted; and
b. Only those trips approved by a detailed development plan review are vested.
2. Development which does not comply with the mobility standards for the intersections identified in OCMC 16.12.033 shall provide for the improvements identified in the Transportation System Plan (TSP) in an effort to improve intersection mobility as necessary to offset the impact caused by development. Where required by other provisions of the Code, the applicant shall provide a traffic impact study that includes an assessment of the development's impact on the intersections identified in this exemption and shall construct the intersection improvements listed in the TSP or required by the Code.

Finding: Complies with Conditions. The applicant submitted a traffic impact analysis study prepared by Lancaster Mobley. The engineer evaluated traffic patterns and traffic volumes and evaluated five locations. The key intersections were:

- Holcomb Boulevard/S Barlow Drive
- Holcomb Boulevard/Serres Farm Way (proposed site access)

- Holcomb Boulevard/Holly Lane (proposed)
- Highway 213/Redland Road
- Redland Road/Holcomb Boulevard/Abernethy Road

COVID ADJUSTMENT FACTOR FOR BACKGROUND TRAFFIC LEVELS

Adjustments to existing and historical counts were used to account for unusual traffic volumes associated with the COVID pandemic and reduced travel. The intersections of Highway 213/Redland Road and Redland/Holcomb/Abernethy were the focus of these efforts. The engineer used a variety of data to develop traffic volumes. He multiplied July 2011 counts by his COVID adjustment factor of 1.0765 to reflect traffic volumes that might reasonably be expected without the pandemic.

Another piece of evidence used by the engineer to assess the impact of the pandemic on traffic was data was obtained through StreetLight Insight, which is a "big data" company that utilizes primarily cell phone data to derive traffic volumes. The engineer describes this approach as being based "on millions of data points across a broad range of time, rather than just a single count on a single day over a few hours of time." The Addendum provided July data on Highway 213 for weekdays for the last four years (2017 through 2021). The data suggests that July 2020 volumes were depressed but that the 2021 volumes had returned to near normal conditions. The engineer concludes that the July 2021 counts are reliable and that "the calculated adjustment factor described in the previous section provides a reasonable high-end estimate of evening peak conditions."

The City's transportation consultant, John Replinger, reviewed the study and provided the following analysis of the COVID-adjustment factor used: "I found the engineer's analysis and conclusions to be compelling even though his COVID adjustment factors are lower than some previous analyses used in previous studies for the same intersections."

TRIP GENERATION AND VOLUME/CAPACITY STANDARDS

Staff notes that the traffic analysis assumes 142 units in the development, while 141 are proposed. The engineer calculated that 142 homes would produce 92 morning peak hour trips, 124 evening peak hour trips, and 1,258 average weekday trips. Below is an excerpt from Mr. Replinger's analysis

> The Study provides an analysis of the intersection of OR 213/Redland Road and the intersection of Redland Road/Holcomb Boulevard/Abernethy Road. A new analysis of these intersections was a requirement of the annexation and rezoning of the property (AN16-04). The analysis accounts for the traffic from the development of phase 1 of the North End project, which is expected in the next few years.
>
> Using adjusted 2021 traffic volumes, the engineer calculates that the intersection of Highway 213/Redland Road operates at a v/c of 0.91 during the AM peak hour and 0.97 during the PM peak hour. With growth in the region, the performance of the intersection is predicted to degrade. The TIS predicts that by year 2025, the v/c would degrade to 0.93 during the AM peak hour and 1.02 during the PM peak hour with background growth.
>
> Under 2021 conditions, the intersection of Redland Road/Holcomb Boulevard/Abernethy Road is calculated to operate at a v/c of 0.56 during the AM peak hour and 0.73 during the PM peak hour. With growth in the region, the performance of the intersection is predicted to degrade. By 2025, the TIS predicts that the v/c would degrade to 0.61 during the AM peak hour and 0.78 during the

PM peak hour with background growth. Adding traffic from the proposed development of the Serres Farm property would cause slight additional degradation to v/c of 0.64 during the AM peak hour and 0.83 during the PM peak hour.

Mr. Replinger concurs with the applicant's engineer that the intersections will continue to meet the City's mobility standards with additional trips from the Serres Farm development.

PROPORTIONAL SHARE COSTS

Consistent with the conditions associated with the annexation and rezoning action, the engineer provided calculations of the traffic generated by the subdivision that would impact key transportation facilities for which a proportional share is being collected.

Proportional share calculations for projects use the following inputs: the project cost as listed in the most recent Transportation System Development Charge project list; the predicted 2035 intersection traffic volumes from the TSP or a TIA showing 2035 traffic volumes; and the calculated intersection volumes using the subject intersections from the proposed development. The per trip cost is derived by dividing the project cost by the total 2035 PM peak hour intersection volumes.

Project	Cost ($000)	Total PM Peak Entering Volume	$/trip	Phase 1 Trips	Phase 1 Share $	Phase 2 Trips	Phase 2 Share $
Redland/Holly D36	1,040	688	1512	1	1512	1	1512
Holcomb/Holly D43	1,040	1899	548	12	6576	10	5480
I-205 SB Ramps/ OR 99E D75	2,990	5690	525	6	4725	4	3150
I-205 NB Ramps/ OR 99E D76	1,970	6155	320	6	1920	4	1280
Hwy213/Redland D97	10,105	6540	1545	37	57,165	31	47,895
Redland/ Holcomb/ Abernethy	See narrative	2273	See narrative	60	TBD	49	See narrative
Hwy213/Beaver-creek D94	22,800	6935	404	6	2424	44	16616
TOTAL					**$74,322**		**$60,933**

Mr. Replinger recommends a condition of approval that the applicant pay proportional share costs according to the table in his letter (and shown above). The proportional share estimates in the table above are subject to adjustment based on revised project costs or other variables.

Mr. Replinger also recommends that the developer pay a proportional share of a not-yet-identified project to improve the capacity and operations of the intersection of Redland Road/ Holcomb Boulevard/Abernethy Road based on the ratio of trips generated by this development and the predicted 2035 intersection volumes. The approved annexation file for this property included a condition for proportional share of the costs of this intersection improvement. Since that time, a project to add capacity to the intersection has not been adopted into a plan, however, several methods and ideas have been put forward by the applicant's engineer and by other development projects (the North End). As described in Mr. Replinger's letter,

> "In the 2017 TIS for the annexation of the Serres Farm property, the engineer explored mitigation concepts that could be used to improve the performance of the Redland Road/Holcomb Boulevard/Abernethy Road intersection. He concludes that adding an eastbound right turn lane to the Abernethy Road approach would improve the intersection's performance. Another concept explored for this intersection in a TIS for a different development proposed a different turn lane and the use of a different signal timing and phasing plan. Numerous options offer solutions that would allow the intersection to meet adopted performance standards in the TSP's planning horizon (year 2035)."

A condition of approval of AN-16-04, Annexation of the subject property, is the following:

> *Redland Road at Holcomb Boulevard/Abernethy Road (a non-Oregon Highway intersection) is forecasted to fall below adopted performance standards prior to year 2035. As a result, the City must do one of the following:*
>
> *(1) Adopt amendments to the City's Transportation System Plan and OCMC Chapter 12.04 to include projects that satisfy the then-applicable performance standards and these standards must be acknowledged; or*
>
> *(2) Condition the approval of a land division application that satisfies then-applicable OCMC Chapter 12.04 by including proportional mitigation of the application's impacts on that intersection, or such other mitigation measure(s) as may be approved which assure(s) that the intersection will either meet, or perform no worse than, the then-applicable performance standards.*

The City has not, at this time, adopted an amendment to the Transportation System Plan regarding this intersection. Therefore, option (2) of the condition prevails. This condition requires proportional mitigation of the application's impacts on that intersection, or other mitigation measures.
The City will consider the queue storage improvements discussed below to suffice as mitigation for the impacts to this intersection.

The applicant shall pay a proportional share for transportation improvements at impacted intersections in the amount of $74,322 for Phase 1 and $60,933 for Phase 2.

VEHICLE QUEUE STORAGE
Although both the intersection of Highway 213/Redland Road and the intersection of Redland Road/Holcomb Boulevard/Abernethy Road are calculated to operate acceptably with regard to the v/c ratio, queuing issues were identified in the analysis.

At the intersection of Highway 213/Redland Road, queues are predicted to exceed available storage length for the northbound left-turn lane and for the innermost eastbound left-turn lane. At the intersection of Redland Road/Holcomb Boulevard/Abernethy Road, queues are predicted to exceed available storage by one or two car lengths for the northbound left-turn lane and the eastbound left-turn lane. In both cases, the engineer indicates sufficient space is available to extend the queue storage.

According to Mr. Replinger, "Altering the pavement to extend the queue storage would be a worthwhile modification to the intersection." Mr. Replinger recommends a condition of approval that the applicant shall pay the costs to alter the pavement markings to increase queue storage at the intersection of Redland Road/ Holcomb Boulevard/Abernethy Road. As Clackamas County controls some of these intersection approaches, their coordination will be required. The applicant shall make every effort to gain approval from the County to make such adjustments to striping. If approved, the applicant shall pay the costs to alter the pavement markings to increase queue storage at the intersection of Redland Road/ Holcomb Boulevard/Abernethy Road where it is indicated as deficient within the applicant's traffic study. At Highway 213 and Redland, the queuing issues "can only be mitigated by increasing the capacity of the intersection either by implementing TSP project D97 or some interim solution" according to Mr. Replinger. The applicant is required to pay a proportional share of project D97, thus, no additional changes are required at this intersection.

CONGESTION ON HOLCOMB BOULEVARD

Holly Lane and Swan Avenue extensions are planned as new connections into the Park Place neighborhood as part of the Park Place Concept Plan. Testimony from the Park Place Neighborhood Association proposed that the Planning Commission could stop any new development until such time these "alternate routes" are constructed. Park Place Neighborhood Association's comments indicated that there is no alternate route out of Park Place; Holcomb Boulevard is congested and traffic was backed up for hours during the 2020 wildfires. The City's Transportation System Plan includes these routes as necessary connections with future buildout of the Concept Plan area. The applicant's traffic study indicates that the current street system has the necessary capacity for the project to meet mobility standards in 16.12.033. No additional street connections are needed in order for the development to meet the standards. Staff has included a memo in the record to address the concerns about the wildfire evacuations, including a discussion of efforts by the Clackamas County disaster management division (See Exhibit 12).

Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.

16.12.035 - Driveways.
A. All new development and redevelopment shall meet the minimum driveway spacing standards identified in Table 16.12.035.A.

Table 16.12.035.A Minimum Driveway Spacing Standards		
Street Functional Classification	*Minimum Driveway Spacing Standards*	*Distance*
Major Arterial Streets	*Minimum distance from a street corner to a driveway for all uses other than detached single and two-family dwellings*	*175 ft.*
Minor Arterial Streets	*Minimum distance from a street corner to a driveway for all uses other than detached single and two-family dwellings*	*175 ft.*
Collector Streets	*Minimum distance from a street corner to a driveway for all uses other than detached single and two-family dwellings*	*100 ft.*

Local Streets	*Minimum distance from a street corner to a driveway for all uses other than detached single and two-family dwellings*	*25 ft.*

The distance from a street corner to a driveway is measured along the right-of-way from the edge of the intersection (on the same side of the road) right-of-way to the nearest portion of the driveway and the distance between driveways is measured at the nearest portions of the driveway at the right-of-way.

Finding: Complies as conditioned. Driveways will be reviewed for compliance with this section at the time of building permit application for each lot. All driveways shall meet the minimum driveway spacing standards identified in Table 16.12.035.A. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

B. Nonresidential or multi-family residential driveways that generate high traffic volumes shall be treated as intersections and shall adhere to requirements of OCMC 16.12.020.

Finding: Not applicable. The development is not a non-residential or multi-family development.

C. One driveway may be allowed per frontage, unless otherwise restricted. In no case shall more than two driveways be allowed for any single-family attached or detached residential property, duplex, 3-4 plex, or property developed with an ADU or internal conversion with multiple frontages, unless otherwise approved by the City Engineer.

Finding: Complies as proposed. The applicant has not proposed more than one driveway per frontage. It is permissible for some corner lots to have more than one driveway as allowed by this section of city code. Driveways will be reviewed for compliance with this section at the time of building permit application for each lot.

D. When a property fronts multiple roads, access shall be provided from the road with the lowest classification in the Transportation System Plan whenever possible to minimize points of access to arterials and collectors. At the discretion of the City Engineer, properties fronting a collector or arterial road may be allowed a second driveway, for the creation of a circulation pattern that eliminates reverse maneuvers for vehicles exiting a property if applied for and granted through procedures in OCMC 16.12.013. All lots proposed with a driveway and lot orientation on a collector or minor arterial shall combine driveways into one joint access per two or more lots unless the City Engineer determines that:

1. No driveway access may be allowed since the driveway(s) would cause a significant traffic safety hazard; or

2. Allowing a single driveway access per lot will not cause a significant traffic safety hazard.

Finding: Complies as proposed. The applicant has not proposed a driveway for lots which front a collector or minor arterial road. The applicant may choose to combine driveways for attached dwelling units proposed with the development. Driveways will be reviewed for compliance with this section at the time of building permit application for each lot.

E. All driveway approaches shall be limited to the dimensions identified in Table 16.12.035.D.

Table 16.12.035.D Driveway Approach Size Standards		
Property Use	*Minimum Driveway Approach Width*	*Maximum Driveway Approach Width*
Single-Family Attached	*10 feet*	*12 feet*
Single-Family Detached in R-5 & R-3.5	*10 feet*	*12 feet*
Single-Family Detached in R-10, R-8, & R-6	*12 feet*	*24 feet*

Duplexes	*12 feet*		*24 feet*
3-4 Plexes	*12 feet*		*24 feet*
Multi-Family	*18 feet*		*30 feet*
Commercial, Industrial, Office, Institutional, Mixed Use, and/or Nonresidential	*One-Way 12 feet*	*Two-Way 20 feet*	*40 feet*

Driveway widths shall match the width of the driveway approach where the driveway meets sidewalk or property line but may be widened onsite (for example between the property line and the entrance to a garage). Groups of more than four parking spaces shall be so located and served by driveways so that their use will not require backing movements or other maneuvering within a street right-of-way other than an alley.

Finding: Complies as proposed. Driveways will be reviewed for compliance with this section at the time of building permit application for each lot. All driveways (curb cuts), new and existing, shall meet the minimum driveway width standards identified in Table 16.12.035.D. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

F. The City Engineer reserves the right to require a reduction in the number and size of driveway approaches as far as practicable for any of the following purposes:
1. To provide adequate space for on-street parking;
2. To facilitate street tree planting requirements;
3. To assure pedestrian and vehicular safety by limiting vehicular access points; and
4. To assure that adequate sight distance requirements are met.
a. Where the decision maker determines any of these situations exist or may occur due to the approval of a proposed development for non-residential uses or attached or multi-family housing, a shared driveway shall be required and limited to twenty-four feet in width adjacent to the sidewalk or property line.

Finding: Not applicable. The City Engineer has not required a reduction in the number and size of driveway approaches.

G. For all driveways, the following standards apply.
1. Each new or redeveloped curb cut shall have an approved concrete approach or asphalted street connection where there is no concrete curb and a minimum hard surface for at least ten feet back into the property as measured from the current edge of sidewalk or street pavement to provide for controlling gravel tracking onto the public street. The hard surface may be concrete, asphalt, or other surface approved by the City Engineer.
2. Any driveway approach built within public right-of-way shall be built and permitted per City requirements as approved by the City Engineer.
3. No driveway with a slope of greater than fifteen percent shall be permitted without approval of the City Engineer.

Finding: Complies as proposed. Driveways will be reviewed for compliance with this section at the time of building permit application for each lot.

H. Exceptions. The City Engineer reserves the right to waive these standards or not allow driveway access, if the driveway(s) would cause a significant traffic safety hazard. Narrower driveway widths may be considered where field conditions preclude use of recommended widths. When larger vehicles and trucks will be the predominant users of a particular driveway, turning templates may be utilized to develop a driveway width that can safely and expeditiously accommodate the prevalent type of ingress and egress traffic.

Finding: Not applicable. The City Engineer has not waived these standards.

16.12.065 - Building site—Grading.
Grading of building sites shall conform to the State of Oregon Structural Specialty Code, Title 18, any approved grading plan and any approved residential lot grading plan in accordance with the requirements of OCMC

13.12,15.48, 16.12 and the Public Works Stormwater and Grading Design Standards, and the erosion control requirements of OCMC 17.47.

Finding: Applicable. Please refer to the findings within sections 13.12,15.48, 16.12 & 17.47 of this report.

16.12.085 - Easements.

The following shall govern the location, improvement and layout of easements:

A. Utilities. Utility easements shall be required where necessary as determined by the City Engineer. Insofar as practicable, easements shall be continuous and aligned from block-to-block within the development and with adjoining subdivisions or partitions. Specific utility easements for water, sanitary or storm drainage shall be provided based on approved final engineering plans.

B. Unusual Facilities. Easements for unusual facilities such as high voltage electric transmission lines, drainage channels and stormwater detention facilities shall be adequately sized for their intended purpose, including any necessary maintenance roads. These easements shall be shown to scale on the preliminary and final plats or maps. If the easement is for drainage channels, stormwater detention facilities or related purposes, the easement shall comply with the requirements of the Public Works Stormwater and Grading Design Standards.

C. Watercourses. Where a development is traversed or bounded by a watercourse, drainageway, channel or stream, a stormwater easement or drainage right-of-way shall be provided which conforms substantially to the line of such watercourse, drainageway, channel or stream and is of a sufficient width to allow construction, maintenance and control for the purpose as required by the responsible agency. For those subdivisions or partitions which are bounded by a stream of established recreational value, setbacks or easements may be required to prevent impacts to the water resource or to accommodate pedestrian or bicycle paths.

D. Access. When easements are used to provide vehicular access to lots within a development, the construction standards, but not necessarily width standards, for the easement shall meet City specifications. The minimum width of the easement shall be 20 feet. The easements shall be improved and recorded by the applicant and inspected by the City Engineer. Access easements may also provide for utility placement.

E. Resource Protection. Easements or other protective measures may also be required as the Community Development Director deems necessary to ensure compliance with applicable review criteria protecting any unusual significant natural feature or features of historic significance.

Finding: Complies as proposed. Public utility easements 10 feet in width are provided along all street frontages. They are also provided where necessary for proposed utility lines, for a pedestrian accessways, for temporary emergency vehicle access, and for the existing powerlines that cross the site. The application has not proposed any joint access use between individual lots; therefore, no private access easements are required. The applicant has also proposed easements for unusual facilities such as high voltage electric transmission lines, and natural resource protection areas. All of these easements are consistent with the provisions of this section.

16.12.090 - Minimum improvements—Procedures.

In addition to other requirements, improvements installed by the applicant either as a requirement of these or other regulations, or at the applicant's option, shall conform to the requirements of this title and be designed to City specifications and standards as set out in the City's facility master plan and Public Works Stormwater and Grading Design Standards. The improvements shall be installed in accordance with the following procedure:

A. Improvement work shall not commence until construction plans have been reviewed and approved by the City Engineer and to the extent that improvements are located in County or State right-of-way, they shall be approved by the responsible authority. To the extent necessary for evaluation of the proposal, the plans may be required before approval of the preliminary plat of a subdivision or partition. Expenses incurred thereby shall be borne by the applicant and paid for prior to final plan review.

Finding: Complies with Condition. Commencement of improvement work is further restricted by requirements of section 16.12.014; see section 16.12.014 of this report for associated findings. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

B. Improvements shall be constructed under the inspection and approval of the City Engineer. Expenses incurred thereby shall be borne by the applicant and paid prior to final approval. Where required by the City Engineer or other City decision-maker, the applicant's project engineer also shall inspect construction.
Finding: Complies with Condition. Improvements shall be constructed under the inspection and approval of the City. Expenses incurred thereby shall be borne by the applicant and paid prior to final approval. The applicant's project engineer also shall inspect construction. Inspection fees are set by City resolution, see section 16.12.014 of this report. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

C. Erosion control or resource protection facilities or measures are required to be installed in accordance with the requirements of OCMC 17.47, 17.49 and the Public Works Erosion and Sediment Control Standards.
Finding: Compiles with Condition. See findings from section 17.47, 17.49 of this report.

D. Underground utilities, waterlines, sanitary sewers and storm drains installed in streets shall be constructed prior to the surfacing of the streets. Stubs for service connections for underground utilities, such as, storm, water and sanitary sewer shall be placed beyond the ten-foot-wide public utility easement within private property as defined in OCMC 16.12.85.A.2.
Finding: Compiles with Condition. Underground utilities, waterlines, sanitary sewers and storm drains proposed to be installed in streets shall be constructed and inspected as directed prior to the surfacing of the streets. Stubs for service connections for underground utilities, such as, storm, water and sanitary sewer shall be placed beyond the ten-foot-wide franchise utility easement within private property. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

E. As-built construction plans and digital copies of as-built drawings shall be filed with the City Engineer upon completion of the improvements.
Finding: Complies with Condition: As-built construction plans and digital copies of as-built drawings shall be filed with the City Engineer within 90 days of completing improvements. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

F. The City Engineer may regulate the hours of construction and access routes for construction equipment to minimize impacts on adjoining residences or neighborhoods.
Finding: Complies with Condition. Permitted hours of construction shall be set forth by the City Engineer in the pre-construction meeting. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

16.12.095 - Minimum improvements—Public facilities and services.
The following minimum improvements shall be required of all applicants for a development, unless the decision-maker determines that any such improvement is not proportional to the impact imposed on the City's public systems and facilities:
A. Transportation System. Applicants and all subsequent lot owners shall be responsible for improving the City's planned level of service on all public streets, including alleys within the development and those portions of public streets adjacent to but only partially within development. Applicants are responsible for designing and providing adequate vehicular, bicycle and pedestrian access to their developments and for accommodating future access to neighboring undeveloped properties that are suitably zoned for future development. Storm drainage facilities shall be installed and connected to off-site natural or man-made drainageways. Upon completion of the street improvement survey, the applicant shall reestablish and protect monuments of the type required by ORS 92.060 in monument boxes with covers at every public street intersection and all points or curvature and points of tangency of their center line, and at such other points as directed by the City Engineer.

Finding: Complies as proposed. The applicant has proposed a public street within the development and public street improvements along adjacent rights-of-way which provides adequate vehicular, bicycle and pedestrian access to their developments and for accommodating future access to neighboring undeveloped properties that are suitably zoned for future development. See 16.12.095.B regarding requirements for storm drainage facilities. The applicant has provided plans showing only one curb ramp for each corner of an intersection where there is more than one direction of travel. All intersections shall have a curb ramp for each direction of travel which complies with Americans with Disabilities Act (ADA). Approved curb ramp design(s) will need to be included on engineering plans following proper engineering technical standards prior to receiving a permit and beginning construction. The multi-use path crossing of Godon Way is considered an intersection and shall follow the ADA requirements of intersections. See findings in 16.12.033 for findings on level of service and mobility standards. Transportation System Plan (TSP) project S11 is located along the west side of the development property. This project is for a Holcomb Boulevard-Forsythe Road Shared-Use Path and also aligns with the TSP "Street Crossing Solution" project C5. To fulfill TSP project C5, the development shall provide a signalized pedestrian crosswalk on Holcomb Boulevard equipped with a Rapid Flashing Beacon for the mid-block crosswalk where the proposed Holcomb Boulevard-Forsythe Road Shared-Use Path (TSP project S11) meets Holcomb Boulevard. The pedestrian crosswalk shall have a curb ramp on both sides of Holcomb Boulevard which complies with Americans with Disabilities Act (ADA). Approved curb ramp design(s) will need to be included on engineering plans following proper engineering technical standards prior to receiving a permit and beginning construction.
Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.

B. Stormwater Drainage System. Applicants shall design and install drainage facilities within a development and shall connect the development's drainage system to the appropriate downstream storm drainage system as a minimum requirement for providing services to the applicant's development. The applicant shall obtain county or state approval when appropriate. Applicants are responsible for extending the appropriate storm drainage system to the development site and for providing for the connection of upgradient properties to that system. The applicant shall design the drainage facilities in accordance with City drainage master plan requirements, OCMC 13.12 and the Public Works Stormwater and Grading Design Standards.
Finding: Complies as proposed. The applicant has provided preliminary plans showing an extension of a new stormwater main through the frontage of the development within Holcomb Boulevard and through the new local streets to serve all properties within the development. The stormwater drainage system will be reviewed by city staff to ensure it can provide for the connection of upgradient properties to the new public stormwater system to the maximum extent practicable. **See findings from section 13.12 for the design of stormwater management facilities to serve the development.**

C. Sanitary Sewer System. The applicant shall design and install a sanitary sewer system to serve all lots or parcels within a development in accordance with the City's sanitary sewer design standards, and shall connect those lots or parcels to the City's sanitary sewer system, except where connection is required to the county sanitary sewer system as approved by the county. Applicants are responsible for extending the City's sanitary sewer system to the development site and through the applicant's property to allow for the future connection of neighboring undeveloped properties that are suitably zoned for future development. The applicant shall obtain all required permits and approvals from all affected jurisdictions prior to final approval and prior to commencement of construction. Design shall be approved by the City Engineer before construction begins.
Finding: Complies with Condition. The applicant has provided preliminary plans showing sanitary sewer system infrastructure expansions to serve the development. These improvements are preliminary and do not provide enough information to be reviewed for compliance with city design standards. While the alignment is consistent with the Sanitary Sewer Master Plan, the proposed sizes are not. If Master Plan sizes are to be followed, the developer shall provide appropriate downstream upgrades. If it is

determined through full build out calculations that the development nor upstream properties need larger sizes, then the new sewer mains may be approved at a smaller size as approved by the City Engineer. The majority of the site must be served from the Ames Street location due to topographic considerations. The Ames Street sewer is located approximately 680 feet to the west of the subject property. The most direct route would cross land owned by the Serres family that is presently outside of the city limits and the Urban Growth Boundary. The plans also show a proposed easement which will be needed if public sewer is to exist on a different property not owned by the developer. This location will require the approval of Clackamas County and the applicant is presently working with County Planning regarding this issue. The applicant provided a sanitary sewer system to serve all lots or parcels within the development. The applicant shall design a sanitary sewer system according to the Oregon City Sanitary Sewer Design Standards and according to design calculations to prove proper sizing of the system. The applicant shall obtain all required permits and approvals from all affected jurisdictions (Clackamas County or the Oregon City School District) prior to final plan approval. A public utility easement shall be provided to the City from all necessary landowners to provide the right for the City to maintain this sewer in the future. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

D. Water System. The applicant shall design and install a water system to serve all lots or parcels within a development in accordance with the City public works water system design standards, and shall connect those lots or parcels to the City's water system. Applicants are responsible for extending the City's water system to the development site and through the applicant's property to allow for the future connection of neighboring undeveloped properties that are suitably zoned for future development.

Finding: Complies with Condition. The applicant has provided preliminary plans showing water infrastructure expansions to serve the development and to provide individual lots with water service. These improvements are preliminary and do not provide enough information to be reviewed for compliance with city design standards. The plans show a connection to the existing water system to the east; however, water must be connected to Holcomb Boulevard unless such elevation is now available for lots to the east.

Oregon City water is provided through a master meter with Clackamas River Water (CRW) from their Barlow Crest reservoir. CRW submitted a comment indicating that “Per the "HOPP Area" Intergovernmental Cooperative Agreement Clackamas River Water is available to serve those properties that are at elevation 450-feet and higher.” The applicant shall provide written confirmation from Clackamas River Water (CRW) that there is adequate volume and pressure to serve the portions of the development which are not able to be served by Oregon City.

The applicant shall design and install a water system to serve all lots or parcels within a development in accordance with the Oregon City water system design standards, and shall connect those lots or parcels to the City's water system using a looped system which connects to Holcomb Boulevard. If any of the development cannot be served by the City due to elevation, those properties may be served by CRW upon approval of the City. The development shall provide new fire hydrant(s) in, and around, the property as required by Clackamas Fire District Number 1 and extend water main(s) (public and/or private) as necessary to supply required fire hydrants. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

E. Street Trees. Refer to OCMC 12.08, Street Trees.

Finding: See findings from section 12.08.

F. Bench Marks. At least one bench mark shall be located within the subdivision boundaries using datum plane specified by the City Engineer.

Finding: Complies with Condition. The engineering plans shall provide a local benchmark, onsite, using the NAVD88 datum prior to receiving a permit and beginning construction. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

G. Other Utilities. The applicant shall make all necessary arrangements with utility companies or other affected parties for the installation of underground lines and facilities. Existing and new electrical lines and other wires, including but not limited to communication, street lighting and cable television, shall be placed underground.
Finding: Complies as conditioned. All new franchise utilities shall be placed underground. All existing overhead utilities adjacent to the property frontage shall be relocated underground unless deemed infeasible by the City and franchise utilities. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

H. Oversizing of Facilities. All facilities and improvements shall be designed to City standards as set out in the City's facility master plan, public works design standards, or other City ordinances or regulations. Compliance with facility design standards shall be addressed during final engineering. A development may be required to modify or replace existing offsite systems if necessary to provide adequate public facilities. The City may require oversizing of facilities to meet standards in the City's facility master plan or to allow for orderly and efficient development. Where oversizing is required, the applicant may request reimbursement from the City for oversizing based on the City's reimbursement policy and funds available, or provide for recovery of costs from intervening properties as they develop.
Finding: Complies as conditioned. The applicant has provided preliminary plans showing storm sewer, sanitary sewer and water infrastructure expansions to serve the development. These improvements are preliminary and do not provide enough information to be reviewed for compliance with city design standards or the city's facility masterplan(s). All facilities and improvements shall be designed to City standards as set out in the City's facility master plan, public works design standards, or other City ordinances or regulations. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

I. Erosion Control Plan—Mitigation. The applicant shall be responsible for complying with all applicable provisions of OCMC 17.47 with regard to erosion control.
Finding: See findings from section 17.47 of this report

16.12.100 - Same—Road standards and requirements.
A. The creation of a public street and the resultant separate land parcels shall be in conformance with requirements for subdivisions or partitions and the applicable street design standards of this Chapter. However, the decision-maker may approve the creation of a public street to be established by deed without full compliance with the regulations applicable to subdivisions or partitions where any of the following conditions exist:
1. The establishment of the public street is initiated by the City Commission and is declared essential for the purpose of general traffic circulation and the partitioning of land is an incidental effect rather than the primary objective of the street;
2. The tract in which the street is to be dedicated is within an isolated ownership either not over one acre or of such size and characteristics as to make it impossible to develop building sites for more than three dwelling units.
Finding: Applicable. Please refer to the findings in chapter 16.12.016 within this report for applicable street design standards required for the public street created by the proposed subdivisions or partitions.

B. For any public street created pursuant to subsection A of this section, a copy of a preliminary plan and the proposed deed shall be submitted to the Community Development Director and City Engineer at least ten days prior to any public hearing scheduled for the matter. The plan, deed and any additional information the applicant may submit shall be reviewed by the decision-maker and, if not in conflict with the standards of Title 16 and Title 17, may be approved with appropriate conditions.

Finding: Not Applicable. The applicant has not proposed the creation of a public street to be established by deed without full compliance with the regulations applicable to subdivisions or partitions.

16.12.105 - Same—Timing requirements.
A. Prior to applying for final plat approval, the applicant shall either complete construction of all public improvements required as part of the preliminary plat approval or guarantee the construction of those improvements. Whichever option the applicant elects shall be in accordance with OCMC 17.50.140.
Finding: See findings from OCMC 17.50.140 regarding timing of construction of improvements and guarantee for construction of improvements.

B. Construction. The applicant shall construct the public improvements according to approved final engineering plans and all applicable requirements of this Code, and under the supervision of the City Engineer. Under this option, the improvement shall be complete and accepted by the City Engineer prior to final plat approval.
Finding: Complies as conditioned. Public improvements are required to be completed and accepted by the City Engineer. Public improvements shall be constructed according to approved final engineering plans prior to platting. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

16.12.110 -Public improvements—Financial guarantees.
A. To ensure construction of required public improvements, the applicant shall provide the City with a performance guarantee in accordance with OCMC 17.50.140.
Finding: Please see findings from Section17.50.140 of this report.

B. After satisfactory completion of required public improvements and facilities, all public improvements not constructed by the City, shall be maintained and under warranty provided by the property owner or developer constructing the facilities until the City accepts the improvements at the end of the warranty period as prescribed in OCMC 17.50.141.
Finding: Please see findings from Section17.50.141 of this report.

16.12.120 Waiver of Remonstrance
The review authority may require a property owner to sign a waiver of remonstrance against the formation of and participation in a local improvement district where it deems such a waiver necessary to provide needed improvements reasonably related to the impacts created by the proposed development. To ensure compliance with this chapter, the review authority may require an applicant to sign or accept a legal and enforceable covenant, contract, dedication, easement, performance guarantee, or other document, which shall be approved in form by the City Attorney.
Finding: Complies with Condition. The property owner(s) shall sign a Restrictive Covenant Non-Remonstrance Agreement for the purpose of making storm sewer, sanitary sewer, water or street improvements in the future that benefit the property and all fees associated with processing and recording the Non-Remonstrance Agreement shall be paid prior to platting. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

CHAPTER 17.47 – EROSION AND SEDIMENT CONTROL
17.47.030 - Applicability.
A. This chapter, which may also be referred to as "erosion control" in this Code, applies to development that may cause visible or measurable erosion on any property within the city limits of Oregon City.
B. This chapter does not apply to work necessary to protect, repair, maintain or replace existing structures, utility facilities, roadways, driveways, accessory uses and exterior improvements in response to emergencies, provided that after the emergency has passed, adverse impacts are mitigated in accordance with applicable standards.

Finding: Applicable. The application disturbs more than 1,000 square feet of earth; therefore, erosion and sediment control standards shall be followed.

17.47.060 - Permit required.
The applicant must obtain an erosion and sediment control permit prior to, or contemporaneous with, the approval of an application for any building, land use or other city-issued permit that may cause visible or measurable erosion.
Finding: Complies as conditioned. A city issued erosion and sediment control permit shall be obtained prior to commencement of any earth disturbing activities. The development fronts right-of-way beyond the limits of the Oregon City boundary and may choose to gain access to the site from such right-of-way. Additional Erosion and sediment control permit(s) shall be obtained from applicable governing jurisdictions, where necessary, prior to commencement of any earth disturbing activities. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

17.47.070 - Erosion and sediment control plans.
A. An application for an erosion and sediment control permit shall include an erosion and sediment control plan, which contains methods and interim measures to be used during and following construction to prevent or control erosion prepared in compliance with City of Oregon City public works standards for erosion and sediment control. These standards are incorporated herein and made a part of this title and are on file in the office of the city recorder.
B. Approval Standards. An erosion and sediment control plan shall be approved only upon making the following findings:
1. The erosion and sediment control plan meets the requirements of the City of Oregon City public works standards for erosion and sediment control incorporated by reference as part of this chapter;
2. The erosion and sediment control plan indicates that erosion and sediment control measures will be managed and maintained during and following development. The erosion and sediment control plan indicates that erosion and sediment control measures will remain in place until disturbed soil areas are permanently stabilized by landscaping, grass, approved mulch or other permanent soil stabilizing measures.
C. The erosion and sediment control plan shall be reviewed in conjunction with the requested development approval. If the development does not require additional review, the manager may approve or deny the permit with notice of the decision to the applicant.
D. The city may inspect the development site to determine compliance with the erosion and sediment control plan and permit.
E. Erosion that occurs on a development site that does not have an erosion and sediment control permit, or that results from a failure to comply with the terms of such a permit, constitutes a violation of this chapter.
F. If the manager finds that the facilities and techniques approved in an erosion and sediment control plan and permit are not sufficient to prevent erosion, the manager shall notify the owner or his/her designated representative. Upon receiving notice, the owner or his/her designated representative shall immediately install interim erosion and sediment control measures as specified in the City of Oregon City public works standards for erosion and sediment control. Within three days from the date of notice, the owner or his/her designated representative shall submit a revised erosion and sediment control plan to the city. Upon approval of the revised plan and issuance of an amended permit, the owner or his/her designated representative shall immediately implement the revised plan.
G. Approval of an erosion and sediment control plan does not constitute an approval of permanent road or drainage design (e.g., size and location of roads, pipes, restrictors, channels, retention facilities, utilities, etc.).
Finding: Complies as conditioned. Erosion and sediment control plans shall be submitted for review and approval by the City prior to issuance of an erosion and sediment control permit. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

17.47.080 - Plan implementation.

An approved erosion control and sediment control plan shall be implemented and maintained as follows:
A. Plan approval, where required, shall be obtained prior to clearing or grading. No grading, clearing or excavation of land requiring a plan shall be undertaken prior to approval of the plan.
B. The erosion and sediment control facilities shall be constructed prior to any clearing and grading activities, and maintained in such a manner as to ensure that sediment laden water does not enter the drainage system or violate applicable water standards.
C. The implementation of an erosion and sediment control plan and the construction, maintenance, replacement, and upgrading of erosion and sediment control facilities is the responsibility of the owner or his/her designated representative until all construction is completed and approved, and vegetation, landscaping or approved finished surfaces is established.
D. The erosion and sediment control facilities herein are the minimum requirements for anticipated site conditions. During the construction period, these erosion and sediment control facilities shall be upgraded as needed for unexpected storm events and to ensure that sediment-laden water does not leave the site.
E. Any observation of visible or measurable erosion, or an observation of more than a ten-percent increase in downstream channel turbidities, will result in an enforcement action by the city.
F. The owner or his/her designated representative shall implement the measures and construct facilities as provided for and according to the implementation schedule in the approved plan. The manager shall be allowed reasonable access to the development site for inspection purposes.

Finding: Applicable. Plan approval is required and is required to be obtained per chapter 16.12. The Oregon City Erosion Control Officer ensures that the development will comply with the city's Erosion and Sediment Control Standards. The Oregon City Erosion Control Officer will access the development site and perform inspections to ensure compliance prior to any clearing and grading activities are permitted. The Oregon City Erosion Control Officer ensures implementation of an erosion and sediment control plan and the construction, maintenance, replacement, and upgrading of erosion and sediment control facilities. The Oregon City Erosion Control Officer may issue a Stop Work Order if the owner or his/her designated representative fails to implement and maintain the approved erosion control and sediment control plan until all construction is completed and approved, and vegetation, landscaping or approved finished surfaces is established.

17.47.090 - Plan performance guarantee and security.

After the plan is approved by the manager and prior to construction or grading, the owner shall provide a financial guarantee. Erosion and sediment control shall be included in the cost estimate for the primary project, such as land division or site plan, and included in that project's performance guarantee.

Finding: Complies as conditioned. See findings in Section 17.50.140.

CHAPTER 12.08 – PUBLIC AND STREET TREES

12.08.015 - Street tree selection, planting and maintenance requirements.
All development shall provide street trees adjacent to all street frontages. Species and locations of trees shall be selected based upon vision clearance requirements, but shall in all cases be selected from the Oregon City Street Tree List, an approved street tree list for a jurisdiction in the metropolitan region, or be approved by a certified arborist unless otherwise approved pursuant to this section. If a setback sidewalk has already been constructed or the Public Works Department determines that the forthcoming street design shall include a setback sidewalk, then all street trees shall be installed with a planting strip or within tree wells. If existing street design includes a curb-tight sidewalk, then all street trees shall be placed according to OCMC 12.08.035.C.

- *A. One street tree shall be planted for every thirty-five feet of property frontage. The tree spacing shall be evenly distributed throughout the total development frontage to meet the clearance distances required in subsection (B) below. The Community Development Director may approve an alternative street tree plan, or accept fee-in-lieu of planting pursuant to OCMC 12.08.035, if site or other constraints prevent meeting the required total number of tree plantings.*
- *B. The following clearance distances shall be maintained when planting trees:*
  1. *Fifteen feet from streetlights;*
  2. *Five feet from fire hydrants;*

3. Twenty feet from intersections;

4. Five feet from all public utilities (i.e. sewer, storm and water lines, utility meters, etc.);

C. All street trees planted in conjunction with development shall be a minimum of two inches in caliper at six inches above the root crown and installed to city specifications. Larger caliper size trees may be approved if recommended by a certified arborist or registered landscape architect.

D. All established trees shall be pruned tight to the trunk to a height that provides adequate clearance for street cleaning equipment and ensures ADA complaint clearance for pedestrians.

E. All trees planted within the right-of-way shall be planted with root barriers at least eighteen inches in depth adjacent to the sidewalk and curb to ensure proper root growth and reduce potential damage to sidewalks, curbs and gutters.

F. All trees planted beneath powerlines shall be selected based on what is appropriate for the location. In addition, the tree species shall be approved by the associated franchise powerline utility company.

G. Tree species, spacing and selection for stormwater facilities in the public right-of-way and in storm water facilities shall conform to requirements of OCMC 13.12 and the adopted Stormwater and Grading Design Standards and be approved by the City Engineer.

H. Any public or street trees planted within the Natural Resource Overlay District shall conform to the applicable requirements of OCMC 17.49 - Natural Resources Overlay District (NROD).

Finding: Complies with Condition. The proposal includes installation of street trees along the property frontage. The applicant did not provide the total frontage length or the proposed number of street trees, although trees are shown spaced fairly evenly, approximately 35 feet on center. Prior to issuance of construction permits, the applicant shall submit a street tree plan that includes one tree for every 35 feet of frontage and a calculation demonstrating compliance with this standard.

The applicant's proposal shows all street trees provided within a planter strip. In practice, low density subdivisions often are not able to provide all of the required street trees due to utility conflicts and wide driveways that limit the amount of planter strip space available for trees. The applicant's final street tree plan will likely deviate from the proposed plan. In order to maintain trees as evenly spaced as possible, without large gaps in spacing, staff recommends that the final street tree plan include 95% of all street trees planted either in a planter strip or in the front yard, with only 5% utilizing the fee-in-lieu option. Even spacing of trees will provide regular intervals of shade along the sidewalk and street. Street tree plans that include a large percentage of trees as fee-in-lieu tend to have larger gaps in spacing, as well as some properties with several street trees in the frontage, and other with none. This condition will ensure that trees are more evenly spaced and that the benefits and maintenance burdens of street trees are spread more equitably throughout the development.

The applicant proposed the species to be paper bark maple. Final tree species shall be based on the planting location in accordance with the city's street tree list or another approved jurisdiction's list. Any larger planter strips shall use a species that is suited for larger planting areas, in accordance with the City's street tree list.

Street trees shall be included on the construction plan utility drawings. At the applicant's expense, a certified arborist shall review and sign the construction plan drawing. At the time of planting, the applicant shall document the root barrier installation and planting details through photographs and shall submit the documentation to the City. A certified arborist's letter or report certifying that the correct trees were placed in the correct location and in the correct manner shall be required prior to the release or reduction of the performance guarantee. The developer may install the trees with the construction of the house or within two years of the completion of the public improvements. The trees may be installed individually with each lot or as a group of trees over multiple lots as desired. The performance guarantee will include the public improvements as well as lot sidewalk and street trees and may be reduced at the end of the completion of public improvements and may be further reduced as trees and sidewalk are

installed up to two times before final release. The maintenance guarantee will cover the public improvements and shall begin at initial reduction of performance guarantee at the completion of public improvements.
Trees on the Godon Way frontage may be placed behind the sidewalk in accordance with 12.08.035.C. Spacing shall be evenly distributed throughout the total development in accordance with OCMC 12.08 or accept fee-in-lieu of planting pursuant to OCMC 12.08 if site or other constraints prevent meeting the required total number of tree plantings. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

2.08.035 - Tree removal and replacement.

Existing street trees, trees in the right-of-way, and trees on public property shall be retained and protected during development unless removal is specified as part of a land use approval or in conjunction with a public capital improvement project, in accordance with OCMC 17.41.

Finding: Complies. No removal of street trees is proposed. Any street tree removal proposed is reviewed in accordance with OCMC 17.41.

CHAPTER 16.08 – LAND DIVISIONS - PROCESS AND STANDARDS

16.08.025 - Preliminary plat—Required information.

The preliminary plat shall specifically and clearly show the following features and information on the maps, drawings, application form or attachments. The preliminary plat layout may be prepared by a civil engineer, architect, land use planner or similarly qualified professional. All maps and site drawings shall be at a minimum scale of one inch to fifty feet.

A. Site Plan. A detailed site development plan drawn to scale by a licensed professional based on an existing conditions plan drawn by a licensed surveyor. The site plan shall include the location and dimensions of lots, streets, existing and proposed street names, pedestrian ways, transit stops, common areas, parks, trails, open spaces, building envelopes and setbacks, all existing and proposed utilities and improvements including sanitary sewer, stormwater and water facilities, total impervious surface created (including streets, sidewalks, etc.), all areas designated as being within an overlay district and an indication of existing and proposed land uses for the site. If required by staff at the pre-application conference, a connectivity analysis shall be prepared by a transportation engineer licensed by the State of Oregon that describes the existing and future vehicular, bicycle and pedestrian connections between the proposed subdivision and existing or planned land uses on adjacent properties. The connectivity analysis shall include shadow plats of adjacent properties demonstrating how lot and street patterns within the proposed land division will extend to and/or from such adjacent properties and can be developed meeting the existing OCMC design standards and adopted Transportation System Plan, street design standards, and adopted concept plans, corridor and access management studies, engineering standards and infrastructure analyses.

Finding: Complies as conditioned. The development provided all applicable items required in 16.08.025.A except for a shadow plat. The development shall provide a shadow plat demonstrating how street patterns within the proposed land division will extend into adjacent properties and how adjacent properties can be developed. **Staff has determined that it is possible, likely and reasonable that the applicant shall meet this standard through the Conditions of Approval**.

B. Traffic/Transportation Plan. The applicant's traffic/transportation information shall include two elements: (1) A detailed site circulation plan showing proposed vehicular, bicycle, transit and pedestrian access points and connections to the existing system, circulation patterns and connectivity to existing rights-of-way or adjacent tracts, parking and loading areas and any other transportation facilities in relation to the features illustrated on the site plan; and (2) a traffic impact study prepared by a qualified professional transportation engineer, licensed in the State of Oregon, that assesses the traffic impacts of the proposed development on the existing transportation system and analyzes the adequacy of the proposed internal transportation network to handle the anticipated traffic and the adequacy of the existing system to accommodate the traffic from the proposed development. In the preparation of the Traffic/Transportation Plan, the applicant shall reference the adopted

Transportation System Plan. The Community Development Director may waive any of the foregoing requirements if determined that the requirement is unnecessary in the particular case.

Finding: Complies as proposed. The applicant has provided all applicable items required in 16.08.025.B.

C. Natural Features Plan and Topography, Preliminary Grading and Drainage Plan. The applicant shall submit a map illustrating all of the natural features and hazards on the subject property and, where practicable, within 250 feet of the property's boundary. The map shall also illustrate the approximate grade of the site before and after development. Illustrated features shall include all proposed streets and cul-de-sacs, the location and estimated volume of all cuts and fills, and all stormwater management features. This plan shall identify the location of drainage patterns and courses on the site and within 250 feet of the property boundaries where practicable. Features that shall be illustrated shall include the following:

1. *Proposed and existing street rights-of-way and all other transportation facilities;*
2. *All proposed lots and tracts;*
3. *All trees proposed to be removed prior to final plat with a diameter six inches or greater diameter at breast height (d.b.h);*
4. *All natural resource areas pursuant to OCMC 17.49, 17.48, 17.44, and 17.42;*
5. *The location of any known state or federal threatened or endangered species or wildlife habitat or other natural features listed on any of the City's official inventories;*
6. *All historic areas or cultural features acknowledged as such on any federal, state or city inventory;*

Finding: Complies as proposed. The applicant has provided all applicable items required in 16.08.025.C.

D. Archeological Monitoring Recommendation. For all projects that will involve ground disturbance, the applicant shall provide,

1. *A letter or email from the Oregon State Historic Preservation Office Archaeological Division indicating the level of recommended archeological monitoring on-site, or demonstrate that the applicant had notified the Oregon State Historic Preservation Office and that the Oregon State Historic Preservation Office had not commented within forty-five days of notification by the applicant; and*
2. *A letter or email from the applicable tribal cultural resource representative of the Confederated Tribes of the Grand Ronde, Confederated Tribes of the Siletz, Confederated Tribes of the Umatilla, Confederated Tribes of the Warm Springs and the Confederated Tribes of the Yakama Nation indicating the level of recommended archeological monitoring on-site, or other written demonstration that the applicant notified the applicable tribal cultural resource representative and that the applicable tribal cultural resource representative had not commented within forty-five days of notification by the applicant.*

If, after forty-five days notice from the applicant, the Oregon State Historic Preservation Office or the applicable tribal cultural resource representative fails to provide comment, the City will not require any responsive letter or email as part of the completeness review. For the purpose of this section, ground disturbance is defined as the movement of native soils.

The Community Development Director may waive any of the foregoing requirements if the Community Development Director determines that the requirement is unnecessary in the particular case and that the intent of this chapter has been met.

Finding: Complies as Proposed. The applicant submitted all required information. Notice of the application was provided to SHPO and the confederated tribes listed at the time of the pre-application conference. Any comments received regarding recommendations for archeological monitoring have been or will be forwarded to the applicant.

16.08.030 - Preliminary plat—Narrative statement.

In addition to the plans required in the previous section, the applicant shall also prepare and submit a narrative statement that addresses the following issues:

A. Description. A detailed description of the proposed development, including a description of proposed uses, number and type of residential units, allocation and ownership of all lots, tracts, streets, and public improvements, the structure of any homeowner's association, and each instance where the proposed subdivision will vary from some dimensional or other requirement of the underlying zoning district.

Finding: Complies as Proposed. The application materials contain descriptions of these items. The applicant indicated that the proposed development contains a total of 123 lots. On 35.2 acres. Of these 123 lots, 105 lots will be developed with single-family detached homes. The remaining 18 lots will be developed with duplex units. The applicant has proposed adjustments to lot size and some dimensional standards; more detailed findings are found in 17.65.070.

B. Timely Provision of Public Services and Facilities. The applicant shall explain in detail how and when each of the following public services or facilities is, or will be, adequate to serve the proposed development by the time construction begins:

1. Water,

See findings and conditions in 16.12.090.D. and 16.12.095.

The applicant stated: Water: There is an existing 16-inch Oregon City ductile iron water main located within Holcomb Boulevard that will provide water service for the proposed development. Oregon City water in the Holcomb pressure zone is supplied though a master meter for water pumped through the Clackamas River Water District-owned Barlow Crest Pump Station. The applicant has confirmed with CRW that there is adequate pressure and volume to serve the proposed development. As shown on the preliminary utility plans, the system will be looped to provide for water circulation and avoidance of dead-end lines.

2. Sanitary sewer,

See findings and conditions in 16.12.090.C. and 16.12.095

The applicant stated: Sanitary Sewer: Sanitary sewer for the project is available from two sources: An 8-inch sanitary sewer main exists within Holcomb Boulevard with manholes located along the frontage of the property. City staff advised the applicants that the Holcomb Blvd. sewer is nearing capacity so no project sanitary sewer will be directed to that facility. An 8-inch sanitary sewer main also exists within Ames Street with a manhole located at the intersection of Ames Street and Pasture Way. The majority of the site must be served from the Ames Street location due to topographic considerations. The Ames Street sewer is located approximately 680 feet to the west of the subject property. The most direct route would cross land owned by the Serres family that is presently outside of the city limits and the Urban Growth Boundary. This location will require the approval of Clackamas County and the applicant is presently working with County Planning regarding this issue. Some minor amendments to the language of the County's Comprehensive Plan are needed in order to bring it into conformity with State statutes on extraterritorial extensions. It is anticipated that the amendments will be heard beginning in July of this year. If for some unforeseen reason the changes are not approved, the applicant has discussed obtaining an easement from Oregon City Public School District across the Holcomb Elementary property to access sanitary sewer in Pasture Way via the pedestrian pathway alignment. Wes Rogers, the District's Director of Capital Projects, has indicated that this option would be acceptable to the District.

3. Storm sewer and stormwater drainage,

See findings and conditions in Chapter 13.12.

The applicant stated: Storm Water Management: The subject property drains generally to the northwest towards a natural drainageway on the north side of Forsythe Road. The site plan provides for a storm water detention and treatment facility near the northwest corner of the site. As shown on the preliminary utility plan and discussed in the Preliminary Storm Water Report, off-site improvements to the ditch system will be needed to convey the water to the natural drainageway. This involves land under the ownership of the Serres family so any needed access and easements may be readily obtained.

4 Parks, trails and recreation facilities, if determined to be necessary pursuant to the Oregon City adopted Trail Master Plan and / or Parks and Recreation Master Plan

Finding: Complies as Proposed. The applicant states that the proposed general development plan "provides a 2-acre park to serve the needs of the proposed development. Additionally, school playground facilities are available at Holcomb Elementary, immediately to the west of the site." The proposed open space contains a portion of the Holcomb Ridge Loop Trail designated in the Oregon City Trails Master Plan. The Oregon City Trails Master Plan designates this shared-use path as a local trail. Standards for local trails are found on Page 13 of the Oregon City Trails Master Plan.

5. Traffic and transportation, and

Finding: The proposed development will be served by a network of local streets. The street system provides for a connection to Kaylyn Drive, to the east of the subject property and a future connection to Ames Street, to the northwest of the subject property **See findings in 16.12.033 - Mobility Standards.**

6. Fire and police services

Finding: Complies as Proposed. Police services are provided by OCPD and capacity was assured during the annexation process for the subject property. The property is served by CCFD #1. Fire Station No. 9 is located 0.25 miles away on Longview Way. A temporary emergency vehicle access is provided onto Holcomb Blvd. This access will be gated or have bollards to Fire District specifications to restrict vehicular use to emergency vehicles only. This access will cease to be used when other access to the surrounding street system is available with future development. The applicant shall provide written approval from Clackamas Fire District for the design and location of the proposed emergency vehicle access. **Staff has determined that it is possible, likely and reasonable that the applicant shall meet this standard through the Conditions of Approval.**

Where adequate capacity for any of these public facilities and services is not demonstrated to be currently available, the applicant shall describe how adequate capacity in these services and facilities will be financed and constructed before recording of the plat;

Finding: See findings in 16.12.033 for findings and conditions regarding capacity of the transportation system.

B. Drafts of the proposed covenants, conditions and restrictions (CC&Rs), maintenance agreements, homeowner association agreements, dedications, deeds easements, or reservations of public open spaces not dedicated to the City, and related documents for the land division;

Finding: Complies as Proposed. A draft of proposed conditions and restrictions (CC & Rs) is provided with the application submission package.

C. Overall density of the land division and the density by dwelling type for each.

Finding: Complies as Proposed. The gross site area is 1,533,162 sq. ft. Subtracting streets and power line easements, the net site area is 1,130,206 sq. ft. Of this total, single-family detached lots account for 980,516 sq. ft. (22.51 acres) and duplex lots account for 149,690 sq. ft. (3.44 acres). The net density for the 106 single-family detached units is 4.41 units per acre. Duplex lots provide two dwelling units each, or a total of 36 units for the 18 total duplex lots. This equates to 10.5 units per net acre. It is important to note that OCMC 17.08.050.B.2 states that "Corner duplexes shall count as a single dwelling unit for the purposes of calculating density."

The applicant has requested an adjustment allowed under OCMC 17.65.070 for a 10 percent density bonus over the maximum density figures that are listed in Table 17.08.050. The maximum density listed in Table 17.08.050 for the R-10 zone is 4.4 units per acre. A 10 percent bonus would raise the limit to 4.84 dwelling units per acre. The overall net density for the project is 123 units on 25.95 net acres, or 4.74 units per acre. The overall density of this project, as adjusted per OCMC 17.65.070, complies with the maximum density standard.

16.08.040 – Park and Open Space Requirements.
Additional Public Park and Open Space Requirements in Thimble Creek Concept Plan area- residential development.
Finding: Not applicable. This project is not located within the Thimble creek concept plan area.

16.08.045 - Frontage width requirement.
Each lot shall abut upon a street other than an alley for a width of at least twenty feet unless flag lots are provided pursuant to OCMC 16.08.050, except for Cluster Housing development pursuant to OCMC 17.20.020.
Finding: Complies as Proposed. All of the lots abutting a street meet the minimum frontage width requirement of 20 feet.

16.08.050 - Flag lots.
A. Flag lots shall not be permitted except where the applicant can show that the existing parcel configuration, topographic constraints or the location of a pre-existing dwelling unit precludes a land division that meets the minimum density, dimensional standards of the underlying zone, and except where street connectivity is not practicable as determined by the City Engineer.
Finding: Complies as Proposed. The applicant has indicated that block length standards coupled with the topography of the site, create a circumstance that requires one flag lot in order to maintain the same number of lots. The applicant submitted a draft layout plan to demonstrate this change. The inclusion of one flag lot out of 123 total lots is an acceptable compromise given that street connectivity into the UGB and shorter block lengths are desirable.

16.08.053 Tracts
Tracts which cannot be developed with a home or office, commercial, residential, institutional, industrial, parking or other uses as determined by the City Engineer or Community Development Director are not subject to compliance with the dimensional standards of the zoning designation, frontage requirements, or flag lot standards.
Finding: Complies as Proposed. The applicant states: "The proposed development contains three tracts. Tract A is 32,789 sq. ft. in area and is reserved for storm water treatment and detention. Consistent with City policy, it is proposed to be dedicated to the City of Oregon City for storm water management purposes on the final plat for the development. Tract B is 2.02 acres in area and is reserved as open space. The opens space contains a portion of the Holcomb Ridge Loop Trail designated in the Oregon City Trails Master Plan. It would also provide space for recreational opportunities and will provide for an informational kiosk in conjunction with the Barlow Road View Corridor. Tract C is 1,764 sq. ft. in area and contains a portion of the Holcomb Ridge Loop Trail. Both Tracts B and C are proposed to be dedicated to the City of Oregon City for park purposes. As noted in this section, these tracts are not subject to the dimensional standards of zoning designation, frontage requirements, or flag lot standards."

16.08.060 - Building sites.
A. The size, width, shape and orientation of building sites shall be rectangular or square to the maximum extent practicable.
Finding: Complies as Proposed. The applicant states "Building envelopes are shown for the proposed lots. All lots have adequate area for construction of a home. The envelopes are as square as practicable given site terrain." Some of the lots in order to meet the frontage requirements have angled lines.

B. Sites abutting an alley shall gain vehicular access from the alley unless deemed impracticable by the decision maker.
Finding: Not Applicable. No alleys are proposed.

C. Adequate access for emergency services (fire and police) shall be provided.

Finding: Complies with Condition. The property is served by CCFD #1. Fire Station No. 9 is located 0.25 miles away on Longview Way. A temporary emergency vehicle access is provided onto Holcomb Blvd. This access will be gated or have bollards to Fire District specifications to restrict vehicular use to emergency vehicles only. This access will cease to be used when other access to the surrounding street system is available with future development. Mike Boumann of the Clackamas Fire District submitted correspondence (See Exhibit 7) indicating that the location of the access may not be sufficient for fire protection and may still require that homes in Phase 1 contain fire sprinklers. Mr. Boumann also requested the following conditions of approval: The applicant shall submit to Clackamas Fire District a Fire Access and Water Supply plan showing fire apparatus access, fire lanes, fire hydrants, fire lines, available fire flow, FDC location (if applicable), building square footage, type of construction, and fire flow tests no older than 12 months per NFPA 291 or hydraulic model when applicable. The final access plan may utilize fire sprinklers for Phase 1 homes or the shared use path as the temporary access for Phase 1 as alternatives to the proposed emergency access location.
Prior to the start of combustible construction required fire hydrants shall be operational and accessible. Prior to the start of combustible construction, fire access roads shall be required with the ability to support 75,000 lbs during all weather conditions. It is possible for the development to utilize Kaylyn Drive as a secondary fire access into the development property. However, the portion of existing Kaylyn Drive that leads into the subject site is a half street, with approximately 16 feet of pavement. Before construction permits are issued, in order to provide safe fire access, the applicant shall add "no parking" signage along the Kaylyn Drive half street segment east of the subject site. **Staff has determined that it is possible, likely and reasonable that the applicant shall meet this standard through the Conditions of Approval.**

16.08.063 - Minimum density.
All layouts shall achieve at least the minimum density of the base zone for the net developable area as defined in OCMC 17.04. Alternatively, a site may be partitioned into two lots, though one of the lots shall not contain sufficient lot area to allow further division.
Finding: Complies as Proposed. The Net Development Area = 1,130,206 SF, or 25.95 acres. The minimum density standard for the R-10 zone per Table 17.08.050 is 3.5 dwelling units per acre. The minimum density for the development would be 91 units. The proposed development provides for 123 units (Note: duplexes on a single lot are counted as one dwelling unit per OCMC 17.08.050.B.2). The proposed development satisfies minimum density provisions.

16.08.065 – Lot size reduction.
A subdivision in the R-10, R-8, R-6, R-5, or R-3.5 dwelling district may utilize lot size reduction for up to twenty-five percent of the lots proposed for single-family detached residential use. Fractions resulting from the twenty-five percent calculation shall be rounded down. The reduced-size lots may be up to ten percent less than the required minimum lot area of the applicable zoning designation provided the average lot size of all proposed single-family detached residential lots meet the minimum requirement of the underlying zone. Any area within a powerline easement on a lot shall not count towards the lot area for that lot. Lot size reduction is only permitted through a subdivision or, master plan and planned unit developments processes and may not be used for minor partitions or any other residential uses.
The average lot area is determined by first calculating the total net developable area devoted to single-family detached dwelling units, subtracting the powerline easement areas, open space, tracts, stormwater facilities, roads, right-of-way, or accessways and dividing that figure by the proposed number of single-family detached dwelling lots.
A lot that was created pursuant to this section may not be further divided unless the average lot size requirements are still met for the entire subdivision.
When a lot abuts a public alley, an area equal to the length of the alley frontage along the lot times the width of the alley right-of-way measured from the alley centerline may be added to the area of the abutting lot in order to satisfy the lot area requirement for the abutting lot. It may also be used in calculating the average lot area.

Finding: See findings in OCMC 17.65.070.C.5. The applicant has proposed an adjustment to these standards under the provisions of OCMC 17.65.070.C.5.

16.08.070 - Through lots.

Through lots and parcels shall be avoided except where they are essential to provide separation of residential development from major arterials or to overcome specific disadvantages of topography of existing development patterns. A reserve strip may be required. A planting screen restrictive covenant may be required to separate residential development from major arterial streets, adjacent nonresidential development, or other incompatible use, where practicable. Where practicable, alleys or shared driveways shall be used for access for lots that have frontage on a collector or minor arterial street, eliminating through lots.

Finding: Complies as Proposed. The applicant indicated that Lots 1 through 7 are the only through lots proposed in this project. They are needed in order to provide separation from the homes from Holcomb Blvd., an arterial street. Homes will be faced towards Holcomb Blvd. per City standards, but will take access from the adjacent new streets within the subdivision (Laurel Hill Way and Godon Way). An alleyway design was considered but rejected as the proposed street system provided better site circulation in that area of the project.

Due to the existing location and configuration of Godon Way, it is impractical to not have through lots between Holcomb Boulevard and Godon Way because lots in this location that are not through lots would not meet the minimum lot depth and lot size requirements.

16.08.075 - Building site—Lot and parcel side lines.

The lines of lots and parcels, as far as is practicable, shall run at right angles to the street upon which they face, except that on curved streets they shall be radial to the curve. Lot and parcel side lines for cluster housing projects proposed consistent with the standards in OCMC 17.20.020 are not subject to this standard.

Finding: Complies as Proposed. As far as practicable, the proposed lot lines and parcels run at right angles to the street upon which they face. Variations had to be made where necessary given site topographic constraints, the need to align the Barlow Trail Corridor, and other factors. This standard is met.

16.08.080 - Setbacks and building location.

This standard ensures that lots are configured in a way that development can be oriented toward streets to provide a safe, convenient and aesthetically pleasing environment for pedestrians and bicyclists. Houses oriented in this manner assure a sense of openness by avoiding the "bowling alley" effect caused by uninterrupted, continuous privacy fences along higher volume streets. The objective is for lots located on a neighborhood collector, collector or minor arterial street to locate the front yard setback on and design the most architecturally significant elevation of the primary structure to face the neighborhood collector, collector or minor arterial street,

A. The front setback of all lots located on a neighborhood collector, collector or minor arterial shall be orientated toward the neighborhood collector, collector or minor arterial street.

B. The most architecturally significant elevation of the house shall face the neighborhood collector, collector or minor arterial street.

C. On corner lots located on the corner of two local streets, the main façade of the dwelling may be oriented towards either street.

D. The decision maker may approve an alternative design, consistent with the intent of this section, where the applicant can show that existing development patterns preclude the ability to practically meet this standard.

Finding: Complies with Condition. Holcomb Boulevard is classified as a minor arterial and all other streets in the development will be classified as local streets. Lots 1 through 7 are through lots that take driveway access from the adjoining local streets, but front onto an arterial street, Holcomb Blvd. The homes on these lots will be designed to have an architecturally significant elevation facing onto Holcomb Blvd. The front setback and the most architecturally significant façade of future homes on Lots 1 and 2 shall be oriented towards Holcomb Boulevard. Fence height will be limited to 3.5 feet in

these front yard areas as well. **Staff has determined that it is possible, likely and reasonable that the applicant shall meet this standard through the Conditions of Approval.**

16.08.085 - Division of large lots.

Where land is to be divided into lots or parcels capable of redivision in accordance with this chapter, the Community Development Director shall require an arrangement of lots, parcels, buildings on lots, utilities and streets which facilitates future redivision. In such a case, development limitations including building locations and setback lines may be required and made a matter of record in order to preserve future right-of-way or building sites.

Finding: Not Applicable. No lots within the subdivision have sufficient lot size for further land division.

16.08.095 - Prohibition on Additional Private Restrictions on Housing Types.

Private restrictions on the provision of accessory dwelling units, corner duplexes, or internal conversions executed after July 1, 2019 shall be prohibited. Conditions, Covenants, and Restrictions (CC&Rs) or similar legal instrument submitted with residential plats submitted for final plat approval after July 1, 2019 shall not prohibit or impose additional restrictions on accessory dwelling units, corner duplexes, and/or internal conversions to the extent permitted in the OCMC in place at the time of final plat submittal, and shall not impose additional restrictions on Accessory Dwelling Units and internal conversions through any future amendment.

Finding: Complies as Proposed. The CC&Rs did not include a prohibition on accessory dwelling units, corner duplexes, or internal conversions.

CHAPTER 17.08 LOW DENSITY RESIDENTIAL DISTRICTS

17.08.020 - Permitted uses.

Permitted uses in the R-10, R-8 and R-6 districts are:

- *A. Single-family detached residential units;*
- *B. Accessory uses, buildings and dwellings;*
- *C. Internal conversions;*
- *D. Corner duplexes;*
- *E. Cluster housing;*
- *F. Residential homes;*
- *G. Parks, playgrounds, playfields and community or neighborhood centers;*
- *H. Home occupations;*
- *I. Family day care providers;*
- *J. Farms, commercial or truck gardening and horticultural nurseries on a lot not less than twenty thousand square feet in area (retail sales of materials grown on-site is permitted);*
- *K. Temporary real estate offices in model homes located on and limited to sales of real estate on a single piece of platted property upon which new residential buildings are being constructed;*
- *L. Transportation facilities.*

Finding: Permitted. The applicant proposed to construct single-family detached residential units and corner duplexes, allowed in OCMC 17.08.020.A and D.

17.08.030 - Master plans.

The following are permitted in the R-10, R-8 and R-6 districts when authorized by and in accordance with the standards contained in OCMC 17.65.

- *A. Single-family attached residential units.*

Finding: Permitted. The applicant proposed a Master Plan but did not propose single family attached dwellings.

17.08.040 - Dimensional standards.

Dimensional standards in the R-10, R-8 and R-6 districts are as follows:

Table 17.08.040

Standard	***R-10***
Minimum lot size[1]	*10,000 sq. ft.*
Maximum height	*35 ft.*
Maximum building lot coverage *With ADU*	*40%, except* *45%*
Minimum lot width	*65 ft.*
Minimum lot depth	*80 ft.*
Minimum front yard setback	*20 ft., except* *15 ft. - Porch*
Minimum interior side yard setback	*8 ft.*
Minimum corner side yard setback	*10 ft.*
Minimum rear yard setback	*20 ft, except* *15 ft - Porch* *10 ft - ADU*
Garage setback	*20 ft. from ROW, except* *5 ft. Alley*

Notes:

1. *For land divisions, lot sizes may be reduced pursuant to OCMC 16.08.065.*
2. *Accessory structures may have reduced setbacks pursuant to OCMC 17.54.010.B.*

Finding: Complies with condition. The applicant did not provide a narrative response to this section but did provide the information throughout the application. The zone is R-10. **T**he applicant has proposed three master plan adjustments pursuant to OCMC 17.65.70.C.4, which the staff recommendation supports with conditions. The adjustments include a 10% density adjustment, a 20% adjustment to the R-10 minimum lot size standard, reducing the minimum lot size from 10,000 sq. ft. to 8,000 sq. ft, and an adjustment to reduce the interior side yard setback from 8 feet to 7 feet. Prior to final plat, the applicant shall submit documentation demonstrating compliance with the final approved lot dimensional standards for all lots. **Staff has determined that it is possible, likely and reasonable that the applicant shall meet this standard through the Conditions of Approval.**

B. Through lot setbacks. Through lots having a frontage on two streets shall provide the required front yard on each street. The required rear yard is not necessary.

Finding: Complies as Proposed. The applicant proposed to construct a through lot with the required front yard on each street.

17.08.050 - Density standards.

A. Density standards in the R-10, R-8 and R-6 districts are as follows:

Table 17.08.050

Standard	***R-10***
Minimum net density	*3.5 du/acre*
Maximum net density	*4.4 du/acre*

B. Exceptions.

1. *Any dwelling units created as accessory dwelling units or internal conversions do not count towards the minimum or maximum density limits in Table 17.08.050.*
2. *Corner duplexes shall count as a single dwelling unit for the purposes of calculating density.*
3. *Cluster housing is permitted at higher densities exempt from the standards in Table 17.08.050; see OCMC 17.20.020.*

Finding: Complies as Proposed. The base density allowed in the R-10 zone for the subject property is calculated as follows:

Site Area = 1,533,162 SF
- Street Area = 333,957 SF
- Power Line Area = 68,999 SF

Net Development Area = 1,130,206 SF
In acres: 25.95 acres
25.95 acres x 4.4 du per acre = 114 Units

The applicant has proposed a ten percent density bonus through the adjustments to Master Plans 17.65.070.

Ten percent bonus = 11 Units
Total allowable density = 125 Units
Proposed number of lots: 123 (105 single dwelling lots, 18 corner duplex lots)

It is important to note that OCMC 17.08.050.B.2 states that "Corner duplexes shall count as a single dwelling unit for the purposes of calculating density." It should also be noted that the adjustments allowed under OCMC 17.65.070 allow for a 10 percent density bonus over the maximum density figures that are listed in Table 17.08.050. The overall net density for the project is 123 units on 25.95 net acres, or 4.74 units per acre. The maximum density listed in Table 17.08.050 for the R-10 zone is 4.4 units per acre. A 10 percent bonus would raise the limit to 4.84 dwelling units per acre.

CHAPTER 17.41 – TREE PROTECTION, PRESERVATION, REMOVAL AND REPLANTING STANDARDS

17.41.020 - Tree protection—Applicability.

1. Applications for development subject to OCMC 16.08 (Land Divisions) or OCMC 17.62 (Site Plan and Design Review) shall demonstrate compliance with these standards as part of the review proceedings for those developments. Compliance with this chapter is required from the date a land use application is filed until a land division is recorded or other development approval is final.

2. For public capital improvement projects, the City Engineer shall demonstrate compliance with these standards pursuant to a Type I process.

3. Tree canopy removal greater than twenty-five percent on areas with greater than twenty-five percent slope, unless exempted under OCMC 17.41.040, shall be subject to these standards.

4. A heritage tree or grove which has been designated pursuant to the procedures of OCMC 12.32 shall be subject to the standards of this section.

5. A tree that has been planted pursuant to this section shall remain or shall be replaced with a new tree if removed.

Finding: Applicable. This chapter applies to subdivision proposals. The applicant proposes to remove trees on site. In the past several years, a significant number of trees were removed from the southern portion of the site before the property was annexed into the City. This Chapter applies only to the trees that are on site at the time of application submittal.

17.41.030 - Tree protection—Conflicting code provisions.

Except as otherwise specified in this section, where these standards conflict with adopted city development codes or policies, the provision which provides the greater protection for regulated trees or groves, as defined in OCMC 17.04, shall govern.

Finding: Not applicable. No conflicts are identified.

17.41.040 - Exemptions.

These regulations are not intended to regulate normal cutting, pruning and maintenance of trees on private property except where trees are located on lots that are undergoing development review or are otherwise protected within the Natural Resource Overlay District (NROD) of OCMC 17.49. These standards are not intended to regulate farm and forest practices as those practices are defined under ORS 30.930, for farm or forestlands. These regulations to not apply to the removal of trees that are considered invasive species. An applicant for development may claim exemption from compliance with these standards if the development site containing the regulated grove or trees was a designated farm or forest use, tree farm, Christmas tree plantation, or other approved timber use within one year prior to development application. "Forest practices" and "forestlands" as used in this subsection shall have the meaning as set out in ORS 30.930. The Community Development Director has the authority to modify or waive compliance in this case.

Finding: Not Applicable. No exemptions are proposed.

17.41.050 - Compliance options.

Applicants for review shall comply with these requirements through one or a combination of the following procedures:

A. Option 1—Mitigation. Retention and removal of trees, with subsequent mitigation by replanting pursuant to OCMC 17.41.060.

B. Option 2—Dedicated Tract. Protection of trees or groves by placement in a tract within a new subdivision or partition plat pursuant to OCMC 17.41.080; or

C. Option 3—Restrictive Covenant. Protection of trees or groves by recordation of a permanent restrictive covenant pursuant to OCMC 17.41.110; or

D. Option 4—Cash-in-lieu of planting pursuant to OCMC 17.41.120.

Finding: Complies as Proposed. The applicant states "While most of the site is cleared of trees, there are a few pockets of trees that will need to be removed and mitigated in order to build the proposed development." The applicant proposes Option 1 to mitigate for trees removed for this project.

17.41.060 - Tree removal and replanting—Mitigation (Option 1).

A. Applicants for development who select this option shall ensure that all healthy trees shall be preserved outside the construction area as defined in OCMC 17.04 to the extent practicable. Preserved trees are subject to Option 3 of this Chapter. Compliance with these standards shall be demonstrated in a tree mitigation plan report prepared by a certified arborist, horticulturalist or forester or other environmental professional with experience and academic credentials in forestry or arboriculture. Tree inventories for the purposes of mitigation calculations may be prepared by a licensed surveyor. At the applicant's expense, the City may require the report to be reviewed by a consulting arborist. The number of replacement trees required on a development site shall be calculated separately from, and in addition to, any public or street trees in the public right-of-way required under OCMC 12.08— Public and Street Trees, any required tree planting in parking lots, and any trees planted in pedestrian and bicycle accessways.

Finding: Complies as Proposed. The applicant's narrative states:

"Please note that there are eleven trees on the western border of the property adjacent to Holcomb Elementary School shown on the Existing Conditions Map. Those trees are located in proposed open space and will be retained. The area that tree removal is proposed is on the eastern portion of the property immediately south and west of the Kaylyn Drive dead-end. The mitigation plan relates to 60 trees in that area made up of a mix of Douglas fir and White Oak. The applicant retained the services of Mary Giersch, a consulting arborist, to assess the condition of the existing trees. Her report is included with the application package. Eight of the 60 trees are dead or dying. The arborist's report states: "The subject trees of this report are all grouped tightly together in a tree grove. Generally speaking, the trees along the western edge of the grove are in fair condition, and the trees deep inside the grove, and along the eastern edge are in poor condition. To minimize tree impacts, Lot 97 has been designed as a large lot, over a half-acre in area, and a conservation easement is proposed to be established on the eastern 60 feet of that lot to preserve trees."

B. The applicant shall determine the number of trees to be mitigated on the site by counting all of the trees six-inch DBH (minimum four and one-half feet from the ground) or larger on the entire site and either:

1. Trees that are removed outside of the construction area shall be replanted with the number of trees specified in Column 1 of Table 17.41.060-1. Trees that are removed within the construction area shall be replanted with the number of replacement trees required in Column 2; or

2. Dying, diseased or hazardous trees, when the condition is verified by a certified arborist to be consistent with the definitions in OCMC 17.04, may be removed from the tree replacement calculation. Dead trees may also be removed from the calculation, with the condition of the tree verified either by the Community Development Director or by a certified arborist at the applicant's expense, when the Community Development Director cannot make a determination. To the extent that the Community Development Director determines that the dead, dying, hazardous or diseased condition of the tree is the result of intentional action, the removal of that tree shall require mitigation pursuant to Column 2 of Table 17.41.060-1.

Table 17.41.060-1
Tree Replacement Requirements

Size of tree removed (DBH)	*Column 1* *Number of trees to be planted.* *(If removed **Outside** of construction area)*	*Column 2* *Number of trees to be planted.* *(If removed **Within** the construction area)*
6 to 12"	*3*	*1*
13 to 18"	*6*	*2*
19 to 24"	*9*	*3*
25 to 30"	*12*	*4*
31 and over"	*15*	*5*

Steps for calculating the number of replacement trees:

1. Count all trees measuring six inches DBH (minimum four and one-half feet from the ground) or larger on the entire development site.

2. Designate the size (DBH) of all trees pursuant to accepted industry standards.

3. Document in a certified arborist report any trees that are currently dead, dying, diseased or hazardous.

4. Subtract the number of dead, dying, diseased or hazardous trees in step 3 from the total number of trees on the development site in step 1. The remaining number is the number of healthy trees on the site. Use this number to determine the number of replacement trees in steps 5 through 8.

5. Identify the construction area (as defined in OCMC 17.04.230).

6. Determine the number and diameter of trees to be removed within the construction area. Based on the size of each tree, use Column 2 to determine the number of replacement trees required.

7. Determine the number and diameter of trees to be removed outside of the construction area. Based on the size of each tree, use Column 1 to determine the number of replacement trees required.

8. Determine the total number of replacement trees from steps 6 and 7.

Finding: Complies with Condition: The applicant provided the following calculation showing that 37 mitigation trees are required.

SCHEDULE 1: TREE MITIGATION CALCS.

SIZE TREE TO BE REMOVED	MITIGATION OUTSIDE OF CONSTRUCTION		MITIGATION WITHIN CONSTRUCTION		REQUIRED TREES TO PLANT
	# Rem.	Multiplier	# Rem.	Multiplier	
6 TO 12"	0	3	1	1	1
13 TO 18"	0	6	3	2	6
19 TO 24"	0	9	3	3	9
25 TO 30"	0	12	4	4	16
31" PLUS	0	15	1	5	5
TOTAL MITIGATION TREES TO BE PLANTED:					37

The applicant indicated that all mitigation plantings will be planted on-site and conform with the First Priority option. One tree will be planted Lots 40 to 96 and Lots 108 & 109. It appears that several of the trees that are outside of the construction area have been counted as "inside the construction area" in the table, which has reduced the amount of mitigation required. The applicant shall submit a final tree mitigation plan in accordance with this section prior to final plat, ensuring that all trees with trunks outside of the construction area are counted as such, and updating the table to reflect all the trees proposed to be removed with the exception of the eight trees that are dead, dying, diseased, or hazardous. **Staff has determined that it is possible, likely and reasonable that the applicant shall meet this standard through the Conditions of Approval**.

C. Planting area priority for mitigation.
Development applications which opt for removal of trees with subsequent replanting pursuant to OCMC 17.41.050.A. shall be required to mitigate for tree cutting by complying with the following priority for replanting standards below:
1. First Priority. Replanting on the development site.
2. Second Priority. Off-site replacement tree planting locations. If the Community Development Director determines that it is not practicable to plant the total number of replacement trees on-site, a suitable off-site planting location for the remainder of the trees may be approved that will reasonably satisfy the objectives of this section. Such locations may include either publicly owned or private land and shall be approved by the Community Development Director.

Finding: Complies as Proposed. The applicant indicated that all mitigation plantings will be planted on-site and conform with the First Priority option. One tree will be planted Lots 40 to 96 and Lots 108 & 109.

D. Replacement tree planting standards.
1. All replacement trees shall be either two-inch caliper deciduous or six-foot high conifer.
2. Replacement tree species shall be approved by a landscape architect or certified arborist or shall be found on the City's Native Plant or Street Tree lists.
3. Due to their diminishing range in the region, Oregon white oak (Quercus garryana) trees, if removed, shall be replaced by the same species.

Finding: Complies with Condition: The applicant shall submit a final tree mitigation plan in accordance with this section prior to final plat, including the proposed species, size, and ensuring that the multiple Oregon white oak *(Quercus garryana)* trees proposed for removal are mitigated with the same species. **Staff has determined that it is possible, likely and reasonable that the applicant shall meet this standard through the Conditions of Approval**.

E. All existing tree(s) in the tract shall be protected by a permanent restrictive covenant or easement approved in form by the city.

Finding: Not applicable. A tree protection tract is not proposed.

F. Alternative mitigation plan.

The Community Development Director may, subject to a Type II procedure, approve an alternative mitigation plan that adequately protects habitat pursuant to the standards for the Natural Resource Overlay District alternative mitigation plan in OCMC 17.49.190.

Finding: Not applicable. An alternative mitigation plan is not proposed.

17.41.080 - Tree preservation within subdivisions and partitions—Dedicated tract (Option 2).

A. An applicant for a new subdivision and partition may delineate and show the regulated trees or groves as either a separate tract or part of a larger tract that meets the requirements of subsection D. of this section. All existing tree(s) in the tract shall be protected by a permanent restrictive covenant or easement approved in form by the City

B. The standards for land divisions subject to this section shall apply in addition to the requirements of the City land division ordinance and zoning ordinance, provided that the minimum lot area, minimum average lot width, and minimum average lot depth standards of the base zone may be superseded in order to allow for a reduction of dimensional standards pursuant to OCMC 17.41.080.F below.

C. Prior to preliminary plat approval, the regulated tree or grove area shall be shown either as a separate tract or part of a larger tract that meets the requirements of subsection D. of this section, which shall not be a part of any parcel used for construction of a dwelling. The size of the tract shall be the minimum necessary as recommended by a consulting arborist to adequately encompass the dripline of the tree, protect the critical root zone and ensure long term survival of the tree or grove.

D. Prior to final plat approval, ownership of the regulated tree or grove tract shall be identified to distinguish it from lots intended for sale. The tract may be identified as any one of the following:

1. Private open space held by the owner or a homeowner's association; or

2. For residential land divisions, private open space subject to an easement conveying stormwater and surface water management rights to the city and preventing the owner of the tract from activities and uses inconsistent with the purpose of this document; or

3. Public open space where the tract has been dedicated to the City or other governmental unit; or

4. Any other ownership proposed by the owner and approved by the Community Development Director.

E. Density transfers incentive for tree protection tracts.

1. The purpose of this section is to allow dimensional adjustments within a regulated tree protection tract to be transferred outside said tract to the remainder of the site. Density shall not be transferred beyond the boundaries of the development site.

2. Development applications for subdivisions and minor partitions that request a density transfer shall:

a. Provide a map showing the net buildable area of the tree protection tract;

b. Provide calculations justifying the requested dimensional adjustments;

c. Demonstrate that the minimum lot size requirements can be met based on an average of all lots created, including the tree protection tract created pursuant to this section;

d. Demonstrate that, with the exception of the tree protection tract, no parcels have been created which would be unbuildable in terms of minimum yard setbacks;

e. Meet all other standards of the base zone except as modified in this section.

3. The area of land contained in a tree protection tract may be excluded from the calculations for determining compliance with minimum density requirements of the zoning code.

F. Permitted modifications to dimensional standards.

1. An applicant proposing to protect trees in a dedicated tract may request, and the Community Development Director, pursuant to a Type II procedure, may grant a reduction to, the lot size, width, depth, and setbacks of the underlying zone district in approving a subdivision or partition if necessary to retain a regulated tree or grove in a tract, as long as the calculation of average lot size, including tree protection tracts, meet the minimum lot size for the zone. The applicant may choose to make the adjustments over as many lots as required. For example, the lot

reduction could be spread across all the remaining lots in the proposed subdivision or partition or could be applied to only those needed to incorporate the area of the tree tract.

Table 17.41.080.A

Lot Size Reduction

ZONE	Min. Lot Size [sq. feet]	Min. Lot Width	Min. Lot Depth
R-10	5,000 sq. feet	50'	65'
R-8	4,000 sq. feet	45'	60'
R-6	3,500 sq. feet	35'	55'
R-5	3,000 sq. feet	30'	50'
R-3.5	1,800 sq. feet	20'	45'

Table 17.41.080.B

Reduced Dimensional Standards for Detached Single-Family Residential Units

Size of Reduced Lot	Front Yard Setback	Rear Yard Setback	Side yard Setback	Corner Side	Lot Coverage
8,000—9,999 square feet	15 feet	20 feet	7/9 feet	15 feet	40%
6,000—7,999 square feet	10 feet	15 feet	5/7 feet	15 feet	40%
4,000—5,999 square feet	10 feet	15 feet	5/5 feet	10 feet	40%
1,800—3,999 square feet	5 feet	15 feet	5/5 feet	10 feet	55%

Table 17.41.080.C

Reduced Dimensional Standards for Single-Family Attached or Two-Family Residential Units

Size of Reduced Lot	Front Yard Setback	Rear Yard Setback	Side yard Setback	Corner Side	Lot Coverage
3,500—7,000 square feet	10 feet	15 feet	5/0* feet	10 feet	40%
1,800—3,499 square feet	5 feet	15 feet	5/0* feet	10 feet	55%

**0 foot setback is only allowed on single-family attached units*

Finding: Not applicable. The applicant has not proposed mitigation through Option 3.

17.41.110 - Tree protection by restrictive covenant (Option 3).

Any regulated tree or grove which cannot be protected in a tract pursuant to Section 17.41.080 above shall be protected with a restrictive covenant in a format to be approved by the Community Development Director. Such covenant shall be recorded against the property deed and shall contain provisions to permanently protect the regulated tree or grove unless such tree or grove, as determined by a certified arborist and approved by the Community Development Director, are determined to be diseased or hazardous.

Finding: The applicant has not proposed mitigation through Option 3.

A. Permitted adjustments.

1. The Community Development Director, pursuant to a Type II procedure, may grant an adjustment to the side, front and rear yard setback standards by up to fifty percent if necessary to retain a Regulated Tree or Grove through a restrictive covenant pursuant to this section. In no case may the side yard setback be reduced to less than three

feet. The adjustment shall be the minimum necessary to accomplish preservation of trees on the lot and shall not conflict with other conditions imposed on the property.

2. The City Engineer may grant an adjustment to street standards , pursuant to adopted public works standards, in order to preserve a tree. This may include flexibility to redesign sidewalk and planter strip sizes and locations and allow placement of sidewalks and planter strips in an easement within private lots.

3. The Community Development Director, pursuant to a Type II procedure, may allow other adjustments in order to preserve any healthy tree that cannot be moved due to its size, but will contribute to the landscape character of the area and will not present a foreseeable hazard if retained.

Finding: The applicant has not proposed mitigation through Option 3.

17.41.120 - Cash-in-lieu of planting (Option 4).

The applicant may choose this option in-lieu-of or in addition to Compliance Options 1 through 3. In this case, the Community Development Director may approve the payment of cash-in-lieu into a dedicated fund for the remainder of trees that cannot be replanted in the manner described above.

The cash-in-lieu payment per required mitigation tree shall be as listed on the adopted fee schedule and shall be adjusted annually based on the Consumer Price Index. The price shall include 150% of the cost of materials, transportation and planting.

Finding: The applicant has not proposed mitigation through Option 4.

17.41.130 - Regulated tree protection procedures during construction.

A. No permit for any grading or construction of public or private improvements may be released prior to verification by the Community Development Director that regulated trees designated for protection or conservation have been protected according to the following standards. No trees designated for removal shall be removed without prior written approval from the Community Development Director.

B. Tree protection shall be as recommended by a qualified arborist or, as a minimum, to include the following protective measures:

1. Except as otherwise determined by the Community Development Director, all required tree protection measures set forth in this section shall be instituted prior to any development activities, including, but not limited to clearing, grading, excavation or demolition work, and such measures shall be removed only after completion of all construction activity, including necessary landscaping and irrigation installation, and any required plat, tract, conservation easement or restrictive covenant has been recorded.

2. Approved construction fencing, a minimum of four feet tall with steel posts placed no farther than ten feet apart, shall be installed at the edge of the tree protection zone or dripline, whichever is greater. An alternative may be used with the approval of the Community Development Director.

3. Approved signs shall be attached to the fencing stating that inside the fencing is a tree protection zone, not to be disturbed unless prior approval has been obtained from the Community Development Director.

4. No construction activity shall occur within the tree protection zone, including, but not limited to; dumping or storage of materials such as building supplies, soil, waste items; nor passage or parking of vehicles or equipment.

5. The tree protection zone shall remain free of chemically injurious materials and liquids such as paints, thinners, cleaning solutions, petroleum products, and concrete or dry wall excess, construction debris, or run-off.

6. No excavation, trenching, grading, root pruning or other activity shall occur within the tree protection zone unless directed by an arborist present on site and approved by the Community Development Director.

7. No machinery repair or cleaning shall be performed within ten feet of the dripline of any trees identified for protection.

8. Digging a trench for placement of public or private utilities or other structure within the critical root zone of a tree to be protected is prohibited. Boring under or through the tree protection zone may be permitted if approved by the Community Development Director and pursuant to the approved written recommendations and on-site guidance and supervision of a certified arborist.

9. The Community Development Director may require that a certified arborist be present during any construction or grading activities that may affect the dripline of trees to be protected.

10. The Community Development Director may impose conditions to avoid disturbance to tree roots from grading activities and to protect trees and other significant vegetation identified for retention from harm. Such conditions may include, if necessary, the advisory expertise of a qualified consulting arborist or horticulturist both during and

after site preparation, and a special maintenance/management program to provide protection to the resource as recommended by the arborist or horticulturist.

C. Changes in soil hydrology due to soil compaction and site drainage within tree protection areas shall be avoided. Drainage and grading plans shall include provision to ensure that drainage of the site does not conflict with the standards of this section. Excessive site run-off shall be directed to appropriate storm drainage facilities and away from trees designated for conservation or protection.

Finding: Complies with Condition. The applicant indicated that the contractors would comply with this standard. Prior to issuance of development permits the applicant shall submit documentation demonstrating compliance with the tree protection standards in OCMC 17.41.130. **Staff has determined that it is possible, likely and reasonable that the applicant shall meet this standard through the Conditions of Approval**.

CHAPTER 17.44 – GEOLOGIC HAZARDS

17.44.025 *- When required; regulated activities; permit and approval requirements.*

No person shall develop land, construct, reconstruct, structurally alter, relocate or enlarge any building or structure for which a land development, sign, or building permit is required on a property that contains an area mapped within the adopted Oregon City Geologic Hazards Overlay Zone without first obtaining permits or approvals as required by this chapter.

The requirements of this chapter are in addition to other provisions of the Oregon City Municipal Code. Where the provisions of this chapter conflict with other provisions of the Oregon City Municipal Code, the provisions that are the more restrictive of regulated development activity shall govern.

Finding: Applicable. The development property contains an area mapped within the adopted Oregon City Geologic Hazards Overlay Zone.

17.44.030 *- Procedures.*

No building or site development permit or other authorization for development shall be issued until the plans and other documents required by this chapter have been reviewed and found by the review authority to comply with the requirements of this chapter.

A. Where the development is part of an application that otherwise requires a Type III procedure, review shall occur in the manner established in Chapter 17.50 for a consolidated Type III review.

B. Where the development is part of an application that otherwise requires a Type II procedure, review shall occur in the manner established in Chapter 17.50 for a consolidated Type II review.

C. For any other proposed development not otherwise subject to review as part of a development proposal that requires land use review, review shall occur in the manner established in Chapter 17.50 for a Type II procedure.

Finding: Applicable. The proposed development is a part of a development application and review will be in conjunction with the review of that application.

17.44.035 *- Exemptions.*

The following activities, and persons engaging in same, are EXEMPT from the provisions of this chapter.

A. An excavation which is less than two feet in depth, or which involves less than twenty-five cubic yards of volume;

B. A fill which does not exceed two feet in depth or which includes less than twenty-five cubic yards of volume;

C. A combined cut and fill that does not involve more than twenty-five cubic yards of volume.

D. Installation, new construction, addition or structural alteration of any existing structure of less than five hundred square feet in building footprint that does not involve grading as defined in this chapter;

E. *Installation, construction, reconstruction, or replacement of public and private utility lines in the hardscape portion of the city right-of-way, existing utility crossings, existing basalt lined drainage channels, or public easement, not including electric substations;*
F. *Tree removal on slopes 25 percent or greater where canopy area removal is less than 25 percent of the portion of the lot which contains 25 percent or greater slopes. For the purpose of this chapter, "tree" shall be as defined in OCMC 17.04.1315.*
G. *The removal or control of noxious vegetation;*
H. *Emergency actions which must be undertaken immediately to prevent an imminent threat to public health or safety, or prevent imminent danger to public or private property. The person undertaking emergency action shall notify the building official on all regulated activities associated with any building permit or City Engineer/Public Works Director on all others within one working day following the commencement of the emergency activity. If the City Engineer/Public Works Director or building official determine that the action or part of the action taken is beyond the scope of allowed emergency action, enforcement action may be taken.*

Finding: Not Applicable. The application does not meet any of the criteria for an exemption to the geologic hazard code 17.44.

17.44.050 *- Development - Application Requirements and Review Procedures and Approvals.*
Except as provided by subsection C. of this section, an application for a geologic hazards overlay review shall include the following:

17.44.050.A.
A geological assessment and geotechnical report that specifically includes, but is not limited to:
1. Comprehensive information and data regarding the nature and distribution of underlying geology, the physical and chemical properties of existing soils and groundwater; an opinion of site geologic stability, and conclusions regarding the effect of geologic conditions on the proposed development. In addition to any field reconnaissance or subsurface investigation performed for the site, the following resources, as a minimum, shall be reviewed to obtain this information and data:

a. *The State of Oregon Department of Geology and Mineral Industries (DOGAMI) in Bulletin 99, Geology and Geological Hazards of North Clackamas County, Oregon (1979), or in any subsequent DOGAMI mapping for the Oregon City area;*
b. *Portland State University study entitled "Environmental Assessment of Newell Creek Canyon, Oregon City, Oregon" (1992);*
c. *Portland State University study, "Landslides in the Portland, Oregon, Metropolitan Area Resulting from the Storm of February 1996: Inventory Map, Database and Evaluation" (Burns and others, 1998);*
d. *DOGAMI Open File Report O-06-27, "Map of Landslide Geomorphology of Oregon City, Oregon, and Vicinity Interpreted from LIDAR Imagery and Aerial Photographs" (Madin and Burns, 2006);*
e. *"Preliminary Geologic Map of the Oregon City Quadrangle, Clackamas County, Oregon" (Madin, in press);*
f. *Landslide Hazards Land Use Guide for Oregon Communities (October 2019), prepared by the State of Oregon Department of Geology and Mineral Industries (DOGAMI) and the Oregon Department of Land Conservation and Development (DLCD);*
g. *Landslide hazard and risk study of northwestern Clackamas County, Oregon: Oregon Department of Geology and Mineral Industries, Open-File Report O-13-08, 74 map plates; Burns, W.J., Mickelson, K.A., Jones, C.B., Pickner, S.G., Hughes, K.L., Sleeter, R., 2013.*
h. *Mapped Landslide Data shall be from the City's Maps as a minimum but may be supplemented with maps from items a through f above.*

Applicant's Response:
Finding: Complies as Proposed. The application has provided applicable information per 17.44.050.A.1.

2. Information and recommendations regarding existing local drainage, proposed permit activity impacts on local drainage, and mitigation to address adverse impacts;
Finding: Complies as Proposed. See findings from section 13.12 of this report.

3. Comprehensive information about site topography;
Finding: Complies as Proposed. The application has provided information about site topography.

4. Opinion as to the adequacy of the proposed development from an engineering standpoint;
Finding: Complies as proposed. The geotechnical report by GeoPacific Engineering, Inc. included with the application and a letter by GeoPacific Engineering dated September 20, 2021 addressed development on slopes in excess of 25% grade.

5. Opinion as to the extent that instability on adjacent properties may adversely affect the project;
Finding: Complies as proposed. The geotechnical report included with the application concluded that proposed cuts and fills are geotechnically practicable and should not adversely affect slope stability.

6. Description of the field investigation and findings, including logs of subsurface conditions and laboratory testing results;
Finding: Complies as Proposed. The application has included description of the field investigation and findings, including logs of subsurface conditions and laboratory testing results.

7. Conclusions regarding the effect of geologic conditions on the proposed development, tree removal, or grading activity;
Finding: Complies as proposed. The geotechnical report included with the application concluded that proposed cuts and fills are geotechnically practicable and should not adversely affect slope stability. However, the Geologic Hazard Overlay Zone mapped by the city has been confirmed to be only areas with slopes between 25% to 35%. The city's geotechnical consultant has reviewed the geotechnical report provided and concurs with the applicant's geotechnical engineer that proposed cuts and fills are geotechnically practicable and should not adversely affect slope stability. No construction aside from grading has been proposed in such areas.

8. Specific requirements and recommendations for plan modification, corrective grading, and special techniques and systems to facilitate a safe and stable site;
Finding: Complies as proposed. The geotechnical report included with the application concluded that proposed cuts and fills are geotechnically practicable and should not adversely affect slope stability.

9. Recommendations and types of considerations as appropriate for the type of proposed development:
- *a. General earthwork considerations, including recommendations for temporary and permanent cut and fill slopes and placement of structural fill,*
- *b. Location of residence on lot,*
- *c. Building setbacks from slopes,*
- *d. Erosion control techniques applicable to the site,*
- *e. Surface drainage control to mitigate existing and potential geologic hazards,*
- *f. Subsurface drainage and/or management of groundwater seepage,*
- *g. Foundations,*
- *h. Embedded/retaining walls,*
- *i. Management of surface water and irrigation water;*
- *j. Impact of the development on the slope stability of the lot and the adjacent properties.*
- *k. Construction phasing and implementation schedule as it relates to foundation excavation, allowance for stockpiles, imported backfill, site subsurface drainage or dewatering, provision for offseason site protections;*
- *l. Stormwater Management; and*
- *m. Construction Methods*

Finding: Complies as proposed. The geotechnical report included with the application concluded that proposed cuts and fills are geotechnically practicable and should not adversely affect slope stability. No buildings have been proposed for construction with the application. The areas within the development

mapped as Geologic Hazard Overlay Zone are only areas which have slopes of twenty-five percent or more. No construction aside from grading has been proposed in such areas.

10. Scaled drawings that describe topography and proposed site work, including:

- *a. Natural physical features, topography at two or ten-foot contour intervals locations of all test excavations or borings, watercourses both perennial and intermittent, ravines and all existing and manmade structures or features all fully dimensioned, trees six- inch caliper or greater measured four feet from ground level, rock outcroppings and drainage facilities;*
- *b. All of the features and detail required for the site plan above, but reflecting preliminary finished grades and indicating in cubic yards whether and to what extent there will be a net increase or loss of soil.*
- *c. A cross-section diagram, indicating depth, extent and approximate volume of all excavation and fills.*

Finding: Complies as proposed. Scaled drawings that describe topography and proposed site work were provided with the application. The geotechnical report included with the application concluded that proposed cuts and fills are geotechnically practicable and should not adversely affect slope stability.

11. For properties greater than one acre and any property that has any portion of its property existing within a mapped landslide, where the activity is not exempted by 17.44.35, a preliminary hydrology report, prepared by a suitably qualified and experienced hydrology expert, addressing the effect upon the watershed in which the proposed development is located; the effect upon the immediate area's stormwater drainage pattern of flow, the impact of the proposed development upon downstream areas and upon wetlands and water resources; and the effect upon the groundwater supply.

Finding: Complies as proposed. The development has proposed to mitigate stormwater drainage by providing stormwater ponds. These ponds are required to be designed to mitigate of the proposed development upon downstream areas. Runoff from the development site is proposed to drain to an existing public stormwater system which ultimately flows an existing stream. The standards of this section can be met through the Conditions of Approval found in chapter 13.12 of this report. See findings from section 17.49 of this report regarding protection for Natural Resource Overlay Districts contained within the development property.

17.44.050.B. *Review Procedures and Approvals require the following:*

1) *Examination to ensure that:*
   a) *Required application requirements are completed;*
   b) *Geologic assessment and geotechnical report procedures and assumptions are generally accepted; and*
   c) *All conclusions and recommendations are supported and reasonable.*

Finding: Complies as Proposed. The geotechnical report included with the application concluded that proposed cuts and fills are geotechnically practicable and should not adversely affect slope stability. The Geologic Hazard Overlay Zone mapped by the city has been confirmed to be only areas with slopes between 25% to 35%. The city's geotechnical consultant has reviewed the geotechnical report provided and concurs with the applicant's geotechnical engineer that proposed cuts and fills are geotechnically practicable and should not adversely affect slope stability. No construction aside from grading has been proposed in such areas.

17.44.050.B.2 *Conclusions and recommendations stated in an approved assessment or report shall then be directly incorporated as permit conditions or provide the basis for conditions of approval for the regulated activity.*
Finding: Complies as Proposed. The applicant 17.44.050.B.2

17.44.050.B.3 *All geologic assessments and geotechnical reports shall be reviewed by an engineer certified for expertise in geology or geologic engineering and geotechnical engineering, respectively, as determined by the City. The City will prepare a list of prequalified consultants for this purpose. The cost of review by independent review shall be paid by the applicant.*

Finding: Complies with Condition. The city's geotechnical consultant has reviewed the geotechnical report provided and concurs with the applicant's geotechnical engineer. Costs associated with geologic hazard review of the land use application by the City's geotechnical engineer shall be paid by the developer. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

17.44.050.C*. The city engineer may waive one or more requirements of subsections A and B of this section if the city engineer determines that site conditions, size or type or development of grading requirements do not warrant such detailed information. If one or more requirements are waived, the city engineer shall, in the staff report or decision, identify the waived provision(s), explain the reasons for the waiver, and state that the waiver may be challenged on appeal and may be denied by a subsequent review authority.*

Finding: Not Applicable. The City Engineer has not waived any of the requirements as all requirements apply to this application.

17.44.060 *Development Standards.*
Notwithstanding any contrary dimensional or density requirements of the underlying zone, the following standards shall apply to the review of any development proposal subject to this chapter. Requirements of this chapter are in addition to other provision of the Oregon City Municipal Code. Where provision of this chapter conflict with other provision of the Oregon City Municipal Code, the provisions that are more restrictive of regulated development activity shall govern.

17.44.060.A *All developments shall be designed to avoid unnecessary disturbance of natural topography, vegetation and soils. To the maximum extent practicable as determined by the review authority, tree and ground cover removal and fill and grading for residential development on individual lots shall be confined to building footprints and driveways, to areas required for utility easements and for slope easements for road construction, and to areas of geotechnical remediation.*

Finding: Complies as Proposed. The small area of the site that is in excess of 25% grade is located within the boundaries of Lots 52-53 and 89-90. The site grading plan shows that the amount of grading required to address the slope issue is small and grading will only be as needed to establish reasonable building pads. The geotechnical report did not discuss tree and ground cover removal. However, the Geologic Hazard Overlay Zone mapped by the city has been confirmed to be only areas with slopes between 25% to 35%. The GeoPacific letter demonstrates that this grading can be accomplished safely. No construction aside from grading has been proposed in such areas. The geotechnical report included with the application concluded that proposed cuts and fills are geotechnically practicable and should not adversely affect slope stability.

17.44.060.B *All grading, drainage improvements, or other land disturbances shall only occur from May 1 to October 31. "Land disturbance" is defined as any movement of earth, placement of earth, or movement of heavy trucks on earth, not including the right of way. Erosion control measures shall be installed and functional prior to any disturbances. Erosion control measures shall also be functioning and in a winterized stable condition once all land disturbance work has ceased for the year. The City Engineer may allow grading, drainage improvements or other land disturbances to begin before May 1 (but no earlier than March 16) and end after October 31 (but no later than November 30), based upon weather conditions and the recommendation and direction of the project's geotechnical engineer. The City Engineer may use the expertise of a City contracted geotechnical consultant to make the decision to allow any work before May 1 or after October 31. The City Engineer has full authority to not allow any extension of work before May 1 or after October 31. In no case shall the applicant be allowed to begin work before May 1 or complete work after October 31 if the average monthly rainfall in any individual month between September and April is exceeded. When allowed by the City Engineer, the modification of dates shall be the minimum necessary, based upon the evidence provided by the applicant, to accomplish the necessary project goals. Temporary protective fencing shall be established around all trees and vegetation designed for protection prior to the commencement of grading or other soil disturbance.*

Finding: Complies as proposed. The applicant proposes construction activities in these areas to be timed to occur within the allowable period. Required construction fencing will be provided, as shown on the Preliminary Grading and Erosion Control Plan.

17.44.060.C *Designs shall minimize the number and size of cuts and fills.*
Finding: Complies as proposed. The small area of the site that is in excess of 25% grade is located within the boundaries of Lots 52-53 and 89-90. The site grading plan shows that the amount of grading required to address the slope issue is small and grading will only be as needed to establish reasonable building pads. The GeoPacific letter demonstrates that this grading can be accomplished safely. No construction aside from grading has been proposed in such areas. The geotechnical report included with the application concluded that proposed cuts and fills are geotechnically practicable and should not adversely affect slope stability.

17.44.060.D *Cut and fill slopes greater than seven feet in height (as measured vertically) shall be terraced. Faces on a terraced section shall not exceed five feet. Terrace widths shall be a minimum of three feet and shall be vegetated. Total cut and fill slopes shall not exceed a vertical height of fifteen feet. Except in connection with geotechnical remediation plans approved in accordance with the chapter, cuts shall not remove the toe of any slope that contains a known landslide or is greater than twenty-five percent slope. The top of cut or fill slopes not utilizing structural retaining walls shall be located a minimum of one-half the height of the cut slope from the nearest property line.*
Finding: Complies as proposed. No cuts or fills greater than 7 feet are proposed.

17.44.060.E *Any structural fill shall be designed by a suitably qualified and experienced civil or geotechnical engineer licensed in Oregon in accordance with standard engineering practice. The applicant's engineer shall certify that the fill has been constructed as designed in accordance with the provisions of this chapter. The structural fill design must be provided prior to any fill being placed onsite. The structural fill design must contain the stamp and signature of a professional engineer licensed in the State of Oregon.*
Finding: Complies as proposed. The applicant proposes structural fills within the steep slope areas of the site which will meet this requirement.

17.44.060.F *Retaining walls shall be constructed in accordance with the Oregon Structural Specialty Code adopted by the State of Oregon.*

1. *Retaining walls that are four feet or greater in height, tiered walls with a total height four feet or*
2. *The construction of the wall must be inspected by the professional engineer responsible for the design and must be certified prior to the structure receiving temporary occupancy. The certification must contain the stamp and signature of a professional engineer licensed in the State of Oregon.*
3. *All retaining walls required to be designed by a professional engineer shall be reviewed by the City, when expertise exists on staff, or by the City's consultant. When reviewed by the City's consultant, the applicant shall reimburse the City for time spent by the City's consultant to review the design.*

Finding: Not applicable. No retaining walls are proposed within the mapped Geologic Hazard Overlay Zone.

17.44.060.G *Roads shall be the minimum width necessary to provide safe vehicle and emergency access, minimize cut and fill and provide positive drainage control. The review authority may grant a variance from the City's required road standards upon findings that the variance would provide safe vehicle and emergency access and is necessary to comply with the purpose and policy of this chapter.*
Finding: Not applicable. No roads are proposed within the mapped Geologic Hazard Overlay Zone.

17.44.060.H *Density shall be determined as follows:*
1. Slope

a. *For those areas with slopes less than twenty-five percent between grade breaks, the allowed density shall be that permitted by the underlying zoning district, unless further limited by the following code section;*
b. *For those areas with slopes of twenty-five to thirty-five percent between grade breaks, the density shall not exceed two dwelling units per acre except as otherwise provided in subsection I of this section;*
c. *For those areas with slopes over thirty-five percent between grade breaks, development shall be prohibited except as otherwise provided in subsection I 4 of this section.*

2. Existing landslide (as shown in the Geologic Hazard Overlay Zone)

a. *For those areas with historic landslides where the structure or ground disturbance will be located within any portion of the mapped landslide or buffer zone, the density shall not exceed two dwelling units per acre except as otherwise provided in subsection I of this section;*

Finding: Complies as proposed. The slope analysis drawing submitted with this application depicts the area having slopes in the 25-35% range. All other slopes are less than this grade. Density calculations provided in the narrative on OMC 17.65 use the required density of 2 units per acre for the slopes in the 25-35% grade.

17.44.060.I *For properties with slopes of twenty-five to thirty-five percent between grade breaks or are located within any portion of a mapped landslide and buffer zone:*

1. *For those portions of the property with slopes of twenty-five to thirty-five percent or located within any portion of a mapped landslide and buffer zone, the maximum residential density shall be limited to two dwelling units per acre; provided, however, that where the entire site is less than one-half acre in size, a single dwelling shall be allowed on a lot or parcel existing as of January 1, 1994 and meeting the minimum lot size requirements of the underlying zone;*
2. *An individual lot or parcel with slopes between twenty-five and thirty-five percent or located within any portion of a mapped landslide and buffer zone, shall have no more than fifty percent or four thousand square feet of the surface area, whichever is smaller, graded or stripped of vegetation or covered with structures or impermeable surfaces.*
3. *No cut into a slope of twenty-five to thirty-five percent or located within any portion of a mapped landslide and buffer zone, for the placement of a housing unit shall exceed a maximum vertical height of fifteen feet for the individual lot or parcel.*
4. *For those portions of the property with slopes over thirty-five percent between grade breaks:*
   a. *Notwithstanding any other city land use regulation, development other than roads, utilities, public facilities and geotechnical remediation shall be prohibited; provided, however, that the review authority may allow development upon such portions of land upon demonstration by an applicant that failure to permit development would deprive the property owner of all economically beneficial use of the property. This determination shall be made considering the entire parcel in question and contiguous parcels in common ownership on or after January 1, 1994, not just the portion where development is otherwise prohibited by this chapter. Where this showing can be made on residentially zoned land, development shall be allowed and limited to one single-family residence. Any development approved under this chapter shall be subject to compliance with all other applicable city requirements as well as any applicable state, federal or other requirements;*
   b. *To the maximum extent practicable as determined by the review authority, the applicant shall avoid locating roads, utilities, and public facilities on or across slopes exceeding thirty-five percent.*

Finding: Complies as conditioned. There are no mapped landslides on the development property and no areas with slopes exceeding thirty-five percent. Only density restrictions from 17.44.060.H apply.

17.44.060.J *The geotechnical engineer of record shall review final grading, drainage, and foundation plans and specifications and confirm in writing that they are in conformance with the recommendations provided in their report.*

Finding: Complies as proposed. The geotechnical engineer will review the final grading and drainage plans and other recommendations as listed in the geotechnical report.

17.44.060.K *At the City's discretion, peer review shall be required for the geotechnical evaluation/investigation report submitted for the development and/or lot plans. The peer reviewer shall be selected by the City. The*

applicant's geotechnical engineer shall respond to written comments provided by the City's peer reviewer prior to issuance of building permit.

Finding: Complies as proposed. Peer review of the geotechnical evaluation/investigation report submitted for the development has been performed per the City's discretion. The City's peer reviewer concurs with the report provided by applicant's geotechnical engineer and does not have written comments which need response by the applicant's geotechnical engineer.

17.44.060.L *The review authority shall determine whether the proposed methods of rendering a known or potential hazard site safe for construction, including proposed geotechnical remediation methods, are feasible and adequate to prevent landslides or damage to property and safety. The review authority shall consult with the City's geotechnical engineer in making this determination. Costs for such consultation shall be paid by the applicant. The review authority may allow development in a known or potential hazard area as provided in this chapter if specific findings are made that the specific provisions in the design of the proposed development will prevent landslides or damage. The review authority may impose any conditions, including limits on type or intensity of land use, which it determines are necessary to assure that landslides or property damage will not occur.*

Finding: Complies as proposed. Peer review of the geotechnical evaluation/investigation report submitted for the development has been performed per the City's discretion. The City's peer reviewer concurs with the report provided by applicant's geotechnical engineer and does not have written comments which need response by the applicant's geotechnical engineer.

17.44.070 *- Access to Property.*

A. *Shared private driveways may be required if the city engineer or principal planner determines that their use will result in safer location of the driveway and lesser amounts of land coverage than would result if separate private driveways are used.*
B. *Innovations in driveway design and road construction shall be permitted in order to keep grading and cuts or fills to a minimum and to achieve the purpose and policy of this chapter.*
C. *Points of access to arterials and collectors shall be minimized.*
D. *The city engineer or principal planner shall verify that adequate emergency services can be provided to the site.*

Finding: Not applicable. Driveways have not been proposed within the Geologic Hazard Overlay Zone. Driveway design for Lots 89 and 90 will likely be within the area where slopes are over 25% grade. Driveway design for these lots will be reviewed with the grading plans for these lots at the time of building permit application.

17.44.080 *- Utilities.*

All new utilities (storm sewer, sanitary sewer, potable water, and gas), both on-site and off-site, shall be placed underground and under roadbeds where practicable. All other service utilities (including, but not limited to, electric, telephone, telecom, cable, fiberoptic) shall be placed above ground on existing poles if poles exist. If no poles exist, the service lines shall be placed underground. Every effort shall be made to minimize the impact of utility construction. Underground utilities require the geologic hazards permitting and review prescribed herein when applicable.

Finding: Complies as proposed. All new service utilities are proposed to be placed underground and under roadbeds as required.

17.44.090 *- Stormwater Drainage.*

The applicant shall submit a permanent and complete stormwater control plan. The program shall include, but not be limited to the following items as appropriate: curbs, gutters, inlets, catch basins, detention facilities and stabilized outfalls. Detention facilities shall be designed to city standards as set out in the city's drainage master plan and design standards. The review authority may impose conditions to ensure that waters are drained from the development so as to limit degradation of water quality consistent with Oregon City's Title III section of the Oregon City Municipal Code Chapter 17.49 and the Oregon City Stormwater and Grading Design Standards or other adopted standards subsequently adopted by the city commission. The review authority may also impose conditions to limit the volume, velocity, or flow rate of water such that it does not negatively impact the underlying

drainageway cross section. Drainage design shall be approved by the City Engineer before construction, including grading or other soil disturbance, has begun.
A geotechnical report must include analysis and solutions for infiltration facilities located in areas where these facilities could impact nearby slopes of greater than 10 percent. Infiltration shall be minimized as practicable for any site located within a Geologic Hazard Overlay. Infiltration is not allowed for any site located in areas greater than 25 percent.
The project's civil or geotechnical engineer shall inspect any stormwater management feature and must certify that the stormwater management feature was constructed per plan and with the recommendations of the geotechnical engineer prior to receiving temporary occupancy. The certification must contain the stamp and signature of a professional engineer licensed in the State of Oregon.
Finding: See findings from Chapter 13.12 of this report.

17.44.100 *- Construction Standards.*
During construction on land subject to this chapter, the following standards shall be implemented by the developer:
17.44.100.A *All development activity shall minimize vegetation removal and soil disturbance and shall provide positive erosion prevention measures in conformance with OCMC Chapter 17.47 – Erosion and Sediment Control.*
Finding: See findings from Chapter 17.47 of this report.

17.44.100.B *No grading, clearing or excavation of any land shall be initiated prior to approval of the grading plan, except that the city engineer shall authorize the site access, brush to be cleared and the location of the test pit digging prior to approval of such plan to the extent needed to complete preliminary and final engineering and surveying. The grading plan shall be approved by the city engineer as part of the city's review under this chapter. The developer shall be responsible for the proper execution of the approved grading plan.*
Measures shall be taken to protect against landslides, mudflows, soil slump and erosion. Such measures shall include sediment fences, straw bales, erosion blankets, temporary sedimentation ponds, interceptor dikes and swales, undisturbed buffers, grooving and stair stepping, check dams, etc. The applicant shall comply with the measures described in the Oregon City Public Works Standards for Erosion and Sedimentation Control (Ordinance 99-1013). Erosion control measures shall be in place at all times during construction to the maximum extent practicable.
Finding: See findings from Chapter 15.48 of this report.

17.44.100.C *All disturbed vegetation shall be replanted with suitable vegetation upon completion of the grading of the steep slope area.*
Finding: Not applicable. The development has been prohibited from disturbing the steep slope areas.

17.44.100.D *Existing vegetative cover shall be maintained to the maximum extent practicable. No grading, compaction or change in ground elevation, soil hydrology and/or site drainage shall be permitted within the drip line of trees designated for protection, unless approved by the City.*
Finding: Complies as proposed. Existing vegetation will need to be stripped in the area of the 25-35% grades in order to allow for site grading. This work will not commence until required permits are approved by the City.

17.44.100.E *Existing perennial and intermittent watercourses shall not be disturbed unless specifically authorized by the review authority. This includes physical impacts to the stream course as well as siltation and erosion impacts. The City, at its discretion, is not required to but may request the examination and assessment by other State agencies to determine if impacts are acceptable.*
Finding: Complies as Proposed. No watercourses exist within the site proposed in the application.

17.44.100.F *All soil erosion and sediment control measures shall be maintained during construction and for one year after development is completed, or until soils are stabilized by revegetation or other measures to the satisfaction of the city engineer. Such maintenance shall be the responsibility of the developer. If erosion or*

sediment control measures are not being properly maintained or are not functioning properly due to faulty installation or neglect, the City may order work to be stopped.
Finding: See findings from 17.47 regarding erosion and sediment control measures.

17.44.100.G *All newly created lots, either by subdivision or partition, shall contain building envelopes with a slope of 35% or less.*
Finding: Compiles as proposed. There are no slopes in excess of 35% grade on this site. All lots proposed will have building envelopes in areas with a finished slope of less than 25 percent grade.

17.44.100.H *The applicant's geotechnical engineer shall provide special inspection during construction to confirm that the subsurface conditions and assumptions made as part of their geotechnical evaluation/investigation are appropriate. This will allow for timely design changes if site conditions are encountered that are different from those anticipated. Inspection is required on a daily basis for any day that earth disturbance is occurring or after any rainfall event of ½ inch or greater.*
Finding: Complies as proposed. The development proposes to provide the required letter/document.

17.44.100.I *Prior to issuing an occupancy permit, the geotechnical engineer shall prepare a summary letter stating that the soils- and foundation-related project elements were accomplished in substantial conformance with their recommendations. The summary letter must contain the stamp and signature of a professional engineer licensed in the State of Oregon.*
Finding: Not applicable. No buildings have been proposed with this application. Future buildings will be required to provide necessary documentation prior to issuance of occupancy permits.

17.44.110 *- Approval of development.*
The City Engineer shall review the application and verify, based on the applicant's materials and the land use record, whether the proposed development constitutes a hazard to life, property, natural resources or public facilities. If, in the City Engineer's opinion, a particular development poses such a hazard, the City Engineer shall recommend to the review authority permit conditions designed to reduce or eliminate the hazard. These conditions may include, but are not limited to, prohibitions on construction activities between November 1st and April 30th.
Finding: Complies as proposed. The City Engineer has reviewed the application and has concluded that the proposed development does not constitute a hazard to life, property, natural resources or public facilities.

17.44.120 *- Liability. Approval of an application for development on land subject to this chapter shall not imply any liability on the part of the city for any subsequent damage due to earth slides. Prior to the issuance of a building permit, a waiver of damages and an indemnity and hold harmless agreement shall be required which releases the city from all liability for any damages resulting from the development approved by the city's decision. The indemnity and hold harmless agreement shall be recorded on the property and run with the property.*
Finding: Not applicable. The development is not pursuing any building permits with this application.

CHAPTER 17.49 NATURAL RESOURCES OVERLAY DISTRICT

17.49.040 - NROD permit and review process.
An NROD permit is required for those uses regulated under OCMC 17.49.090, Uses Allowed under Prescribed Conditions. An NROD permit shall be processed under the Type II development permit procedure, unless an adjustment of standards pursuant to OCMC 17.49.200 is requested or the application is being processed in conjunction with a concurrent application or action requiring a Type III or Type IV development permit.
Finding: Applies. The applicant has proposed a subdivision on property that has areas within the Natural Resources Overlay District. In 2020, the City approved a Type I Verification of the location of the NROD on the property (NROD-20-00018). The staff report explains:

This application is for verification of the NROD map pursuant to OCMC 17.49.250. The project site is indicated as affected by the NROD in two locations. One is located along the site's Holcomb Boulevard frontage and is associated with a roadside drainage ditch. The other NROD location is along the northern property line and is associated with a verified off-site wetland feature. AKS Engineering & Forestry, LLC prepared a Type I NROD Verification Memo, dated September 2, 2020, concluding that natural intermittent or perennial streams are not present along Holcomb Boulevard, nor is there a water body meeting the definition of a Protected Water Feature. Therefore, the applicant is proposing that the vegetated corridor buffer should not extend onto the project site. Furthermore, the applicant provided a memo and maps to refine and delineate the actual on-site boundary for the vegetated corridor associated with the verified off-site wetland to the north.

Since the NROD location on site has already been verified, the applicant has submitted the current application to demonstrate compliance with provisions for development of a subdivision in the NROD. The Master Plan application is a Type III application, and the NROD review is concurrent.

The applicant's narrative indicates no disturbance in the NROD, but the plans show a street connection in the northwest corner of the site, which is partially in the NROD. If the applicant does intend to build the street in that location and does disturb the NROD, A Type II NROD application shall be submitted prior to grading activities.

17.49.050 - Emergencies.
The provisions of this ordinance do not apply to work necessary to protect, repair, maintain, or replace existing structures, utility facilities, roadways, driveways, accessory uses and exterior improvements in response to emergencies. After the emergency has passed, any disturbed native vegetation areas shall be replanted with similar vegetation found in the Oregon City Native Plant List pursuant to the mitigation standards of OCMC 17.49.180. For purposes of this section emergency shall mean any man-made or natural event or circumstance causing or threatening loss of life, injury to person or property, and includes, but is not limited to fire, explosion, flood, severe weather, drought, earthquake, volcanic activity, spills or releases of oil or hazardous material, contamination, utility or transportation disruptions, and disease.
Finding: Not applicable. No emergencies are identified.

17.49.060 - Consistency and relationship to other regulations.
A. Where the provisions of the NROD are less restrictive or conflict with comparable provisions of the OCMC, other City requirements, regional, state or federal law, the provisions that provides the greater protection of the resource shall govern.
Finding: Acknowledged.

B. Compliance with Federal and State Requirements.
1. If the proposed development requires the approval of any other governmental agency, such as the Division of State Lands or the U.S. Army Corps of Engineers, the applicant shall make an application for such approval prior to or simultaneously with the submittal of its development application to the City. The planning division shall coordinate City approvals with those of other agencies to the extent necessary and feasible. Any permit issued by the City pursuant to this chapter shall not become valid until other agency approvals have been obtained or those agencies indicate that such approvals are not required.
Finding: Not applicable. No development within the NROD is proposed as part of this application.

2. The requirements of this chapter apply only to areas within the NROD and to locally significant wetlands that may be added to the boundary during the course of development review pursuant to OCMC 17.49.035. If, in the

course of a development review, evidence suggests that a property outside the NROD may contain a wetland or other protected water resource, the provisions of this chapter shall not be applied to that development review. However, the omission shall not excuse the applicant from satisfying any state and federal wetland requirements which are otherwise applicable. Those requirements apply in addition to, and apart from the requirements of the City's comprehensive plan and this code.

Finding: Not applicable. No additional wetlands were found.

17.49.070 - Prohibited uses.

The following development and activities are not allowed within the NROD:

A. Any new gardens, lawns, structures, development, other than those allowed outright (exempted) by the NROD or that is part of a regulated use that is approved under prescribed conditions. Note: Gardens and lawns within the NROD that existed prior to the time the overlay district was applied to a subject property are allowed to continue but cannot expand further into the overlay district.

B. New lots that would have their buildable areas for new development within the NROD are prohibited.

C. The dumping of materials of any kind is prohibited except for placement of fill as provided in subsection D. below. The outside storage of materials of any kind is prohibited unless they existed before the overlay district was applied to a subject property. Uncontained areas of hazardous materials as defined by the Oregon Department of Environmental Quality (ORS 466.005) are also prohibited.

D. Grading, the placement of fill in amounts greater than ten cubic yards, or any other activity that results in the removal of more than ten percent of the existing native vegetation on any lot within the NROD is prohibited, unless part of an approved development activity.

Finding: Complies as Proposed. As shown on the plans, the NROD buffer area extends into the rear yards of Lots 61, 62 and a small portion of Lot 63. The buildable area of these lots does not extend into the NROD. No prohibited uses are proposed.

17.49.080 - Uses allowed outright (exempted).

The following uses are allowed within the NROD and do not require the issuance of an NROD permit:

(A-F Omitted)

G. Land divisions provided they meet the following standards, and indicate the following on the final plat:

1. Lots shall have their building sites (or buildable areas) entirely located at least five feet from the NROD boundary shown on the City's adopted NROD map. For the purpose of this subparagraph, "building site" means an area of at least 3,500 square feet with minimum dimensions of forty feet wide by forty feet deep;

2. All public and private utilities (including water lines, sewer lines or drain fields, and stormwater disposal facilities) are located outside the NROD;

3. Impervious streets, driveways and parking areas shall be located at least ten feet from the NROD; and

4. The NROD portions of all lots are protected by:

a. A conservation easement; or

b. A lot or tract created and dedicated solely for unimproved open space or conservation purposes.

(H – P Omitted)

Finding: Complies with condition.

The proposal meets the description of a uses permitted outright under provision G. regarding land divisions. The applicant indicates: “The NROD associated with the wetland buffer area extends into the rear yards of proposed Lots 61, 62 and 63. As shown on the DDP, the building limits for those lots are located at least 5 feet away from the NROD boundary. All of the building sites exceed the 3,500 sq. ft. area and minimum dimensions of 40’ wide by 40’ deep (please refer to DDP for Phase 1). There is a private utility easement on Lots 61 and 62, but it is outside of the NROD area. A conservation easement will be applied to the NROD areas on Lots 61-63.” The applicant shall ensure that all impervious street, driveways, and parking area are located at least ten feet away from the NROD. The applicant shall record a conservation easement or place the NROD area in a lot or tract dedicated solely for unimproved open space or conservation purposes. If a conservation easement is utilized, it shall be

recorded prior to final plat. **Staff has determined that it is possible, likely and reasonable that the applicant shall meet this standard through the Conditions of Approval**.

17.49.090 - Uses allowed under prescribed conditions.
The following uses within the NROD are subject to the applicable standards listed in OCMC 17.49.100 through 17.49.190 pursuant to a Type II process:
A. Alteration to existing structures within the NROD when not exempted by OCMC 17.49.080, subject to OCMC 17.49.130.
B. A residence on a highly constrained vacant lot of record that has less than three thousand square feet of buildable area, with minimum dimensions of fifty feet by fifty feet, remaining outside the NROD portion of the property, subject to the maximum disturbance allowance prescribed in OCMC 17.49.120.A.
C. A land division that would create a new lot for an existing residence currently within the NROD, subject to OCMC 17.49.160.
D. Land divisions when not exempted by OCMC 17.49.080, subject to the applicable standards of OCMC 17.49.160.
E. Trails/pedestrian paths when not exempted by OCMC 17.49.080, subject to OCMC 17.49.170 (for trails) or OCMC 17.49.150 (for paved pedestrian paths).
F. New roadways, bridges/creek crossings, utilities or alterations to such facilities when not exempted by OCMC 17.49.080.
G. Roads, bridges/creek crossings Subject to OCMC 17.49.150.
H. Utility lines subject to OCMC 17.49.140.
I. Stormwater detention or pre-treatment facilities subject to OCMC 17.49.155.
J. Institutional, industrial or commercial development on a vacant lot of record situated in an area designated for such use that has more than seventy-five percent of its area covered by the NROD, subject to OCMC 17.49.120.B.
K. City, county and state capital improvement projects, including sanitary sewer, water and storm water facilities, water stations, and parks and recreation projects.
L. Non-hazardous tree removal that is not exempted pursuant to OCMC 17.49.080.K.
M. Fences that do not meet the standards for exemption pursuant to OCMC 17.49. 080.O.4.
Finding: Not applicable. None of the listed uses are proposed or found within the NROD boundaries.

17.49.100 - General development standards.
The following standards apply to all Uses Allowed under Prescribed Conditions within the NROD with the exception of rights of ways (subject to OCMC 17.49.150), trails (subject to OCMC 17.49.170), utility lines (subject to OCMC 17.49.140), land divisions (subject to OCMC 17.49.160), and mitigation projects (subject to OCMC 17.49.180 or 17.49.190):
A. Native trees shall be preserved unless they are located within ten feet of any proposed structures or within five feet of new driveways, or if deemed not wind-safe by a certified arborist. Trees listed on the Oregon City Nuisance Plant List or Prohibited Plant List are exempt from this standard and may be removed. A protective covenant shall be required for any native trees that remain;
Finding: Not applicable. No trees are located within the NROD on the subject property.

B. The Community Development Director may allow the landscaping requirements of the base zone, other than landscaping required for parking lots, to be met by preserving, restoring and permanently protecting habitat on development sites in the Natural Resource Overlay District.
Finding: Not applicable. There are no landscaping requirements applicable to the R-10 zone.

C. All vegetation planted in the NROD shall be native and listed on the Oregon City Native Plant List or other locally adopted plant list (e.g. Metro or Portland), or as recommended by an environmental professional with experience and academic credentials in one or more natural resource areas such as ecology, arboriculture, horticulture, wildlife biology, botany, hydrology or forestry);
Finding: Complies as proposed. Any plantings that occur within the NROD area will be selected from the Oregon City Native Plant List.

D. Grading is subject to installation of erosion control measures required by the City;

Finding: See findings in 17.47.

E. The minimum front, street, or garage setbacks of the base zone may be reduced to any distance between the base zone minimum and zero in order to minimize the disturbance area within the NROD portion of the lot;
Finding: Not applicable. No changes to setback are proposed for this purpose.

F. Any maximum required setback in any zone, such as for multi-family, commercial or institutional development, may be increased to any distance between the maximum and the distance necessary to minimize the disturbance area within the NROD portion of the lot;
Finding: Not applicable. No changes to setback are proposed for this purpose.

G. Fences in compliance with OCMC 17.49.080.N;
Finding: Not applicable. No fences are proposed under this provision.

H. Exterior lighting shall be placed or shielded so that they do not shine directly into resource areas;
Finding: Complies with Condition. The developer shall inform buyers of the homes on Lots 61 through 63 of the provision for exterior lighting in 17.49.100.H or shall ensure that the CC&Rs include this restriction. **Staff has determined that it is possible, likely and reasonable that the applicant shall meet this standard through the Conditions of Approval**.

I. If development will occur within the one hundred-year floodplain, the standards of OCMC 17.42 shall be met; and
Finding: Not applicable. The site is not within the one hundred-year floodplain.

J. Mitigation of impacts to the regulated buffer is required, subject to OCMC 17.49.180 or 17.49.190.
Finding: Not applicable. No disturbance of the NROD is proposed.

17.49.110 - Width of vegetated corridor.
Finding: Not applicable. The City previously approved the NROD boundary on site through NROD-20-00018.

17.49.150 - Standards for vehicular or pedestrian paths and roads.
Finding: Not applicable. The applicant's narrative indicates no disturbance in the NROD, but the plans show a street connection in the northwest corner of the site, which is partially in the NROD. If the applicant does intend to build the street in that location and does disturb the NROD, A Type II NROD application shall be submitted prior to grading activities.

17.49.160 - Standards for land divisions.
Finding: Not applicable. The applicant's narrative indicates no disturbance in the NROD, but the plans show a street connection in the northwest corner of the site, which is partially in the NROD. If the applicant does intend to build the street in that location and does disturb the NROD, A Type II NROD application shall be submitted prior to grading activities.

17.49.180 - Mitigation standards.
Finding: Not applicable. The applicant's narrative indicates no disturbance in the NROD, but the plans show a street connection in the northwest corner of the site, which is partially in the NROD. If the applicant does intend to build the street in that location and does disturb the NROD, A Type II NROD application shall be submitted prior to grading activities.

17.49.250 - Verification of NROD boundary.

The NROD boundary may have to be verified occasionally to determine the true location of a resource and its functional values on a site. This may be through a site specific environmental survey or a simple site visit in those cases where existing information demonstrates that the NROD significance rating does not apply to a site-specific area. Applications for development on a site located in the NROD area may request a determination that the subject site is not in an NROD area and therefore is not subject to the standards of OCMC 17.49.100. Verifications shall be processed as either a Type I or Type II process.

Finding: Not applicable. The City previously approved the NROD boundary on site through NROD-20-00018.

17.49.265 - Corrections to violations.

Finding: Not applicable. No violations have been found.

CHAPTER 17.50 – ADMINISTRATION AND PROCEDURES

17.50.050 – Pre-application conference.

A Pre-application Conference. Prior to a Type II – IV or Legislative application, excluding Historic Review, being deemed complete, the applicant shall schedule and attend a pre-application conference with City staff to discuss the proposal, unless waived by the Community Development Director. The purpose of the pre-application conference is to provide an opportunity for staff to provide the applicant with information on the likely impacts, limitations, requirements, approval standards, fees and other information that may affect the proposal.

1. To schedule a pre-application conference, the applicant shall contact the Planning Division, submit the required materials, and pay the appropriate conference fee.

2. At a minimum, an applicant should submit a short narrative describing the proposal and a proposed site plan, drawn to a scale acceptable to the City, which identifies the proposed land uses, traffic circulation, and public rights-of-way and all other required plans.

3. The Planning Division shall provide the applicant(s) with the identity and contact persons for all affected neighborhood associations as well as a written summary of the pre-application conference.

B. A pre-application conference shall be valid for a period of six months from the date it is held. If no application is filed within six months of the conference or meeting, the applicant shall schedule and attend another conference before the City will accept a permit application. The Community Development Director may waive the pre-application requirement if, in the Director's opinion, the development has not changed significantly and the applicable municipal code or standards have not been significantly amended. In no case shall a pre-application conference be valid for more than one year.

Finding: Complies as Proposed. A pre-application conference with City staff was held on March 21, 2021 (PA 21-0004). This application was submitted within the required maximum six-month period since the pre-application conference date.

17.50.055 - Neighborhood association meeting.

Neighborhood Association Meeting. The purpose of the meeting with the recognized neighborhood association is to inform the affected neighborhood association about the proposed development and to receive the preliminary responses and suggestions from the neighborhood association and the member residents.

A. Applicants applying for annexations, zone change, comprehensive plan amendments, conditional use, Planning Commission variances, subdivision, or site plan and design review (excluding minor site plan and design review), general development master plans or detailed development plans applications shall schedule and attend a meeting with the City-recognized neighborhood association in whose territory the application is proposed no earlier than one year prior to the date of application. Although not required for other projects than those identified above, a meeting with the neighborhood association is highly recommended.

B. The applicant shall request via email or regular mail a request to meet with the neighborhood association chair where the proposed development is located. The notice shall describe the proposed project. A copy of this notice shall also be provided to the chair of the Citizen Involvement Committee.

C. A meeting shall be scheduled within thirty days of the date that the notice is sent. A meeting may be scheduled later than thirty days if by mutual agreement of the applicant and the neighborhood association. If the neighborhood association does not want to, or cannot meet within thirty days, the applicant shall host a meeting inviting the neighborhood association, Citizen Involvement Committee, and all property owners within three hundred feet to

attend. This meeting shall not begin before six p.m. on a weekday or may be held on a weekend and shall occur within the neighborhood association boundaries or at a City facility.

D. If the neighborhood association is not currently recognized by the City, is inactive, or does not exist, the applicant shall request a meeting with the Citizen Involvement Committee.

E. To show compliance with this section, the applicant shall submit a copy of the email or mail notice to the neighborhood association and CIC chair, a sign-in sheet of meeting attendees, and a summary of issues discussed at the meeting. If the applicant held a separately noticed meeting, the applicant shall submit a copy of the meeting flyer, postcard or other correspondence used, and a summary of issues discussed at the meeting and submittal of these materials shall be required for a complete application.

Finding: Complies as Proposed. A meeting with the Park Place Neighborhood Association was held on April 19, 2021. Contact with the Neighborhood Association was done per the requirements of this section. Notes of the meeting are included with the application package.

17.50.080 Complete application—Required information.

Unless stated elsewhere in OCMC 16 or 17, a complete application includes all the materials listed in this subsection. The community development director may waive the submission of any of these materials if not deemed to be applicable to the specific review sought. Likewise, within thirty days of when the application is first submitted, the community development director may require additional information, beyond that listed in this subsection or elsewhere in Titles 12, 14, 15, 16, or 17, such as a traffic study or other report prepared by an appropriate expert. In any event, the applicant is responsible for the completeness and accuracy of the application and all of the supporting documentation, and the city will not deem the application complete until all information required by the community development director is submitted. At a minimum, the applicant shall submit the following:

- *A. One copy of a completed application form that includes the following information:*
  - *1. An accurate address and tax map and location of all properties that are the subject of the application;*
  - *2. Name, address, telephone number and authorization signature of all record property owners or contract owners, and the name, address and telephone number of the applicant, if different from the property owner(s);*
- *B. A complete list of the permit approvals sought by the applicant;*
- *C. A complete and detailed narrative description of the proposed development;*
- *D. A discussion of the approval criteria for all permits required for approval of the development proposal that explains how the criteria are or can be met or are not applicable, and any other information indicated by staff at the pre-application conference as being required;*
- *E. One copy of all architectural drawings and site plans shall be submitted for Type II—IV applications. One paper copy of all application materials shall be submitted for Type I applications;*
- *F. For all Type II—IV applications, the following is required:*
  - *1. An electronic copy of all materials.*
  - *2. Mailing labels or associated fee for notice to all parties entitled under OCMC 17.50.090 to receive mailed notice of the application. The applicant shall use the names and addresses of property owners within the notice area indicated on the most recent property tax rolls.*
  - *3. Documentation indicating there are no liens favoring the city on the subject site.*
  - *4. A receipt from the county assessor's office indicating that all taxes for the lot or parcels involved are paid in full for the preceding tax year.*
  - *5. A current preliminary title report or trio for the subject property(ies);*
- *G. All required application fees;*
- *H. Annexation agreements, traffic or technical studies (if applicable);*
- *I. Additional documentation, as needed and identified by the community development director.*

Finding: Complies as Proposed. While the applicant did not submit all of the required information, they required that the City deem the application complete under the provisions of 17.50.070.B2.

17.50.090 - Public notices.

All public notices issued by the city announcing applications or public hearings of quasi-judicial or legislative actions, shall comply with the requirements of this section.
B. Notice of Public Hearing on a Type III or IV Quasi-Judicial Application. Notice for all public hearings concerning a quasi-judicial application shall conform to the requirements of this subsection. At least twenty days prior to the hearing, the city shall prepare and send, by first class mail, notice of the hearing to all record owners of property within three hundred feet of the subject property and to any city-recognized neighborhood association whose territory includes the subject property. The city shall also publish the notice on the city website within the city at least twenty days prior to the hearing. Pursuant to OCMC 17.50.080.H, the applicant is responsible for providing an accurate and complete set of mailing labels for these property owners and for posting the subject property with the city-prepared notice in accordance with OCMC 17.50.100. Notice of the application hearing shall include the following information:
1.
The time, date and location of the public hearing;
2. Street address or other easily understood location of the subject property and city-assigned planning file number;
3. A description of the applicant's proposal, along with a list of citations of the approval criteria that the city will use to evaluate the proposal;
4. A statement that any interested party may testify at the hearing or submit written comments on the proposal at or prior to the hearing and that a staff report will be prepared and made available to the public at least seven days prior to the hearing;
5. A statement that any issue which is intended to provide a basis for an appeal to the city commission shall be raised before the close of the public record. Issues must be raised and accompanied by statements or evidence sufficient to afford the city and all parties to respond to the issue;
6. The notice shall state that a city-recognized neighborhood association requesting an appeal fee waiver pursuant to OCMC 17.50.290.C must officially approve the request through a vote of its general membership or board at a duly announced meeting prior to the filing of an appeal;
7. A statement that the application and all supporting materials and evidence submitted in support of the application may be inspected at no charge and that copies may be obtained at reasonable cost at the planning division offices during normal business hours; and
8. The name and telephone number of the planning staff person responsible for the application or is otherwise available to answer questions about the application.
C. Notice of Public Hearing on a Legislative Proposal. At least twenty days prior to a public hearing at which a legislative proposal to amend or adopt the city's land use regulations or comprehensive plan is to be considered, the community development director shall issue a public notice that conforms to the requirements of this subsection. Notice shall be sent to affected governmental entities, special districts, providers of urban services, including Tri-Met, Oregon Department of Transportation and Metro, any affected recognized neighborhood associations and any party who has requested in writing such notice. Notice shall also be published on the city website. Notice issued under this subsection shall include the following information:
1. The time, date and location of the public hearing;
2. The city-assigned planning file number and title of the proposal;
3. A description of the proposal in sufficient detail for people to determine the nature of the change being proposed;
4. A statement that any interested party may testify at the hearing or submit written comments on the proposal at or prior to the hearing; and
5. The name and telephone number of the planning staff person responsible for the proposal and who interested people may contact for further information.

Finding: Complies as Proposed. Notice was given in accordance with this section.

17.50.100 - Notice posting requirements.
Where this chapter requires notice of a pending or proposed permit application or hearing to be posted on the subject property, the requirements of this section shall apply.
A. City Guidance and the Applicant's Responsibility. The City shall supply all of the notices which the applicant is required to post on the subject property and shall specify the dates the notices are to be posted and the earliest date on which they may be removed. The City shall also provide a statement to be signed and returned by the applicant

certifying that the notice(s) were posted at the correct time and that if there is any delay in the City's land use process caused by the applicant's failure to correctly post the subject property for the required period of time and in the correct location, the applicant agrees to extend the applicable decision-making time limit in a timely manner.

B. Number and Location. The applicant shall place the notices on each frontage of the subject property. If the property's frontage exceeds six hundred feet, the applicant shall post one copy of the notice for each six hundred feet or fraction thereof. Notices do not have to be posted adjacent to alleys or unconstructed right-of-way. Notices shall be posted within ten feet of the street and shall be visible to pedestrians and motorists. Notices shall not be posted within the public right-of-way or on trees. The applicant shall remove all signs within ten days following the event announced in the notice.

Finding: Complies as Proposed. Notice was given in accordance with this section.

17.50.140 – Financial guarantees.

When conditions of permit approval require a permitee to construct certain public improvements, the City shall require the permitee to provide financial guarantee for construction of the certain public improvements. Financial guarantees shall be governed by this section.

A. Form of Guarantee. Guarantees shall be in a form approved by the City Attorney. Approvable forms of guarantee include irrevocable standby letters of credit to the benefit of the City issued by a recognized lending institution, certified checks, dedicated bank accounts or allocations of construction loans held in reserve by the lending institution for the benefit of the City. The form of guarantee shall be specified by the City Engineer and, prior to execution and acceptance by the City shall be reviewed and approved by the City Attorney. The guarantee shall be filed with the City Engineer.

B. Performance Guarantees. A permittee shall be required to provide a performance guarantee as follows.

1. After Final Approved Design by The City: The City may request the Permittee to submit a Performance Guarantee for construction of certain public improvements. A permitee may request the option of submitting a Performance Guarantee when prepared for temporary/final occupancy. The guarantee shall be one hundred twenty percent of the estimated cost of constructing the public improvements as submitted by the permittee's engineer. The engineer's estimated costs shall be supported by a verified engineering estimate and approved by the City Engineer.

2. Before Complete Design Approval and Established Engineered Cost Estimate: The City may request a permittee to submit a Performance Guarantee for construction of certain public improvements. A permitee may request the option of submitting a performance guarantee before public improvements are designed and completed. The guarantee shall be one hundred fifty percent of the estimated cost of constructing the public improvements as submitted by *the permittee's engineer and approved by the City Engineer. The engineer's estimated costs shall be supported by a verified engineering estimate and approved by the City Engineer.*

C. Release of Guarantee. The guarantee shall remain in effect until the improvement is actually constructed and accepted by the City. Once the City has inspected and accepted the improvement, the City shall release the guarantee to the permittee. If the improvement is not completed to the City's satisfaction within the time limits specified in the permit approval, the City Engineer may, at their discretion, draw upon the guarantee and use the proceeds to construct or complete construction of the improvement and for any related administrative and legal costs incurred by the City in completing the construction, including any costs incurred in attempting to have the permittee complete the improvement. Once constructed and approved by the City, any remaining funds shall be refunded to the permittee. The City shall not allow a permittee to defer construction of improvements by using a performance guarantee, unless the permittee agrees to construct those improvements upon written notification by the City, or at some other mutually agreed-to time. If the permittee fails to commence construction of the required improvements within six months of being instructed to do so, the City may, without further notice, undertake the construction of the improvements and draw upon the permittee's performance guarantee to pay those costs.

D. Fee-in-lieu. When conditions of approval or the City Engineer allows a permittee to provide a fee-in-lieu of actual construction of public improvements, the fee shall be one hundred fifty percent of the estimated cost of constructing the public improvements as submitted by the permittee's engineer and approved by the City Engineer. The percentage required is to ensure adequate funds for the future work involved in design, bid, contracting, and construction management and contract closeout. The engineer's estimated costs shall be supported by a verified engineering estimate and approved by the City Engineer. The fee-in-lieu shall be submitted as cash, certified check, or other negotiable instrument acceptable by the City Attorney.

Finding: Complies as conditioned. Performance Guarantee which is equal to 120% of the estimated cost for construction of public improvements as shown in city approved construction plans shall be provided prior to receiving a permit and beginning construction. The estimated costs shall be supported by a verified engineering estimate and approved by the city engineer. The performance guarantee will include the public improvements as well as lot sidewalk and street trees and may be reduced at the end of the completion of public improvements and may be further reduced as trees and sidewalk are installed up to two times before final release. The maintenance guarantee will cover the public improvements and shall begin at initial reduction of performance guarantee at the completion of public improvements. The guarantee shall be in a form identified in Code 17.50.140.A of the Oregon City Municipal Code. The guarantee shall remain in effect until the construction of all required improvements are completed and accepted by the city. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

17.50.141 – Public improvements – Warranty
All public improvements not constructed by the City, shall be maintained and under warranty provided by the property owner or developer constructing the facilities until the City accepts the improvements at the end of the warranty period. The warranty is to be used at the discretion of the City Engineer or designee to correct deficiencies in materials or maintenance of constructed public infrastructure, or to address any failure of engineering design.
A. Duration of Warranty. Responsibility for maintenance of public improvements shall remain with the property owner or developer for a warranty period of two years.
B. Financial Guarantee. Approvable forms of guarantee include irrevocable standby letters of credit to the benefit of the City issued by a recognized lending institution, bond, certified checks, dedicated bank accounts or allocations of construction loans held in reserve by the lending institution for the benefit of the City. The form of guarantee shall be specified by the City Engineer and, prior to execution and acceptance by the City shall be reviewed and approved by the City Attorney. The guarantee shall be filed with the City Engineer.
C. Amount of Warranty. The amount of the warranty shall be equal to fifteen percent of the estimated cost of construction of all public improvements (including those improvements that will become owned and maintained by the City at the end of the two year maintenance period), and shall be supported by a verified engineering estimate and approved by the City Engineer. Upon expiration of the warranty period and acceptance by the City as described below, the City shall be responsible for maintenance of those improvements.
D. Transfer of Maintenance. The City will perform an inspection of all public improvements approximately forty-five days before the two-year warranty period expires. The public improvements shall be found to be in a clean, functional condition by the City Engineer before acceptance of maintenance responsibility by the City. Transfer of maintenance of public improvements shall occur when the City accepts the improvements at the end of the two year warranty period.
Finding: Complies as conditioned. Maintenance Guarantee equal to fifteen percent of the estimated cost for construction of public improvements as shown in city approved construction plans shall be provided prior to platting. The estimated costs shall be supported by a verified engineering estimate approved by the City Engineer. The performance guarantee will include the public improvements as well as lot sidewalk and street trees and may be reduced at the end of the completion of public improvements and may be further reduced as trees and sidewalk are installed up to two times before final release. The maintenance guarantee will cover the public improvements and shall begin at initial reduction of performance guarantee at the completion of public improvements. The maintenance guarantee will not include the building lot sidewalk and street trees. The guarantee shall be in a form identified in Code 17.50.140.A of the Oregon City Municipal Code. The maintenance guarantee shall warrant to the City of Oregon City that construction of public improvements will remain, for a period of twenty-four (24) months from the date of acceptance, free from defects in materials and workmanship. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

CHAPTER 17.65 – MASTER PLANS AND PLANNED UNIT DEVELOPMENT

17.65.030 - Applicability of the Master Plan or Planned Unit Development Regulations.

A. Required for Large Institutional Uses. If the boundaries of an institutional development exceed ten acres in size, the proposed development shall be master planned using the regulations of this chapter. No land use review other than a Type I or II Minor Site Plan and Design Review shall be issued for any institutional development in excess of ten acres in total acreage unless it is accompanied by or preceded by a master plan approval under this chapter. This requirement does not apply to modifications to existing institutional developments unless the modification results in a cumulative square footage increase of over ten thousand total building square feet in an existing institutional development over ten acres.

B. When Required as Part of Previous Land Use Review. The master plan or planned unit development regulations may be used to fulfill a condition of approval from a previous land use decision-requiring master planning for a development.

C. When identified in the Oregon City Comprehensive Plan. The master plan regulations are required for all properties identified for master planning in the Land Use section of the Oregon City Comprehensive Plan.

D. Voluntarily. An applicant may voluntarily submit a master plan or planned unit development as part of a land use review, including for residential projects.

Finding: Applies. This application is being submitted voluntarily.

17.65.040 - Procedure.

A. Preapplication Review. Prior to filing for either general development plan or detailed development plan approval, the applicant shall file a pre-application conference pursuant to OCMC 17.50.030.

Finding: Complies as Proposed: A pre-application conference was held on March 2, 2021 (PA 21-00004).

B. General Development Plan. An application for a general development plan describing the long-term buildout of the site shall be reviewed through a Type III procedure. An applicant shall have an approved general development plan before any detailed development plan may be approved, unless both are approved or amended concurrently. Amendments to an approved general development plan shall be reviewed under a Type III procedure pursuant to OCMC 17.65.080.

C. Detailed Development Plan. An application for a detailed development plan, is processed through a Type II procedure, as long as it is in conformance with the approved general development plan. Amendments to an approved detailed development plan shall be processed pursuant to OCMC 17.65.080. Once a development has an approved detailed development plan, OCMC 17.62 Site Plan and Design Review is not required.

D. Concurrent Review. An applicant may concurrently apply for a general development plan and a detailed development plan. Such a concurrent application is reviewed through the highest procedure that applies to any element of the combined application.

E. Relationship to Other Reviews. It is the express policy of the City that development review not be segmented into discrete parts in a manner that precludes a comprehensive review of the entire development and its cumulative impacts.

Finding: Complies as Proposed.

The GDP will be reviewed through a Type III process. The DDPs will be submitted concurrently and will be heard through a Type III process with the GDP. The application is being reviewed in its entirety rather than being segmented into discrete parts.

F. Duration of General Development Plan. A general development plan shall involve a planning period of up to twenty years. An approved general development plan shall remain in effect until development allowed by the plan has been completed through the detailed development plan process, the plan is amended or superseded, or the plan expires under its stated expiration date either as stated in the approved master plan or planned unit development application or decision of approval.

Finding: Complies as Proposed. The applicant states that the proposed duration of the GDP is 10 years, which is within the specified 20-year maximum time frame for full implementation. However, other

portions of the application state that the planned full build-out will be in 2025. Final buildout of every lot is not limited by any Master Plan duration.

17.65.050 - General Development Plan.

A. Existing Conditions Submittal Requirements.

1. Narrative statement. An applicant shall submit a narrative statement that describes the following:

a. Current uses of and development on the site;

b. For institutions, history or background information about the mission and operational characteristics of the institution that may be helpful in the evaluation of the general development plan, and information about current programs or services;

c. A vicinity map showing the location of the General Development Plan boundary relative to the larger community, along with affected major transportation routes, transit, and parking facilities. At least one copy of the vicinity map shall be eight and one-half inches × eleven inches in size, and black and white reproducible;

d. Land uses that surround the development site. This may also reference submitted maps, diagrams or photographs;

e. Previous land use approvals within the General Development Plan boundary and related conditions of approval, if applicable;

f. Existing utilization of the site;

g. Site description, including the following items. May also reference submitted maps, diagrams or photographs.

1. Physical characteristics;

2. Ownership patterns;

3. Building inventory;

4. Vehicle/bicycle parking;

5. Landscaping/usable open space;

6. FAR/lot coverage;

7. Natural resources that appear on the city's adopted Goal 5 inventory;

8. Cultural/historic resources that appear on the city's adopted Goal 5 inventory;

9. Location of existing trees six inches in diameter or greater when measured four feet above the ground. The location of single trees shall be shown. Trees within groves may be clustered together rather than shown individually; and

10. Geologic hazards pursuant to OCMC 17.44.

h. Existing transportation analysis, including the following items. May also reference submitted maps, diagrams or photographs.

1. Existing transportation facilities, including highways, local streets and street classifications, and pedestrian and bicycle access points and ways;

2. Transit routes, facilities and availability;

3. Alternative modes utilization, including shuttle buses and carpool programs; and

4. Baseline parking demand and supply study (may be appended to application or waived if not applicable).

i. Infrastructure facilities and capacity, including the following items:

1. Water;

2. Sanitary sewer;

3. Stormwater management; and

4. Easements.

2. Maps and Plans.

a. Existing conditions site plan. Drawn at a minimum scale of one-inch equals one hundred feet (one inch=one hundred feet) that shows the following items. At least one copy shall be eight and on-half inches × eleven inches in size, and black and white reproducible.

1. Date, north point, and scale of drawing.

2. Identification of the drawing as an existing conditions site plan.

3. Proposed development boundary.

4. All parking, circulation, loading and service areas, including locations of all carpool, vanpool and bicycle parking spaces as required in Chapter 52 of this title.

5. Contour lines at two-foot contour intervals for grades zero to ten percent, and five-foot intervals for grades over ten percent.
6. A site plan or plans, to scale, for the General Development Plan site and surrounding properties containing the required information identified in OCMC 17.62.040.b. Vicinity map. Depicting the location of the site sufficient to define its location, including identification of nearest cross streets. At least one copy of the vicinity map shall be eight and one-half inches × eleven inches in size, and black and white reproducible.
c. Aerial photo. Depicting the subject site and property within two hundred fifty feet of the proposed development boundaries. At least one copy of the aerial photo shall be eight and one-half inches × eleven in size, and black and white reproducible.
Finding: Complies as Proposed. The applicant has provided the required materials.

B. Proposed Development Submittal Requirements.
1. Narrative statement. An applicant shall submit a narrative statement that describes the following:
a. The proposed duration of the general development plan.
b. The proposed development boundary. May also reference submitted maps or diagrams.
c. A description, approximate location, and timing of each proposed phase of development, and a statement specifying the phase or phases for which approval is sought under the current application. May also reference submitted maps or diagrams.
d. An explanation of how the proposed development is consistent with the purposes of Section 17.65, the applicable zone district or districts, and any applicable overlay district.
e. A statement describing the impacts of the proposed development on inventoried Goal 5 natural, historic or cultural resources within the development boundary or within two hundred fifty feet of the proposed development boundary.
f. An analysis of the impacts of the proposed development on the surrounding community and neighborhood, including:
1. Transportation impacts as prescribed in subsection g. below;
2. Internal parking and circulation impacts and connectivity to sites adjacent to the development boundary and public right-of-ways within two hundred fifty feet of the development boundary;
3. Public facilities impacts (sanitary sewer, water and stormwater management) both within the development boundary and on city-wide systems; including a phasing plan for all on-site and off-site public improvements, including but not limited to transportation, schools, parks, open space, trails, sewer, water and stormwater, with an analysis of the capacity and improvements required as a result of fully implementing the plan. This analysis shall reference any adopted parks and recreation, public facilities plans and concept plans and identify specific funding mechanisms to address the adequacy of public facilities.
4. Neighborhood livability impacts;
5. Natural, cultural and historical resource impacts within the development boundary and within two hundred fifty feet of the development boundary.
Finding: Complies as Proposed. The applicant has provided the required materials.

g. A summary statement describing the anticipated transportation impacts of the proposed development. This summary shall include a general description of the impact of the entire development on the local street and road network, and shall specify the maximum projected average daily trips, projected AM and PM peak hour traffic and the maximum parking demand associated with build-out each phase of the master plan or planned unit development.
h. In addition to the summary statement of anticipated transportation impacts, an applicant shall provide a traffic impact study as specified by city requirements. The transportation impact study shall either:
1. Address the impacts of the development of the site consistent with all phases of the general development plan; or
2. Address the impacts of specific phases if the City Engineer determines that the traffic impacts of the full development can be adequately evaluated without specifically addressing subsequent phases.
i. If an applicant chooses to pursue option h.1., the applicant may choose among three options for implementing required transportation capacity and safety improvements:

1. The General Development Plan may include a phasing plan for the proposed interior circulation system and for all on-site and off-site transportation capacity and safety improvements required on the existing street system as a result of fully implementing the plan. If this option is selected, the transportation phasing plan shall be binding on the applicant.
2. The applicant may choose to immediately implement all required transportation safety and capacity improvements associated with the fully executed general development plan. If this option is selected, no further transportation improvements will be required from the applicant. However, if a general development plan is later amended in a manner so as to cause the projected average daily trips, the projected AM or PM peak hour trips, or the peak parking demand of the development to increase over original projections, an additional transportation impact report shall be required to be submitted during the detailed development plan review process for all future phases of the development project and additional improvements may be required.
3. The applicant may defer implementation of any and all capacity and safety improvements required for any phase until that phase of the development reaches the detailed development plan stage. If this option is selected, the applicant shall submit a table linking required transportation improvements to vehicle trip thresholds for each development phase.
j. For residential and mixed-use projects:
a. Proposed minimum lot area, width, frontage and yard requirements.
b. Proposed project density in number of units per acre.

Finding: Complies with Condition. See analysis in 16.12.033 for discussion of traffic impacts. The applicant is required to provide proportional share payments for intersections that are impacted as described in the findings and conditions in 16.12.033. Furthermore, queuing storage improvements are required through a condition of approval. The applicant did not indicate which option in the standard they planned to pursue. Since both phases are included in this review and are not planned to occur over a long buildout period, the City will require the following transportation projects prior to final plat of Phase 1: proportional share payments associated with Phase 1, and the pedestrian crosswalk of Holcomb Blvd. Prior to final plat of Phase 2, the queue storage improvements identified in the applicant's Traffic Analysis letter shall be required, along with the proportional share payments associated with Phase 2 trips.

The applicant has proposed this project to be constructed in 2 phases. The applicant shall prepare a Development Agreement in association with a Phasing Plan that describes and shows timing of each phase of improvements and associated performance and maintenance bonds. The agreement shall be executed by both the developer and the City prior to approval of Engineering Plans. The elements of the phases shall be reflected on engineering plans and the city has the right to work with the developer to vary the details of the phasing to ensure public improvements are accessible, maintainable, and useable by the public.

Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.

2. Maps and diagrams. The applicant shall submit, in the form of scaled maps or diagrams, as appropriate, the following information:
a. A preliminary site circulation plan showing the approximate location of proposed vehicular, bicycle, and pedestrian access points and circulation patterns, parking and loading areas or, in the alternative, proposed criteria for the location of such facilities to be determined during detailed development plan review.
b. The approximate location of all proposed streets, alleys, other public ways, sidewalks, bicycle and pedestrian access ways and other bicycle and pedestrian ways, transit streets and facilities, neighborhood activity centers and easements on and within two hundred fifty feet of the site. The map shall identify existing subdivisions and development and un-subdivided or unpartitioned land ownerships adjacent to the proposed development site and

show how existing streets, alleys, sidewalks, bike routes, pedestrian/bicycle access ways and utilities within two hundred fifty feet may be extended to and/or through the proposed development.

c. The approximate location of all public facilities to serve the proposed development, including water, sanitary sewer, stormwater management facilities.

d. The approximate location, footprint and building square footage of buildings within of each phase of proposed development, and/or proposed lot patterns for each phase of future development.

e. The approximate locations of proposed parks, playgrounds or other outdoor play areas; outdoor common areas and usable open spaces; and natural, historic and cultural resource areas or features proposed for preservation. This information shall include identification of areas proposed to be dedicated or otherwise preserved for public use and those open areas to be maintained and controlled by the owners of the property and their successors in interest for private use.

Finding: Complies as Proposed. The applicant has provided the required materials.

C. Approval Criteria for a General Development Plan. The Planning Commission may approve an application for general development plan only upon finding that the following approval criteria are met.

1. The proposed General Development Plan is consistent with the purposes of OCMC 17.65.

17.65.010 - Purpose Statement

It is the intent of this chapter to foster the growth of major institutions, phased residential, commercial or mixed-use development, and other large-scale development, while identifying and mitigating the impacts of such growth on surrounding properties and public infrastructure. The city recognizes the valuable housing options, services and/or employment opportunities that these developments bring to Oregon City residents. The master plan or planned unit development process is intended to facilitate an efficient and flexible review process for major developments, support innovative and creative land development, and to provide long-term assurance to plan for and execute developments in a phased manner. To facilitate this, the master plan process is structured to allow an applicant to address larger development issues, such as adequacy of infrastructure and transportation capacity, and reserve capacity of the infrastructure and transportation system before expenditure of final design costs. The master plan or planned unit development process is further intended to promote efficiency in land development, maintenance, street systems and utility networks while providing site layouts that integrate usable and attractive open spaces, site circulation, and the general wellbeing of site users. For the purposes of this chapter planned unit developments are considered the same as master plans.

Finding: Complies as Proposed: The applicant states "The Serres Farms Planned Unit Development (PUD) is consistent with the purpose and intent of this chapter. It is a large-scale phased residential development, being situated on one of the larger areas of vacant land within the city limits (35.2 acres), and proposes a total of 123 lots. The development is planned to occur in two phases. The PUD process will allow for flexibility in sizing of lots which will provide for the creation of a two-acre open space on the property. This open space will incorporate a pedestrian trail along the western boundary of the project. This trail is consistent with the City's planned trail system for this area. The open space will be located along the view corridor associated with the Barlow Trail that passes through the property on a roughly east-west orientation. The applicant plans to provide an informational interpretive kiosk relating to the historic trail within the open space. The location adjacent to Holcomb Elementary School will allow for access to the school site from the open space, thereby affording educational opportunities relating to Oregon history. Finally, the Master Plan/PUD process will permit the review of project infrastructure and transportation resources in a cohesive manner."

2. Development shall demonstrate compliance with OCMC 12.04 16.12, 17.62, if applicable, and 16.08, if applicable.

Finding: See findings from sections 12.04 16.12, 17.62 and 16.08 of this report.

3. Public services for transportation, water supply, police, fire, sanitary waste disposal, storm-water disposal, and any other needed public services and facilities including schools and parks for proposed residential uses, are capable

of serving the proposed development, or will be made capable by the time each phase of the development is completed.

Finding: Complies with Condition. The applicant provided the following response:

> *Water: There is an existing 16-inch Oregon City ductile iron water main located within Holcomb Boulevard that will provide water service for the proposed development. Oregon City water in the Holcomb pressure zone is supplied though a master meter for water pumped through the Clackamas River Water District-owned Barlow Crest Pump Station. The applicant has confirmed with CRW that there is adequate pressure and volume to serve the proposed development. As shown on the preliminary utility plans, the system will be looped to provide for water circulation and avoidance of dead-end lines.*
>
> *Sanitary Sewer: Sanitary sewer for the project is available from two sources: An 8-inch sanitary sewer main exists within Holcomb Boulevard with manholes located along the frontage of the property. City staff advised the applicants that the Holcomb Blvd. sewer is nearing capacity so no project sanitary sewer will be directed to that facility. An 8-inch sanitary sewer main also exists within Ames Street with a manhole located at the intersection of Ames Street and Pasture Way. The majority of the site must be served from the Ames Street location due to topographic considerations. The Ames Street sewer is located approximately 680 feet to the west of the subject property. The most direct route would cross land owned by the Serres family that is presently outside of the city limits and the Urban Growth Boundary. This location will require the approval of Clackamas County and the applicant is presently working with County Planning regarding this issue. Some minor amendments to the language of the County's Comprehensive Plan are needed in order to bring it into conformity with State statutes on extraterritorial extensions. It is anticipated that the amendments will be heard beginning in July of this year. If for some unforeseen reason the changes are not approved, the applicant has discussed obtaining an easement from Oregon City Public School District across the Holcomb Elementary property to access sanitary sewer in Pasture Way via the pedestrian pathway alignment. Wes Rogers, the District's Director of Capital Projects, has indicated that this option would be acceptable to the District.*
>
> *Storm Water Management: The subject property drains generally to the northwest towards a natural drainageway on the north side of Forsythe Road. The site plan provides for a storm water detention and treatment facility near the northwest corner of the site. As shown on the preliminary utility plan and discussed in the Preliminary Storm Water Report, off-site improvements to the ditch system will be needed to convey the water to the natural drainageway. This involves land under the ownership of the Serres family so any needed access and easements may be readily obtained.*
>
> *Discussions with Wes Rogers of Oregon City School District indicate that the District has plans to service the school needs of this growing area of the city. Based upon the size of the project and the price range of the homes, he estimated that the development would only generate 10 to 20 elementary school students. Capacity at Holcomb Elementary was last counted pre-Covid 19, but it had adequate capacity to accommodate the anticipated students from this project. He stated that the junior high school and high school capacity is adequate with ongoing improvements to facilities. The proposed GDP provides a 2-acre park to serve the needs of the proposed development. Additionally, school playground facilities are available at Holcomb Elementary, immediately to the west of the site.*

The applicant did not include information regarding capability of police and fire services to serve the development; however, the annexation AN 16-04 included evidence that the site could be served by police and fire services and that Oregon city Police and the Clackamas Fire District had the capacity to do so. Public services for transportation water supply, police, fire, sanitary waste disposal and storm-water disposal shall be made capable by the time each phase of the development is completed. **Staff has determined that it is possible, likely and reasonable that the applicant can meet this standard through the Conditions of Approval.**

4. The proposed General Development Plan protects any inventoried Goal 5 natural, historic or cultural resources within the proposed development boundary consistent with the provisions of applicable overlay districts.

Finding: Complies as Proposed. The applicant submitted NROD0-20-00018 to address two mapped NROD areas on site. The NROD shown along Holcomb Boulevard was found to be a manmade facility not related to a natural water feature, and was removed from the NROD. The area in the NW corner of the site was delineated and approved by the City. The proposed development maintains required buffers from the offsite wetlands. The Barlow Trail is known to have crossed a portion of the subject property. The site plan provides for the maintenance of a view corridor, which was approved with conditions through HR-21-00013 by the Historic Review Board. There are no other Goal 5 resources that affect the proposed development. No structures eligible for listing as historic resources are in the immediate vicinity or on the property.

5. The proposed General Development Plan, including development standards and impact mitigation thresholds and improvements, adequately mitigates identified impacts from each phase of development. For needed housing, as defined in ORS 197.303(1), the development standards and mitigation thresholds shall contain clear and objective standards.

Finding: Complies as Proposed. The applicant states: "With the infrastructure improvements that will be provided to serve the project, as detailed in the Lancaster/Mobley Traffic Impact Study, and on the preliminary utility plan submitted with this application, this project will provide adequate mitigative measures per City standards*."* No unique development standards are proposed for the development of housing. All conditions of approval are clear and objective. **See findings and conditions in 16.12.033.**

6. The proposed general development plan is consistent with the Oregon City Comprehensive Plan.

Finding: Complies with Conditions.

The applicant provided the following narrative responses to the relevant Comprehensive Plan goals and policies. Staff findings are added only where more information is pertinent or where staff disagrees with the applicant's comments.

"The subject property is designated Low Density Residential (LDR) by the Oregon City Comprehensive Plan. The proposed density is consistent with the maximum and minimum density standards, as will be discussed below in findings on OCMC 17.65.070.C.4. The R-10 zone, which implements the LDR designation in this area, allows single-family detached and duplex uses and the proposed development is consistent with these uses. The development provides needed housing, and is therefore consistent with the Plan's housing goals. The proposal is consistent with Public Facilities and Services policies, as demonstrated by the availability of adequate services to the site and the information provided on the preliminary utility plan and associated documents. The application is consistent with transportation planning policies, as demonstrated by the Lancaster/Mobley Traffic Impact Study included with our submittal. The application is consistent with historic resources policies, as demonstrated by the provision of a view corridor for the Barlow Trail. Finally, the application is consistent with Section 5 of the Plan in that the NROD associated with an off-site wetland is adequately protected per City standards."

SECTION 1 – CITIZEN INVOLVEMENT

Policy 1.1.1 Utilize neighborhood associations as the vehicle for neighborhood-based input to meet the requirements of the Land Conservation and Development Commission (LCDC) Statewide Planning Goal 1, Citizen Involvement. The Citizen Involvement Committee (CIC) shall serve as the officially recognized citizen committee needed to meet LCDC Statewide Planning Goal 1.

Goal 1.4 Community Involvement Provide complete information for individuals, groups, and communities to participate in public policy planning and implementation of policies.

Policy 1.4.1 Notify citizens about community involvement opportunities when they occur.

Comment: Per OCMC 17.50.090 - Public notices, citizens will be notified pursuant to the required provisions for a Type III land use application.SECTION 2 – LAND USE

Goal 2.1 Efficient Use of Land Ensure that property planned for residential, commercial, office, and industrial uses is used efficiently and that land is developed following principles of sustainable development.

Comment: The site plan provides for efficient use of the subject property by making use of a ten percent density adjustment allowed under OCMC 17.65.070 and by providing for duplex development on eighteen corner lots within the development. These provisions provide for an increased density that makes more efficient use of streets and public utilities that serve the project. They also provide for more homes to be located on this property under the existing R-10 zoning, thereby reducing pressure for future expansion of the UGB. The plan incorporates sustainable development practices by providing for treatment and detention of storm water, mitigating for trees that need to be removed for site development, and providing more than 2 acres of dedicated open space.

Policy 2.1.1 Create incentives for new development to use land more efficiently, such as by having minimum floor area ratios and maximums for parking and setbacks.

Comment: These particular standards relate more to multi-family, commercial and industrial uses than they do to Low Density Residential developments such as Serres Farms. However, as noted under Goal 2.1, the proposed development makes use of other code provisions to provide for a more efficient use of the land.

Policy 2.1.2 Encourage the vertical and horizontal mixing of different land-use types in selected areas of the city where compatible uses can be designed to reduce the overall need for parking, create vibrant urban areas, reduce reliance on private automobiles, create more business opportunities and achieve better places to live.

Comment: The proposed plan provides for a mixture of single-family detached and duplex development.

Policy 2.1.3 Encourage sub-area master planning for larger developments or parcels, including re-development, where it may be feasible to develop more mixed uses, or campus-style industrial parks, with shared parking and landscaping areas. Allow developments to vary from prescriptive standards if planned and approved under this provision.

Comment: The project is a larger development and, consistent with this policy, is making use of the master planning provisions of OCMC 17.65.

SECTION 5 - OPEN SPACES, SCENIC AND HISTORIC AREAS, AND NATURAL RESOURCES

Goal 5.1 Open Space Establish an open space system that conserves fish and wildlife habitat and provides recreational opportunities, scenic vistas, access to nature and other community benefits.

Comment: There are no significant fish or wildlife habitat resources on the site. The site plan protects the small NROD to the north of the property in a manner consistent with adopted City standards, as discussed below in this narrative. The site has a scenic vista from the area near Kaylyn Drive that provides views of downtown Portland. The site plan has been designed to maximize view from homes in that area of the property. The plan also provides a 2-acre open space for recreational use.

Policy 5.1.1 Conserve open space along creeks, urban drainage ways, steep hillsides, and throughout Newell Creek Canyon.

Comment: Not applicable. There are no creeks, significant drainage ways or steep (in excess of 20% grade) hillsides on the property. The site is not within the Newell Creek Canyon.

Policy 5.1.2 Manage open space areas for their value in linking citizens and visitors with the natural environment, providing solace, exercise, scenic views and outdoor education. Built features in open space sites should harmonize with natural surroundings.

Comment: There are no identified open space resources areas on the subject property. There is a walking trail identified for the subject property and the site plan provides for this use.

Goal 5.2 Scenic Views and Scenic Sites Protect the scenic qualities of Oregon City and scenic views of the surrounding landscape.

Comment: There is a view from a portion of the property, but it is not identified in the Comprehensive Plan as a resource area. Homes in the area near Kaylyn Drive are oriented to take advantage of the view.

Policy 5.2.1 Identify and protect significant views of local and distant features such as Mt. Hood, the Cascade Mountains, the Clackamas River Valley, the Willamette River, Willamette Falls, the Tualatin Mountains, Newell Creek Canyon, and the skyline of the city of Portland, as viewed from within the city.

Comment: The site does not impact any of the identified view resources except for a distant view of the skyline of the city of Portland from a portion of the property. Homes in the area near Kaylyn Drive are oriented to take advantage of the view. Views of the skyline will also be available from sidewalks in this area so that they can be enjoyed by pedestrians.

Goal 5.3 Historic Resources Encourage the preservation and rehabilitation of homes and other buildings of historic or architectural significance in Oregon City.

Comment: The site does not contain any historic homes or other buildings. The Barlow Road corridor does pass through the site and the plan protects this corridor in a manner consistent with City standards.

Policy 5.3.8 Preserve and accentuate historic resources as part of an urban environment that is being reshaped by new development projects.

Comment: The Barlow Road corridor is the only historic resource that pertains to this property. The site plan provides for a view corridor along the corridor, consistent with City standards.

Goal 5.4 Natural Resources Identify and seek strategies to conserve and restore Oregon City's natural resources, including air, surface and subsurface water, geologic features, soils, vegetation, and fish and wildlife, in order to sustain quality of life for current and future citizens and visitors, and the long-term viability of the ecological systems.

Comment: The only significant natural resource potentially impacted by this development is the off-site NROD associated with a small wetland to the north of the subject property. The site plan conforms to all NROD requirements for the protection of this area, as discussed in the responses to OCMC 17.49 below in this narrative.

Policy 5.4.11 Maintain and enhance the function and quality of natural wetlands and create, where appropriate, wetlands or swales to moderate the quantity and velocity of water runoff entering streams during storm events and to reduce the amount of pollutants carried into streams.

Comment: There are no wetlands on the subject property, but there is a small one located off-site to the north on Tax Lot 2000. This wetland is the subject of an NROD verification application submitted

concurrently with this land use application. Please see discussion of compliance with OCMC 17.49 below. The plans for managing storm water provide for detention and treatment of the water prior to conveyance to a natural drainageway to the north of Forsythe Road. This treatment will ensure that water quality standards are met. The flat grade of the drainage system that will convey the water will ensure that the velocity is appropriate.

Policy 5.4.16 Protect surfacewater quality by:
• providing a vegetated corridor to separate protected water features from development
• maintaining or reducing stream temperatures with vegetative shading
• minimizing erosion and nutrient and pollutant loading into water
• providing infiltration and natural water purification by percolation through soil and vegetation
Comment: The only protected water feature associated with this site is the wetland located to the north of the property on Tax Lot 2000. The site plan maintains the required setbacks set forth in OCMC 17.49 and discussed below. The storm water detention and treatment facility will ensure that sediments and other pollutants are removed from runoff in accordance with City standards. Infiltration and percolation is not a significant option in this area due to clay soils. Erosion from the property during construction will be controlled through the use of silt fencing and other measures consistent with City standards.

Policy 5.4.17 Protect and maintain groundwater recharge through conservation and enhancement of wetlands and open space.
Comment: The proposed development protects the small wetlands to the north in accordance with City standards set forth in OCMC 17.49 and discussed below.

SECTION 6 – QUALITY OF AIR, WATER, AND LAND RESOURCES

Goal 6.1 Air Quality -Promote the conservation, protection and improvement of the quality of the air in Oregon City.
Policy 6.1.1 Promote land-use patterns that reduce the need for distance travel by single occupancy vehicles and increase opportunities for walking, biking and/or transit to destinations such as places of employment, shopping and education
Comment: This policy is primarily a guide to City action. The proposed development does, however, provide opportunities for walking and biking through construction of sidewalks and pathways as shown on the site plan.

Goal 6.2 Water Quality - Control erosion and sedimentation associated with construction and development activities to protect water quality.
Comment: The proposed development includes provisions for detaining and treating storm water runoff to protect water quality. Measures required by City standards to control erosion during construction will also be met.

Policy 6.2.1 Prevent erosion and restrict the discharge of sediments into surface- and groundwater by requiring erosion prevention measures and sediment control practices.
Comment: The proposed development includes provisions for detaining and treating storm water runoff to protect water quality. Measures to restrict discharge of sediments and protect water quality will include inlet protection on proposed onsite and existing downstream catchbasins, silt fencing at site perimeter and the uphill side of proposed roads, straw wattles on at toe of and along steep slopes, and biofilter bags in any downstream ditches.

Policy 6.2.2 Where feasible, use open, naturally vegetated drainage ways to reduce stormwater and improve water quality.

The storm plan provides for use of open swales to convey storm water off-site towards Forsythe Road for much of the distance to the discharge point.

Goal 6.3 Nightlighting - Protect the night skies above Oregon City and facilities that utilize the night sky, such as the Haggart Astronomical Observatory, while providing for nightlighting at appropriate levels to ensure safety for residents, businesses, and users of transportation facilities, to reduce light trespass onto neighboring properties, to conserve energy, and to reduce light pollution via use of night-friendly lighting.
Comment: The proposed development will make use of current streetlights that reduce light trespass.

Policy 6.3.1 Minimize light pollution and reduce glare from reaching the sky and trespassing onto adjacent properties.
Comment: Street lights will be installed only to the levels required by City and PGE standards.

Policy 6.3.2 Encourage new developments to provide even and energy-efficient lighting that ensures safety and discourages vandalism. Encourage existing developments to retrofit when feasible.
Comment: Street lights will be installed per City and PGE standards and include energy-efficient lighting.

Goal 6.4 Noise - Prevent excessive noise that may jeopardize the health, welfare, and safety of the citizens or degrade the quality of life.
Comment: Not applicable. The proposed development is Low Density Residential in nature and does not include any significant noise-generation sources.

SECTION 7 – NATURAL HAZARDS

Goal 7.1 Natural Hazards Protect life and reduce property loss from the destruction associated with natural hazards.
Comment: Not appliable. No natural hazards are identified as being present on the subject property. City GIS mapping does show a minor area of slopes in excess of 20% grade on the property, but the survey shows that the actual topography is just under this threshold. A geotechnical report has been prepared for the property and it shows that the site may be safely developed for the proposed use. There are no landslide or flooding hazards associated with this site.

Policy 7.1.1 Limit loss of life and damage to property from natural hazards by regulating or prohibiting development in areas of known or potential hazards.
Comment: Not applicable. There are no known hazards associated with this property.

SECTION 8 – PARKS AND RECREATION

Goal 8.1 Developing Oregon City's Park and Recreation System Maintain and enhance the existing park and recreation system while planning for future expansion to meet residential growth.
Policy 8.1.1 Provide an active neighborhood park-type facility and community park-type facility within a reasonable distance from residences, as defined by the Oregon City Park and Recreation Master Plan, to residents of Oregon City.
Comment: The proposed site plan includes a 2-acre park that adjoins the Holcomb Elementary School playground. The applicant proposes dedication of this park to the City of Oregon City. An HOA will own and maintain it should the City determine that it does not wish to accept the dedication.
Staff comment: As the Park Department indicated that it is not planning to accept the park as a public park, the park will be owned and maintained by the HOA. See Exhibit 3 for Public comments.

Policy 8.1.14 Require or encourage developers to dedicate park sites as part of the subdivision review process. When possible, require or encourage developers to build parks to City standards and give them to the City to operate and maintain.
Comment: As discussed above, the applicant proposes dedication of the 2-acre park, consistent with this policy.

SECTION 10 – HOUSING

Goal 10.1 Diverse Housing Opportunities Provide for the planning, development and preservation of a variety of housing types and lot sizes.
Comment: The plan provides for both single-family detached and duplex housing units, consistent with this goal.

Policy 10.1.5 Allow Accessory Dwelling Units under specified conditions in single-family residential designations with the purpose of adding affordable units to the housing inventory and providing flexibility for homeowners to supplement income and obtain companionship and security.
Comment: ADUs will be allowed within this development consistent with City standards.

SECTION 11 - PUBLIC FACILTIES

Policy 11.1.4 Support development on underdeveloped or vacant buildable land within the city where public facilities and services are available or can be provided and where land-use compatibility can be found relative to the environment, zoning, and Comprehensive Plan goals.
Comment: All required public facilities and services are available or can be provided concurrently with the development of this site. Water is presently available in Holcomb Blvd. to service the development. Sanitary sewer service is available at the end of Ames Street and will need to be extended to the site across other property owned by the Serres family. Storm drainage will be provided by the use of existing and proposed swales and storm sewer to extend service to the natural drainageway off-site north of Forsythe Road. The Serres family owns the intervening property and has agreed to allow the construction and use of these facilities.

Policy 11.2.5 Implement the City's wastewater policies through the City of Oregon City Sanitary Sewer Master Plan.
Comment: The proposed plan for providing sewer service to this site is consistent with the City's Sanitary Sewer Master Plan.

Goal 11.4 Stormwater Management Seek the most efficient and economical means available for constructing, operating, and maintaining the City's stormwater management system while protecting the environment and meeting regional, state, and federal standards for protection and restoration of water resources and fish and wildlife habitat.
Comment: The proposed storm drainage plan is consistent with this goal in that it will employ a detention and treatment system to ensure water quality and will provide for efficient transmission of storm water from the site to the existing natural drainageway north of Forsythe Road.

Policy 11.4.1 Plan, operate, and maintain the stormwater management system for all current and anticipated city residents within Oregon City's existing Urban Growth Boundary and plan strategically for future expansion areas.
Comment: Not directly applicable. This is a guide to City action. However, the plan provides for storm sewer and treatment facilities that are consistent with City standards and, by extension, this policy.

Policy 11.4.5 Design stormwater facilities to discharge surface water at pre-development rates and enhance stormwater quality in accordance with criteria in City of Oregon City Public Works Stormwater and Grading Design Standards.
Comment: The stormwater report submitted with this application demonstrates that the plans for stormwater management proposed for this project comply with this policy.

Goal 11.9 Fire Protection Maintain a high level of fire protection and emergency medical services.
Policy 11.9.1 Ensure that all areas, including newly annexed areas, receive fire protection and emergency medical services.
Comment: Fire protection services are available to serve the proposed development consistent with this goal and policy.

SECTION 12 – TRANSPORTATION

Goal 12.1 Land Use-Transportation Connection Ensure that the mutually supportive nature of land use and transportation is recognized in planning for the future of Oregon City.
Policy 12.1.1 Maintain and enhance citywide transportation functionality by emphasizing multi-modal travel options for all types of land uses.
Comment: Consistent with this goal and policy, a traffic impact analysis has been prepared for the proposed development. The traffic analysis demonstrates that the project complies with the requirements of this goal and policy as well as the provisions of OCMC Chapter 16. Please refer to the TIA for further information.
Staff comment: While the applicant's traffic analysis does demonstrate that the City's system has capacity for the new trips associated with the development, a few transportation-related conditions are recommended. See findings and conditions in 16.12.033.

Policy 12.1.4 Provide walkable neighborhoods. They are desirable places to live, work, learn and play, and therefore a key component of smart growth.
Comment: The site plan provides for sidewalks on both sides of all streets within the development. Pedestrian pathways are provided in two areas where block length standards are exceeded. Additionally, a trail is provided from Holcomb Blvd. through the site along its western border.

Goal 12.3 Multi-Modal Travel Options Develop and maintain a transportation system that provides and encourages a variety of multi-modal travel options to meet the mobility needs of all Oregon City residents.
Comment: The site plan provides for pedestrian, bicycle and vehicular transportation modes.

Policy 12.3.1 Provide an interconnected and accessible street system that minimizes vehicle-miles-traveled and inappropriate neighborhood cut-through traffic.
Comment: The street system is interconnected within the development so that out of direction traffic is avoided. The plan provides for a connection to Kaylyn Drive to the east of the subject property. Additionally, provision is made for future connectivity by providing street stubs that will ultimately connect with Godon Way and Ames Street to the west of the site. Street stubs are also provided to allow for future connectivity to the north and west to areas that are presently outside of the Urban Growth Boundary.

Policy 12.3.2 Provide an interconnected and accessible pedestrian system that links residential areas with major pedestrian generators such as employment centers, public facilities, and recreational areas.
Comment: The site plan will provide for connectivity to Holcomb Elementary School by providing for access to the school's playground area at a location to be worked out with Oregon City School District. This is the only pedestrian generator in the area.

Policy 12.3.3 Provide a well-defined and accessible bicycle network that links residential areas, major bicycle generators, employment centers, recreational areas, and the arterial and collector roadway network.
Comment: The site plan provides for the maintenance of a bicycle pathway along the project's frontage on Holcomb Blvd. Other bicycle traffic will make use of local streets within the development.

Policy 12.3.4 Ensure the adequacy of pedestrian and bicycle connections to local, county, and regional trails.
Comment: Holcomb Blvd. has bicycle lanes on both sides of the street. The proposed development will provide for a pedestrian/bicycle trail at the west edge of the property that will provide for a connection to the bicycle lane.

Policy 12.3.5 Promote and encourage a public transit system that ensures efficient accessibility, mobility, and interconnectivity between travel modes for all residents of Oregon City.
Comment: Not applicable. Tri-Met does not provide service at this point on Holcomb Blvd.

Goal 12.6 Capacity - Develop and maintain a transportation system that has enough capacity to meet users' needs.
Comment: As demonstrated in the Traffic Impact Analysis submitted with this application, the transportation system has sufficient capacity to meet City standards for this project.
Staff comment: While the applicant's traffic analysis does demonstrate that the City's system has capacity for the new trips associated with the development, a few transportation-related conditions are recommended. See findings and conditions in 16.12.033.

Policy 12.6.1 Provide a transportation system that serves existing and projected travel demand.
Comment: The TIA prepared by Lancaster-Mobley, Inc. demonstrates sufficient capacity to meet existing and projected travel demand for this project.
Staff comment: While the applicant's traffic analysis does demonstrate that the City's system has capacity for the new trips associated with the development, a few transportation-related conditions are recommended. See findings and conditions in 16.12.033.

SECTION 13 – ENERGY CONSERVATION

Goal 13.2 Energy Conservation Plan public and private development to conserve energy.
Comment: The proposed development provides for connectivity of the local street system that will result in energy savings due to reduced need for out of direction vehicle trips. The homes built in this project will be constructed to full building code energy standards.

7. The proposed general development plan is consistent with the underlying zoning district(s) and any applicable overlay zone or concept plans.
Finding: The applicant has requested adjustments to the underlying zone dimensional standards. See 17.65.070 findings. Overlays zones are addressed within this staff report. No concept plans apply to this site.

8. For projects with a residential use component, the proposed general development plan includes common open space for the recreational needs of the development's residents.
a. Required open space shall be located either on-site or off-site within one-quarter mile of the development.
Finding: Complies as Proposed. The plan provides for on-site open space.

b. Minimum required open space shall be 100 square feet per residential unit in the development.

Finding: Complies as Proposed. A total of 141 residential units are included in the development; thus 14,200 square feet of open space is required. The applicant's narrative states that the proposed open space is over 2 acres. While not incorrect, this number is slightly misleading. The vast majority of the 2 acres is a 50-foot wide powerline easement on the western edge of the property. This area is not available for any development other than streets, paths, or lawns. No structures are permitted in this area. Furthermore, the Trails Master Plan includes a public trail in this easement area, which would be required regardless of open space standards. The remainder of the open space is situated between Lots 11 and 12 along Laurel Hill Way. Not including the private storm easement on the southern edge of the open space, the open space area is 18,272 square feet. The open space area also serves as the Barlow Trail Corridor as approved in HR-21-00013. This corridor is 30 feet in width and requires an open visual corridor with no structures. If this easement area is subtracted out, the result is 13,733 square feet. As this standard does not require that open space be outside of easement areas, the easement areas can be counted toward required open space; thus, the applicant meets the standard for 100 square feet per unit.

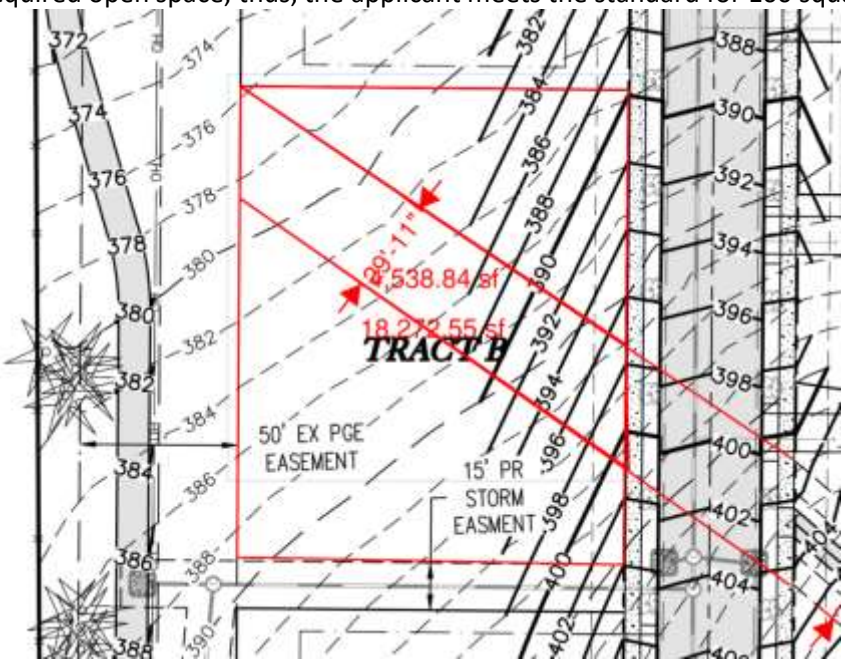


Figure: Tract B measurements showing the size of the Barlow view corridor

c. The open space area may be in private ownership or proposed for public dedication, at the City's discretion whether to accept.

Finding: Complies as Proposed. The City's Park Department has indicated that they do not wish to accept the open space as a public park (see public comments in Exhibit 3). Thus, the open space area will be in private ownership.

d. The open space shall be developed with a unified design to provide for a mix of passive and active uses. Passive uses include, but are not limited to sitting benches, picnicking, reading, bird watching and natural areas. Active uses include, but are not limited to playgrounds, sports fields and courts, running and walking areas.

Finding: Complies as Proposed. The applicant indicated that "The open space will have a trail through the site parallel with the powerline easement. The area will be graded and seeded with grass. It will be useable for dog walking, running, walking and general play. Several picnic tables will be provided. An informational kiosk associated with the Barlow Trail is planned and will be coordinated with the Historic Review Board."

e. Land area to be used for the open space area that is required in this section shall not include required setback areas, required landscaping, streets, rights-of-way, driveways, or parking spaces.

Finding: Complies as Proposed. The proposed open space is not otherwise required for setbacks, landscaping, streets, right of way, driveways, or parking spaces.

f. Unless dedicated to the public, the applicant shall also provide an irrevocable legal mechanism for the maintenance of the open space and any related landscaping and facilities. The applicant shall submit, for city review and approval, all proposed deed restrictions or other legal instruments used to reserve open space and maintenance of open space and any related landscaping and facilities.

Finding: Complies with condition. Since the City will not be accepting open space as a dedicated public park, the Home Owner's Association will hold responsibility for owning and maintaining the open space. The applicant shall utilize a covenant or some other legal instrument to ensure future maintenance and availability of the open space, including provision for and maintenance of the minimum required recreational elements as required by this staff report. Prior to final plat, the applicant shall submit, for city review and approval, all proposed deed restrictions or other legal instruments used to reserve open space and maintenance of open space and any related landscaping and facilities. **Staff has determined that it is possible, likely and reasonable that the applicant shall meet this standard through the Conditions of Approval**.

9. For projects with a residential use component, the proposed general development plan includes a mix of residential uses such that no single residential use exceeds 75 percent of the total proposed units. The mix of residential uses shall provide variety of dwelling types and sizes that are integrated throughout the site, rather than isolated from one another, with smooth transitions between residential types including appropriate setbacks, landscaping or screening as necessary, while maintaining street and pedestrian connectivity between all residential uses. Tenancy (i.e. ownership versus rental) shall not be a consideration in determination of the mix of residential use. For the purposes of this section, residential uses include single family detached, single family attached, duplex, 3-4 plex, and multifamily.

Finding: Complies with condition. In the R-10 zone, the following residential uses are permitted as part of a Master Plan development: single family detached, single family attached, and corner duplex. The applicant states: "The GDP provides for 123 lots. Eighteen corner lots, located throughout the project, will be designated to have duplex units built upon them, consistent with R-10 standards. These lots will provide for 36 duplex units. There will be 105 single-family detached units on the remaining lots in the project, for a total of 141 dwelling units in the master plan. The GDP provides for a maximum of 25.4% of the total units to be duplexes, and 74.6% to be single-family detached homes." Staff concurs that the standard is met. In order to ensure that the 18 corner lots are developed with duplex uses, the applicant shall submit, for city review and approval, all proposed deed restrictions or other legal instruments used to ensure that the lots will be developed with duplexes. **Staff has determined that it is possible, likely and reasonable that the applicant shall meet this standard through the Conditions of Approval**.

OREGON CITY

Community Development – Planning

695 Warner Parrott Road | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

17.65.060 - Detailed development plan.

A. Submittal Requirements.

1. A transportation impact study documenting the on- and off-site transportation impacts, as specified in OCMC 17.65.050.B.1.h1. If such an analysis was submitted as part of the general development plan process, the scope of the report may be limited to any changes which have occurred during the interim and any information listed below which was not a part of the initial study.

The on-site portion of the analysis shall include the location, dimensions and names of all proposed streets, alleys, other public ways, sidewalks, bike routes and bikeways, pedestrian/bicycle access ways and other pedestrian and bicycle ways, transit streets and facilities, neighborhood activity centers, and easements on and within two hundred fifty feet of the boundaries of the site. The map shall identify existing subdivisions and development and un-subdivided or unpartitioned land ownerships adjacent to the proposed development site and show how existing streets, alleys, sidewalks, bike routes, pedestrian/bicycle access ways and utilities within two hundred fifty feet may be extended to and/or through the proposed development.

2. The location within the development and in the adjoining streets of existing and proposed sewers, water mains, culverts, drain pipes, underground electric, cable television and telephone distribution lines, gas lines, and the location of existing aerial electric, telephone and television cable lines, if any, to be relocated within the development.

3. For portions of the project that would otherwise be subject to Site Plan and Design Review, a site plan or plans, to scale, containing the required information identified in OCMC 17.62.040:

4. For residential portions of the project not otherwise subject to Site Plan and Design Review, a site plan or plans, to scale, showing the proposed land uses and densities, building locations, lot patterns, circulation patterns, and open space locations and uses.

5. Any other information the community development director deems necessary to show that the proposed development will comply with all of the applicable Chapter 17 requirements.

B. Approval Criteria. The Community Development Director shall approve an application for detailed development plan approval only upon findings that:

1. All development standards and impact mitigation meet the requirements of the approved general development plan, including conditions of approval.

2. Any other applicable zoning regulations that are not addressed in the general development plan are met, unless an adjustment to those regulations has been applied for and is approved. The approval standards applicable to adjustments required as part of a master plan or planned unit development are contained in OCMC 17.65.070.

3. The detailed development plan conforms with the base zone standards, applicable residential design standards, and applicable standards contained in Chapter 17.62, 17.52, 16.12, and 16.08 unless adjusted as provided in OCMC 17.65.070.

Finding: Complies as Proposed. The applicant is submitting the Detailed Development plans concurrently with the Master Plan. All required plans and drawings have been provided. The detailed development plans are consistent with the proposed master plan.

17.65.070 - Adjustments to development standards.

A. Purpose. In order to implement the purpose of the city's master plan or planned unit development process, which is to foster the growth of major institutions, major residential, commercial or mixed-use development, and other large-scale development, while identifying and mitigating their impacts on surrounding properties and public infrastructure, an applicant may request one or more adjustments to the applicable development regulations as part of the master planning or planned unit development process, and are not required to go through the Variance process pursuant to OCMC Chapter 17.60.

B. Procedure. Requests for adjustments shall be processed concurrently with a general development plan. An adjustment request at the detailed development plan review shall cause the detailed development plan to be reviewed as a Type III application.

C. Regulations That May be Adjusted. Adjustments may be allowed for the following items:

1. Dimensional standards of the underlying zone of up to 20 percent, except the perimeter of the development shall meet the underlying zone's setbacks when adjacent to residentially zoned property.
2. Site plan and design standards.
3. Residential design standards.
4. Increase in allowed maximum residential density of up to 10 percent.
5. Standards for land division approval.
6. Additional uses allowed with residential projects, or residential component of projects:
a. Notwithstanding the use provisions of the underlying zones, neighborhood commercial uses as defined in Chapter 17.24.020, including restaurants and eating and drinking establishments without a drive-through, retail trade, and services, are permitted on up to 10 percent of the net developable area. The neighborhood commercial uses shall be planned and constructed so as to support and be compatible with the entire development and shall not alter the character of the surrounding area so as to substantially preclude, impair or limit the use of surrounding properties for the primary uses listed in the underlying district.
b. Public or private parks and playgrounds, community buildings and/or outdoor recreational facilities, such as swimming pools and tennis courts;
c. Indoor recreational facilities, such as racquetball or tennis courts, fitness centers or swimming pools;
d. Common public and private open space including trails.
e. Primary or accessory uses that are not identified as a permitted or conditional use in the underlying zone but which are defined in the code.
D. Regulations That May Not be Adjusted. Adjustments are prohibited for the following items:
1. To allow a primary or accessory use that is not identified as a permitted, or conditional use in the underlying zone, with the exception of the additional uses permitted under OCMC 17.65.070.C.6 above; ;
2. To any regulation that contains the word "prohibited";
3. As an exception to a threshold review, such as a Type III review process; and
4. Minimum density for residential sites may not be reduced.

Finding: Complies as Proposed. The applicant has requested three adjustments with the General Development Plan. All three are valid adjustment requests.

1. DENSITY - The applicant is requesting an increase in maximum residential density of 10 percent, which will allow for 11 additional lots over what would be permitted under the standard maximum density. This request is permitted by 17.65.070.C.4.
2. LOT SIZE - The applicant is requesting a 20 percent adjustment to the minimum lot size standard of the R-10 zone to allow lots as small as 8,000 sq. ft. The applicant requests the use of this section to adjust the provisions of OCMC 16.08.065 - Lot size reduction. The provisions of that section of the Subdivision standards allow limited lot size reduction, while adjustments otherwise allowed under OCMC 17.65.070 allows greater variability in lot size, up to 20%. This request is permitted by 17.65.070.C.1.
3. SIDE SETBACKS - An adjustment to the interior side setback standard from the 8-foot standard of the R-10 zone to 7-feet, which is the standard of the R-8 zone. The adjustment of the interior side setback standard from 8 feet to 7 feet is a 12.5% adjustment and is allowable under this provision. Lots on the perimeter will maintain the underlying zone's setbacks adjacent to residential properties. This request is permitted by 17.65.070.C.1.

E. Approval Criteria. A request for an adjustment to one or more applicable development regulations under this section shall be approved if the review body finds that the applicant has shown the following criteria to be met.
1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Finding: Complies as Proposed.

Overall, the purpose of the General Development Plan chapter is to allow flexibility and innovation in residential designs. Developments that include residential uses are required by Chapter 17.65 to provide open space, purportedly included for the exchange of some flexibility in design. In fact, over the last decade, no subdivision development in Oregon City reviewed under the clear and objective

subdivision standards has voluntarily provided open space or similar amenities within their plan. This shows us that without an incentive to provide amenities like common open space, it is simply not provided by market forces. The applicant's proposal for a development with an open space area and a trail adjacent to Holcomb Elementary property, with an adjustment for smaller lots, represents a balance in utilization of the overall acreage – if the area dedicated to open space were used on private lots, those lots would be larger and an adjustment would not be required. The major question for the Planning Commission is whether the purpose is fulfilled by the overall proposal, considering the amount of open space proposed versus the number of additional lots and the amount of size reduction. The remaining findings provided in the adjustment section attempt to describe the proposal within this framework and to discuss the benefits as well as the downsides to the proposal.

1. DENSITY – The intent of the standard for a maximum of 4.4 dwelling units per acre in the R-10 zone is not directly stated in City code. The Comprehensive Plan describes the low density residential land use category as "primarily single-family detached homes." The proposal for 123 lots - 105 detached dwellings and 18 duplex lots - remains consistent with the low density land use category; the lots will still be primarily developed with detached homes.
   The proposed adjustment would allow for 11 additional homes over a standard subdivision in the R-10 zone, but would be 17 units less than would result under the R-8 zone maximum density.

2. LOT SIZE - The intent of the standard for minimum lot size of 10,000 square feet in the R-10 zone is not directly stated in City code. OCMC 17.08 – Low Density Residential Districts provides no purpose statement for either of these standards. Similarly, there are no Comprehensive Plan goals or policies that address these standards. The Comprehensive Plan describes the low density residential land use category as "primarily single-family detached homes." A lot size reduction to 8,000 square feet remains consistent with the low density land use category; the lots will still be primarily developed with detached homes. The applicant states "The lot size proposed provides ample room for the construction of single-family detached homes and duplexes, which are the uses allowed in the R-10 zone." Staff concurs with the applicant.

3. SIDE SETBACKS - The intent of the standard for minimum lot size of 10,000 square feet in the R-10 zone is not directly stated in City code. OCMC 17.08 – Low Density Residential Districts provides no purpose statement for either of these standards. Similarly, there are no Comprehensive Plan goals or policies that address these standards. The applicant states "The lot size proposed provides ample room for the construction of single-family detached homes and duplexes, which are the uses allowed in the R-10 zone. The side setback adjustment from 8 feet to 7 feet simply makes the setback consistent with the standard for the R-8 zone. This setback is clearly consistent with the intent of the setback standard since it is the distance applicable to the R-8 zone and the allowed uses are the same. " Staff concurs with the applicant.

The applicant's narrative also raises the issue of clear and objective housing standards, saying,

> *" ORS 197.307(4) requires that local governments "adopt and apply only clear and objective standards, conditions and procedures regulating the development of housing, including needed housing." Given that the code provides no guidance as to the purpose of these standards, a requirement to demonstrate that an adjustment to the standards conforms to their purpose is neither clear nor objective."*

The City code contains a clear and objective path to developing residential subdivisions through a Type II land use review. In this instance, the applicant has voluntarily submitted a Master Plan, which is outside of the City's clear and objective standards. The adjustment criteria for Master Plans, therefore, does not have to be clear and objective in order to comply with state law.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Finding: Complies as Proposed. The adjustments go hand in hand - the adjustment to lot size must occur in order for the 10% density adjustment to be feasible. The density of the proposed development falls between R-10 and R-8 density standards. Thus, staff finds that the cumulative effect of the adjustments is still consistent with the overall purpose of the R-10 zone. The adjustments are considered together when discussing impacts and mitigation in the sections below.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Finding: Complies as Proposed. The applicant has protected Goal 5 resources of the Barlow Trail Corridor and the Natural Resource Overlay District. Findings are found throughout this staff report. The adjustments requested do not have an impact on Goal 5 resource protections.

4. Any impacts resulting from the adjustment are mitigated such that the development does not create significant adverse impacts on adjacent properties;

Finding: Complies with Condition. The applicant's narrative raises the issue of clear and objective housing standards, saying,

> *" ORS 197.307(4) requires that local governments "adopt and apply only clear and objective standards, conditions and procedures regulating the development of housing, including needed housing." Given that the code provides no guidance as to the purpose of these standards, a requirement to demonstrate that an adjustment to the standards conforms to their purpose is neither clear nor objective."*

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DENSITY - The applicant states "the property is adjacent to a school site and rural lands along its western and northern borders as well as a portion of the eastern boundary. The adjustment to density doesn't result in additional traffic impacts upon these properties as all vehicle trips are directed to Holcomb Blvd. The Winston Hills subdivision that adjoins a portion of the eastern border is outside the city limits and has approximately 20,000 sq. ft. lots developed with homes that are typically setback more than 50 feet from the subject property. Traffic from the site will predominantly go to Holcomb Blvd. and will have no impact upon these adjacent properties." While it is true that much of the immediately adjacent land is rural or institutional use, there are other adjoining residential properties that will be impacted by traffic from the development. These include the lots that will eventually be developed along Godon Way, and the Barlow Crest subdivision that will be connected to the Serres development via Kaylyn Drive.

The adjustment to density results in 11 additional lots. The impacts of the additional lots include traffic impacts, and because Holcomb Boulevard is the major thoroughfare, a majority of all neighborhood traffic will impact Holcomb and will therefore have an impact on adjacent properties. Additional density also has an impact on the surrounding areas in the form of less undeveloped area, more impervious

surface, and less open space. Adding impervious surfaces contributes to the heat island effect and reduces the amount of green space and vegetation. While these impacts may not be very large from the addition of 11 additional lots, mitigation is required by this standard. Approximate impacts of 11 additional lots of 8,000 square feet (assuming the additional lots are the smallest size allowed) would be:

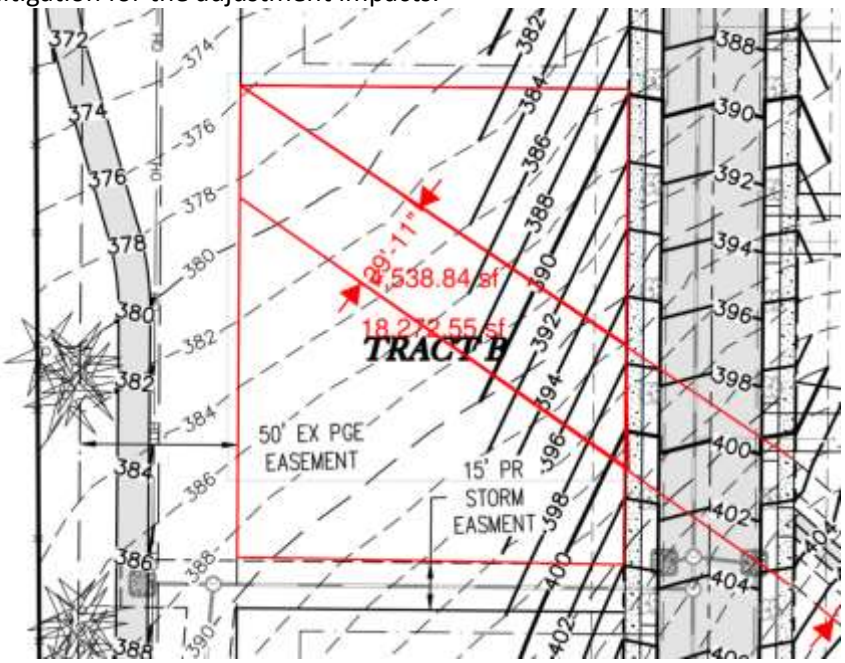
- 30,000 to 40,0000 square feet of impervious area, based on a typical new house footprint and driveway size.
- 112 daily vehicle trips (based on the trip generation per unit found in the applicant's Traffic Impact Analysis)
- 11 afternoon peak hour trips (based on the trip generation ratios found in the applicant's Traffic Impact Analysis)

That said, the applicant has provided a two-acre open space, far more than the minimum requirement for open space of 14,100 square feet. The applicant has provided approximately 88,000 square feet, including a 50-foot wide trail corridor along the western property line reaching up to the northernmost street in the development, and an area of approximately 20,000 square feet conveniently located along the trail corridor and Laurel Hill Way. The applicant's adjustment results in 11 additional lots, which is at least 88,000 square feet, at 8,000 square feet per lot. The additional open space certainly provides mitigation for the impacts of the adjustments, providing common open space when there is slightly less yard space for each lot.

Because the applicant has not demonstrated that oversized open space does not fully mitigate in the impacts of the adjustments, as described in the next paragraph, additional mitigation is recommended. In addition to the mitigation proposed, staff recommends additional mitigation to address the impacts listed above. Open space and access to nature is a public amenity that provides a reprieve from more dense development. Providing access to nature includes providing safe routes to reach open spaces, and providing amenities within the public space. In addition, large trees can mitigate for more impervious surfaces and can also provide access to nature for the residents of the neighborhood. The Planning Commission may consider a range of mitigation options and may wish to provide the applicant with some flexibility in choosing which option will fit best into their development. Staff recommends the following mitigation options:

A. Provide more amenities in the open space between Lots 11 and 12. Currently, the applicant has proposed a seeded lawn with "Several picnic tables" and "An informational kiosk associated with the Barlow Trail." Staff recommends the applicant provide two additional amenities from the following list, which contains elements from the city's standards for multifamily open space:
    a. At least eight large native tree species including Oregon White Oak, Douglas Fir, or Western Red Cedar, planted with a minimum of 1.5" caliper
    b. Pedestrian-scaled lighting
    c. Paved courtyard or plaza
    d. Gazebos or other decorative shelters
    e. Play structures for children
    f. Sports courts
B. Plant one large native tree species from the city's heritage tree list in the backyard of each lot that does not already have a required mitigation tree. According to the applicant, 37 mitigation trees are required and if this is correct, the number of additional trees required would be 86.

The applicant implies that the size of the open space might provide mitigation for the adjustments, stating that "the site plan provides 2.01 acres (87,556 sq. ft.) of open space, as shown on the GDP. This far exceeds the minimum requirement of 12,400 sq. ft. (124 units x 100 sq. ft./Unit)." However, there are a few caveats to this claim. First, the required open space is 14,100 square feet based on the total number of units proposed (as opposed to the number of lots). Second, the vast majority of the 2.01 acres is a 50-foot wide powerline easement on the western edge of the property. This area is not available for any development other than streets, paths, or lawns. No structures are permitted in this area. Furthermore, the Trails Master Plan includes a public trail in this easement area, which would be required regardless of open space standards. The remainder of the open space is situated between Lots 11 and 12 along Laurel Hill Way. Not including the private storm easement on the southern edge of the open space, the open space area is 18,272 square feet. The open space area also serves as the Barlow Trail Corridor as approved in HR-21-00013. This corridor is 30 feet in width and requires an open visual corridor with no structures. If this easement area is subtracted out, the result is 13,733 square feet. While the applicant has certainly met the minimum open space requirement, they have not provided an open space area that *far exceeds* the minimum requirement. Since most of the space would be undeveloped anyway, staff does not necessarily consider the size of the open space to be adequate mitigation for the adjustment impacts.



LOT SIZE – The applicant indicates that no significant adverse impacts result from the 8,000 square foot lot size, and does not recommend any mitigation for this adjustment. The mitigation provided for the density adjustment can be considered to also mitigate for the lot size reduction.

SIDE SETBACKS - The applicant has proposed that the side setbacks of the underlying zone will be maintained on lots on the periphery of the development so that there is no difference for abutting residential neighborhoods. The reduction in lot size is not out of character for designated Low Density Residential areas as R-6, R-8 and R-10 zones are allowed in this designation. Staff concurs with the applicant that no significant adverse impacts result from the reduction of the side setbacks from 8 feet to 7 feet, and does not recommend any mitigation for this adjustment.

Staff has determined that it is possible, likely and reasonable that the applicant shall meet this standard through the Conditions of Approval.

5. If an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable; and.

Finding: Not applicable. The adjustments requested do not have an impact on the Natural Resource Overlay District.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and a concept plan if applicable

Finding: The applicant provided the following response, including the comments below for a few Comprehensive plan Goals and Policies.

> The subject property is not located within a concept plan area. The site is designated Low Density Residential by the Oregon City Comprehensive Plan. There are no comprehensive plan goals or policies that specifically address density, lot size or setbacks within the Low Density Residential designation. Looking to the adopted and acknowledged zoning districts that implement this plan designation is the only means of determining if the adjustments are consistent with the Comprehensive Plan. OCMC 17.08.010 states that the "R-10, R-8 and R-6 residential districts are designed for low density residential development." A maximum density of 7.3 dwelling units per acres is allowed within the Low Density Residential designation. The proposed adjustment would allow an increase of the 4.4 dwelling units per acre in the R-10 district to a proposed 4.78 dwelling units per acre density, which is well below the maximum allowed in the LDR designation. Lot sizes as small as 6,000 sq. ft. and interior side setbacks as small as 5 feet are allowed by the zoning code within this designation. The lot size and interior setbacks only allow the use of standards found in the R-8 zone, which are permissible in the LDR designation.

Allowing the requested adjustments would aid in meeting several of the goals of the Housing section of the Comprehensive Plan:

Policy 10.1.3

Designate residential land for a balanced variety of densities and types of housing, such as single-family attached and detached, and a range of multi-family densities and types, including mixed-use development.

Comment: The proposed adjustments will allow for a mixed-use development incorporating both single-family detached and duplex units.

Policy 10.1.4

Aim to reduce the isolation of income groups within communities by encouraging diversity in housing types within neighborhoods consistent with the Clackamas County Consolidated Plan, while ensuring that needed affordable housing is provided.

Comment: The plan intersperses duplex units throughout the site consistent with this policy. The adjustments to lot size, density and setbacks as requested are integral to being able to develop the site in this manner.

Policy 10.1.7 Use a combination of incentives and development standards to promote and encourage well-designed single-family subdivisions and multi-family developments that result in neighborhood livability and stability.

Comment: The incentive of the adjustments to density, lot size, and setbacks allows for the proposed Serres Farms project to provide a mix of housing types and open space that will result in it being a livable and stable residential neighborhood.

Staff concurs with the applicant that the adjustments meet the listed Goals and Policies, and adds the following relevant Goals and Policies:

Goal 12.6 Capacity - Develop and maintain a transportation system that has enough capacity to meet users' needs.

Staff comment: The applicant's traffic analysis demonstrates that the City's system has capacity for the new trips associated with the development, including the trips associated with 11 additional lots that are possible with the density adjustment.

Policy 8.1.1 Provide an active neighborhood park-type facility and community park-type facility within a reasonable distance from residences, as defined by the Oregon City Park and Recreation Master Plan, to residents of Oregon City.

Policy 8.1.14 Require or encourage developers to dedicate park sites as part of the subdivision review process. When possible, require or encourage developers to build parks to City standards and give them to the City to operate and maintain.

Staff comment: The proposed open space will be operated by the Homeowner's Association, based on comments received from the Parks Department. The condition of approval for mitigation that enhances the open space with more amenities and guarantees access to the public is consistent with this policy. **Staff has determined that it is possible, likely and reasonable that the applicant shall meet this standard through the Conditions of Approval**.

17.65.80 - Amendments to approved plans.

Finding: Not applicable. No amendments to previously approved plans are proposed.

17.65.090 - Regulations that apply.

An applicant is entitled to rely on land use regulations in effect on the date its general development plan application was initially submitted, pursuant to ORS 227.178(3), as that statute may be amended from time to time. After a general development plan is approved, and so long as that General Development Plan is in effect, an applicant is entitled to rely on the land use regulations in effect on the date its general development plan application was initially submitted, as provided above, when seeking approval of detailed development plans that implement an approved general development plan. At its option, an applicant may request that a detailed development plan be subject to the land use regulations in effect on the date its detailed development plan is initially submitted.

Finding: Not applicable. The applicant has proposed detailed development plans for both proposed phases of the development as part of this review. All development is subject to the code in effect at the time of the application submittal.

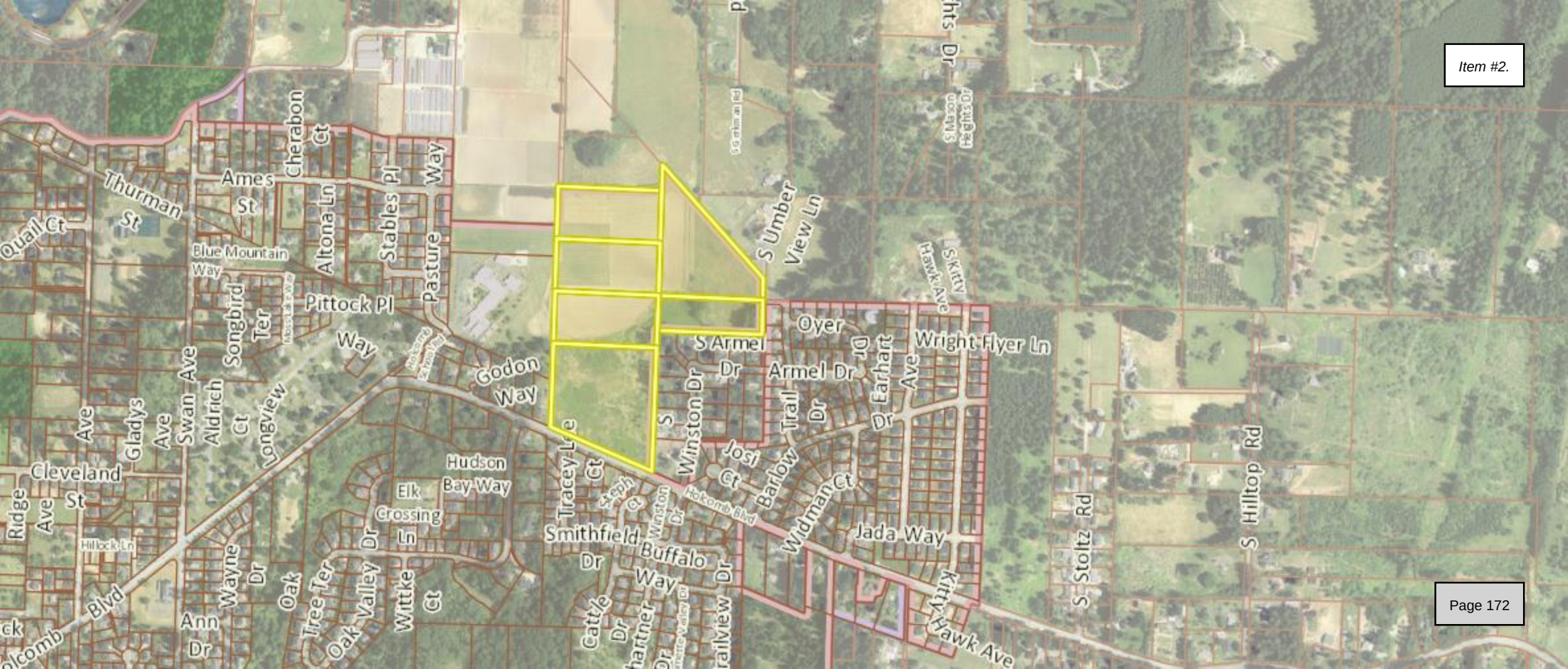
CONCLUSION AND RECOMMENDATION:

Based on the analysis and findings as described above, Staff concludes that the proposed development located at N. Side of Holcomb Blvd, between Holcomb Elementary School and S. Winston Dr., identified as Clackamas County Map 2-2E-28A, TL 500, 2200, & 2300 and 2-2E21D, TL 2100, 2200, 2300, can meet the requirements as described in the Oregon City Municipal Code by complying with the Conditions of Approval provided in this report. Therefore, the Community Development Director recommends approval with conditions, based upon the findings and exhibits contained in this staff report.

EXHIBITS:

1. Vicinity Map
2. Applicant's Narrative and Plans (On File)
3. Public Comments
4. Traffic Impact Analysis
5. Letter from John Replinger, Transportation Consultant
6. Letter from Tim Pfieffer, Geotechnical Consultant

7. Correspondence with Clackamas Fire District
8. Annexation Decision: AN 16-04
9. NROD Decision: NR-20-00018
10. Historic Review Decision: GLUA-21-00034/HR-21-00013
11. Planning Commission Issues Matrix
12. Memorandum from Staff Regarding Emergency Evacuations in Park Place


Thurman St
Ames St
Cherabon Ct
Quail Ct
Blue Mountain Way
Altona Ln
Stables Pl
Pasture Way
Pittock Pl
Songbird Ter
Swan Ave
Aldrich Ct
Gladys Ave
Longview Way
Godon Way
S Umber View Ln
S Armel Dr
Oyer Dr
Earhart Dr
Wright Flyer Ln
Armel Dr
Winston Dr
Josi Ct
Barlow Trail
Widman Ct
Jada Way
Kitty Hawk Ave
S Hilltop Rd
S Stoltz Rd
Cleveland St
Ridge Ave
Hillock Ln
Hudson Bay Way
Elk Crossing Ln
Wayne Dr
Oak Tree Ter
Oak Valley Dr
Wittke Ct
Ann Dr
Holcomb Blvd
Smithfield Dr
Buffalo Way
Cattle Dr
Railview Dr
Tracey Lee Ct
Stephy Ct
Winston Dr

OREGON CITY
Community Development – Planning
698 Warner Parrott Road | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

LAND USE APPLICATION FORM

Type I (OCMC 17.50.030.A)
- ☐ Compatibility Review
  - ☐ Willamette River Greenway
  - ☐ Communication Facility
- ☐ Lot Line Adjustment
- ☐ Non-Conforming Use Review
- ☐ Natural Resource (NROD) Verification
- ☐ Minor Site Plan & Design Review
- ☐ Historic Review – Remodel
- ☐ Detailed Dev. Plan (DDP)

Type II (OCMC 17.50.030.B)
- ☐ Master Plan / PUD / GDP or Amendment
- ☑ Detailed Development Plan (DDP)
- ☐ Floodplain Review
- ☒ Geologic Hazard Overlay
- ☐ Minor Partition (<4 lots)
- ☐ Minor Site Plan & Design Review
- ☐ Non-Conforming Use Review
- ☐ Site Plan and Design Review / DDP
- ☑ Subdivision (4+ lots)
- ☐ Minor Variance
- ☐ Natural Resource (NROD) Review
- ☐ Public Improvement Modification
- ☐ Willamette River Greenway

ELD Process (OCMC 17.50.030.E)
- ☐ Expedited Land Division

Type III / IV (OCMC 17.50.030.C & D.)
- ☐ Annexation
- ☐ Code Interpretation / Similar Use
- ☑ Master Plan / PUD / GDP Amendment
- ☐ Conditional Use
- ☐ Comprehensive Plan / Legislative Amendment
- ☐ Code ☐ Map
- ☑ Detailed Development Plan DDP
- ☑ Historic Review
- ☐ Municipal Code Amendment
- ☐ Parking Adjustment
- ☐ Variance ☐ Sign Variance
- ☐ Natural Resource (NROD) Review
- ☐ Zone Change (Text/Map)
- ☐ Willamette River Greenway

Legislative Action (OCMC 17.50.170)
- ☐ Legislative

GLUA-21-00029: Serres Farm Planned Unit Development: MAS-21-00003 – Master Plan/Planned Unit Development, MAS-21-00004 – Detailed ~~Development Plan – Phase I, MAS-21-00005 – Detailed Development Plan –~~ Phase II, SUB-21-00001 – Subdivision – 124 lots, & NROD-21-00006 – Natural Resources Overlay District

Geologic Hazard application date: 9/15/21

File Number(s):	**Application Date:** May 13, 2021
Project Name: Serres Farms	
Proposed Land Use or Activity: GDP & 2 DDPs for residential PUD, & HR for Barlow Trail	**# of Lots Proposed (If Applicable):** 123
Physical Address(es) of Site: No Site Address. North side of Holcomb Blvd. west of S. Winston Drive.	
Clackamas County Map and Tax Lot Number(s): 22E28A 500, 2200 & 2300; 22E21D 2100, 2200 & 2300	

Applicant(s)

Applicant(s) Signature:		
Applicant(s) Name Printed: Mark Handris, Icon Construction & Development, LLC		Date: May 13, 2021
Mailing Address: 1969 Willamette Falls Dr., Suite 260, West Linn, OR 97068		
Phone: (503) 657-0406	Fax: (503) 655-5991	Email: mark@iconconstruction.net

Property Owner(s) – See reverse for more than two Owners

Property Owner #1

Property Owner#1 Signature	MANAGER	
Property Owner#1 Name Printed: Serres Family H, LLC by Daniel Serres		Date: 5/13/2021
Mailing Address: 14620 S Forsythe Rd, Oregon City, 97045		
Ownership Address: No site address. North side of Holcomb Blvd. west of S. Winston Dr.		
Phone: (503) 320-4196	Fax:	Email: dsserres@aol.com

Property Owner #2

Property Owner#2 Signature		
Property Owner#2 Name Printed:		Date:
Mailing Address:		
Ownership Address:		
Phone:	Fax:	Email:

Representative(s)

Representative(s) Signature		
Representative(s) Name Printed: Rick Givens		Date: 8-9-2021
Mailing Address: 18680 Sunblaze Dr., Oregon City, OR 97045		
Phone: 503-351-8204	Fax: 503-479-0097	Email: rickgivens@gmail.com

All signatures represented must have the full legal capacity and hereby authorize the filing of this application and certify that the information and exhibits herewith are correct and indicate the parties willingness to comply with all code requirements.

LAND USE APPLICATION FORM

Type I (OCMC 17.50.030.A)
- ☐ Compatibility Review
  - ☐ Willamette River Greenway
  - ☐ Communication Facility
- ☐ Lot Line Adjustment
- ☐ Non-Conforming Use Review
- ☐ Natural Resource (NROD) Verification
- ☐ Minor Site Plan & Design Review
- ☐ Historic Review – Remodel
- ☐ Detailed Dev. Plan (DDP)

Type II (OCMC 17.50.030.B)
- ☐ Master Plan / PUD / GDP or Amendment
- ☐ Detailed Development Plan (DDP)
- ☐ Floodplain Review
- ☐ Geologic Hazard Overlay
- ☐ Minor Partition (<4 lots)
- ☐ Minor Site Plan & Design Review
- ☐ Non-Conforming Use Review
- ☐ Site Plan and Design Review / DDP
- ☐ Subdivision (4+ lots)
- ☐ Minor Variance
- ☑ Natural Resource (NROD) Review
- ☐ Public Improvement Modification
- ☐ Willamette River Greenway

ELD Process (OCMC 17.50.030.E)
- ☐ Expedited Land Division

Type III / IV (OCMC 17.50.030.C & D.)
- ☐ Annexation
- ☐ Code Interpretation / Similar Use
- ☐ Master Plan / PUD / GDP Amendment
- ☐ Conditional Use
- ☐ Comprehensive Plan / Legislative Amendment
- ☐ Code ☐ Map
- ☐ Detailed Development Plan DDP
- ☐ Historic Review
- ☐ Municipal Code Amendment
- ☐ Parking Adjustment
- ☐ Variance ☐ Sign Variance
- ☐ Natural Resource (NROD) Review
- ☐ Zone Change (Text/Map)
- ☐ Willamette River Greenway

Legislative Action (OCMC 17.50.170)
- ☐ Legislative

File Number(s):	**Application Date:** May 20, 2021
Project Name: Serres Farms Natural Resources Review	
Proposed Land Use or Activity: Development of subdivision	**# of Lots Proposed (If Applicable):** 123 total, 3 in NROD
Physical Address(es) of Site: No site address. South of Forsythe Rd. on unnamed public road.	
Clackamas County Map and Tax Lot Number(s): 22E21D 2000 & 2100	

Applicant(s)

Applicant(s) Signature:		
Applicant(s) Name Printed: Icon Construction & Development, LLC, Mark Handris		Date: May 20, 2021
Mailing Address: 1969 Willamette Falls Drive, Suite 260		
Phone: 503-657-0406	Fax:	Email: mark@iconconstruction.net

Property Owner(s) – See reverse for more than two Owners

Property Owner #1

Property Owner#1 Signature		
Property Owner#1 Name Printed: Dan Serres		Date: 5/20/21
Mailing Address: 14620 S. Forsythe Rd.		
Ownership Address: ~~None~~ TL 2100		
Phone: 503-320-4196	Fax:	Email: Dsserres@aol.com

Property Owner #2

Property Owner#2 Signature		
Property Owner#2 Name Printed: Donald R Herbst		Date: 5/20/21
Mailing Address: 10595 SW Ibach St Tualatin		
Ownership Address: TL 2000		
Phone: 503 706 2505	Fax:	Email: donherbst@msn.com or hotmail.com

Representative(s)

Representative(s) Signature		
Representative(s) Name Printed: Rick Givens		Date: 8-9-2021
Mailing Address: 18680 Sunblaze Dr., Oregon City, OR 97045		
Phone: 503-351-8204	Fax: 503-479-0097	Email: rickgivens@gmail.com

SERRES FARMS

PLANNED UNIT DEVELOPMENT APPLICATION

Introduction:

This application proposes a 123-lot single-family residential Planned Unit Development subdivision. The project will be built in two phases, as shown on the site plan submitted with this application. The applicant proposes to make use of the Master Plan/Planned Unit Development provisions of Chapter 17.65 in order to allow for a phased approval and to allow for commonly owned open space and adjustments to dimensional standards. It is anticipated that the first phase of the project, containing 63 lots, will be developed in the summer of 2022. The second phase, containing the remaining 60 lots, will be developed the following summer.

This application requests the following land use approvals: Type II Subdivision, Type III Master Plan/Planned Unit Development, Type III Detailed Development Plans for both phases of the project, and a Type III Historic Review relating to the Barlow Trail view corridor. A Natural Resources (NROD) Verification/Review is also included for the off-site wetlands and associated buffer area at the northwest corner of the property.

The project site is located on the north side of Holcomb Blvd. between Godon Way, to the west, and Winston Drive, to the east. The property is comprised of a total of six tax lots: Assessor's Map 22E28A, Tax Lots 500, 2200, and 2300. Assessor's Map 22E21D, Tax Lots 2100, 2200 and 2300

The following chapters of the Oregon City Municipal Code (OCMC) are applicable to this proposal and will be addressed below in this narrative:

OCMC 17.65 – Master Plans and Planned Unit Developments
OCMC 12.04 - Streets, Sidewalks and Public Places
OCMC 12.08 - Public and Street Trees
OCMC 13.12 – Stormwater Management
OCMC 16.04 – General Provisions and Administration of Land Divisions
OCMC 16.08 – Land Divisions – Processes and Standards
OCMC 16.12 – Minimum Public Improvements and Design Standards for Development
OCMC 17.41- Tree Protection, Preservation, Removal and Replanting Standards
OCMC 17.49- Natural Resources Overly District
OCMC 17.50 – Administration and Procedures

OCMC 17.65 - Master Plans and Planned Unit Developments

17.65.010 – Purpose and intent:

It is the intent of this chapter to foster the growth of major institutions, phased residential, commercial or mixed-use development, and other large-scale development, while identifying and mitigating the impacts of such growth on surrounding properties and public infrastructure. The city recognizes the valuable housing options, services and/or employment opportunities that these developments bring to Oregon City residents. The master plan or planned unit development process is intended to facilitate an efficient and flexible review process for major developments, support innovative and creative land development, and to provide long-term assurance to plan for and execute developments in a phased manner. To facilitate this, the master plan process is structured to allow an applicant to address larger development issues, such as adequacy of infrastructure and transportation capacity, and reserve capacity of the infrastructure and transportation system before expenditure of final design costs. The master plan or planned unit development process is further intended to promote efficiency in land development, maintenance, street systems and utility networks while providing site layouts that integrate usable and attractive open spaces, site circulation, and the general wellbeing of site users. For the purposes of this chapter planned unit developments are considered the same as master plans.

Applicant Response: The Serres Farms Planned Unit Development (PUD) is consistent with the purpose and intent of this chapter. It is a large-scale phased residential development, being situated on one of the larger areas of vacant land within the city limits (35.2 acres), and proposes a total of 123 lots. The development is planned to occur in two phases. The PUD process will allow for flexibility in sizing of lots which will provide for the creation of a two-acre open space on the property. This open space will incorporate a pedestrian trail along the western boundary of the project. This trail is consistent with the City's planned trail system for this area. The open space will be located along the view corridor associated with the Barlow Trail that passes through the property on a roughly east-west orientation. The applicant plans to provide an informational interpretive kiosk relating to the historic trail within the open space. The location adjacent to Holcomb Elementary School will allow for access to the school site from the open space, thereby affording educational opportunities relating to Oregon history. Finally, the Master Plan/PUD process will permit the review of project infrastructure and transportation resources in a cohesive manner.

17.65.020 - What is included in a master plan or planned unit development.

A. A master plan or planned unit development is a two-step process that includes a general development plan and a detailed development plan. A general development plan incorporates the entire area where development is planned for up to the next twenty years from the date of final approval, including the identification of one or more development phases. The general development plan may encompass land that is not currently under the applicant's control, but which eventually may be controlled by the applicant during the duration of the master plan. The plan shall have no effect for lands not currently controlled by the applicant. "Controlled" shall be defined as leased or owned by the applicant. A detailed development plan is the phase or phases of the general development plan that are proposed for development within two years.

Applicant Response: The proposed planned unit development includes a General Development Plan (GDP) that is proposed to govern development of this site over the next ten years from the date of final approval. It is anticipated that the two Detailed Development Plans (DDP), which are being submitted

concurrently, will be developed and have final plats recorded within a two-year period, but the ten-year period for the General Development Plan will provide flexibility in case unforeseen circumstances arise.

B. A master plan or planned unit development identifies the current and proposed uses of the development, proposed project boundaries, and proposed public and private infrastructure needed to serve the development. If approved, the general development plan may be used to allow existing legal non-conforming uses. If conditions of approval from a previous land use decision have not been completed, they shall be modified through the general development plan or completed with new development.

Applicant Response: The GDP included with this application provides information on current and proposed uses and infrastructure needed to serve the development. There are no existing legal non-conforming uses on the property.

C. A master plan or planned unit development identifies future development impacts, thresholds for mitigation and mitigation improvements and implementation schedules. A threshold for mitigation is the point that determines when or where a mitigation improvement will be required. Examples of "thresholds" include vehicle trips, square feet of impervious surface area, water usage measured in gallons per minute, construction of a building within a general development plan and construction of a building within a certain distance of a residential lot.

Applicant Response: The traffic study submitted with this application discusses traffic impacts and how they fit with City and ODOT standards. The storm report provided with this application demonstrates that storm water can be accommodated in compliance with City standards. Information provided by City staff at the pre-application conference demonstrates that water service is available in adequate capacity to serve the proposed development.

17.65.030 - Applicability of the master plan or planned unit development regulations.
A. Required for Large Institutional Uses. If the boundaries of an institutional development exceed ten acres in size, the proposed development shall be master planned using the regulations of this chapter. No land use review other than a Type I or II Minor Site Plan and Design Review shall be issued for any institutional development in excess of ten acres in total acreage unless it is accompanied by or preceded by a master plan approval under this chapter. This requirement does not apply to modifications to existing institutional developments unless the modification results in a cumulative square footage increase of over ten thousand total building square feet in an existing institutional development over ten acres.
B. When Required as Part of Previous Land Use Review. The master plan or planned unit development regulations may be used to fulfill a condition of approval from a previous land use decision-requiring master planning for a development.
C. When identified in the Oregon City Comprehensive Plan. The master plan regulations are required for all properties identified for master planning in the land use section of the Oregon City Comprehensive Plan.
D. Voluntarily. An applicant may voluntarily submit a master plan or planned unit development as part of a land use review, including for residential projects.

Applicant Response: This application is being submitted voluntarily so 17.65.030(D) is applicable.

17.65.040- Procedure:

A. Preapplication Review. Prior to filing for either general development plan or detailed development plan approval, the applicant shall file a pre-application conference pursuant to OCMC 17.50.030.
B. General Development Plan. An application for a general development plan describing the long-term buildout of the site shall be reviewed through a Type III procedure. An applicant shall have an approved general development plan before any detailed development plan may be approved, unless both are approved or amended concurrently. Amendments to an approved general development plan shall be reviewed under a Type III procedure pursuant to OCMC 17.65.080.
C. Detailed Development Plan. An application for a detailed development plan, is processed through a Type II procedure, as long as it is in conformance with the approved general development plan. Amendments to an approved detailed development plan shall be processed pursuant to OCMC 17.65.080. Once a development has an approved detailed development plan, OCMC 17.62, Site Plan and Design Review is not required.
D. Concurrent Review. An applicant may concurrently apply for a general development plan and a detailed development plan. Such a concurrent application is reviewed through the highest procedure that applies to any element of the combined application.
E. Relationship to Other Reviews. It is the express policy of the city that development review not be segmented into discrete parts in a manner that precludes a comprehensive review of the entire development and its cumulative impacts.
F. Duration of General Development Plan. A general development plan shall involve a planning period of up to twenty years. An approved general development plan shall remain in effect until development allowed by the plan has been completed through the detailed development plan process, the plan is amended or superseded, or the plan expires under its stated expiration date either as stated in the approved master plan or planned unit development application or decision of approval.

Applicant Response: This application will follow the procedure outlined in this section. A pre-application conference was held on March 2, 2021 (PA 21-00004). The GDP will be reviewed through a Type III process. The DDPs will be submitted concurrently and will be heard through a Type III process with the GDP. The application is being reviewed in its entirety rather than being segmented into discrete parts. The proposed duration of the GDP is 10 years, which is within the specified 20-year maximum time frame for full implementation.

17.65.050 – General Development Plan

17.65.050 - General development plan.
A. Existing Conditions Submittal Requirements.
1. Narrative Statement. An applicant shall submit a narrative statement that describes the following:

Applicant Response: The following information is provided to address the narrative elements of the existing conditions information listed in OCMC 17.65.050:

Existing Conditions.

a. Current uses of and development on the site:

Comment: The northern portion of the subject property is presently used by the Serres family for agricultural purposes, primarily the production of row crops. The southerly portion of the property is vacant land that is not presently in any use. There is no existing development on the site.

b. For institutions, history or background information…

Comment: Not applicable. The site is not an institutional use.

c. A vicinity map showing the location of the general development plan boundary relative to the larger community, along with affected major transportation routes, transit, and parking facilities.

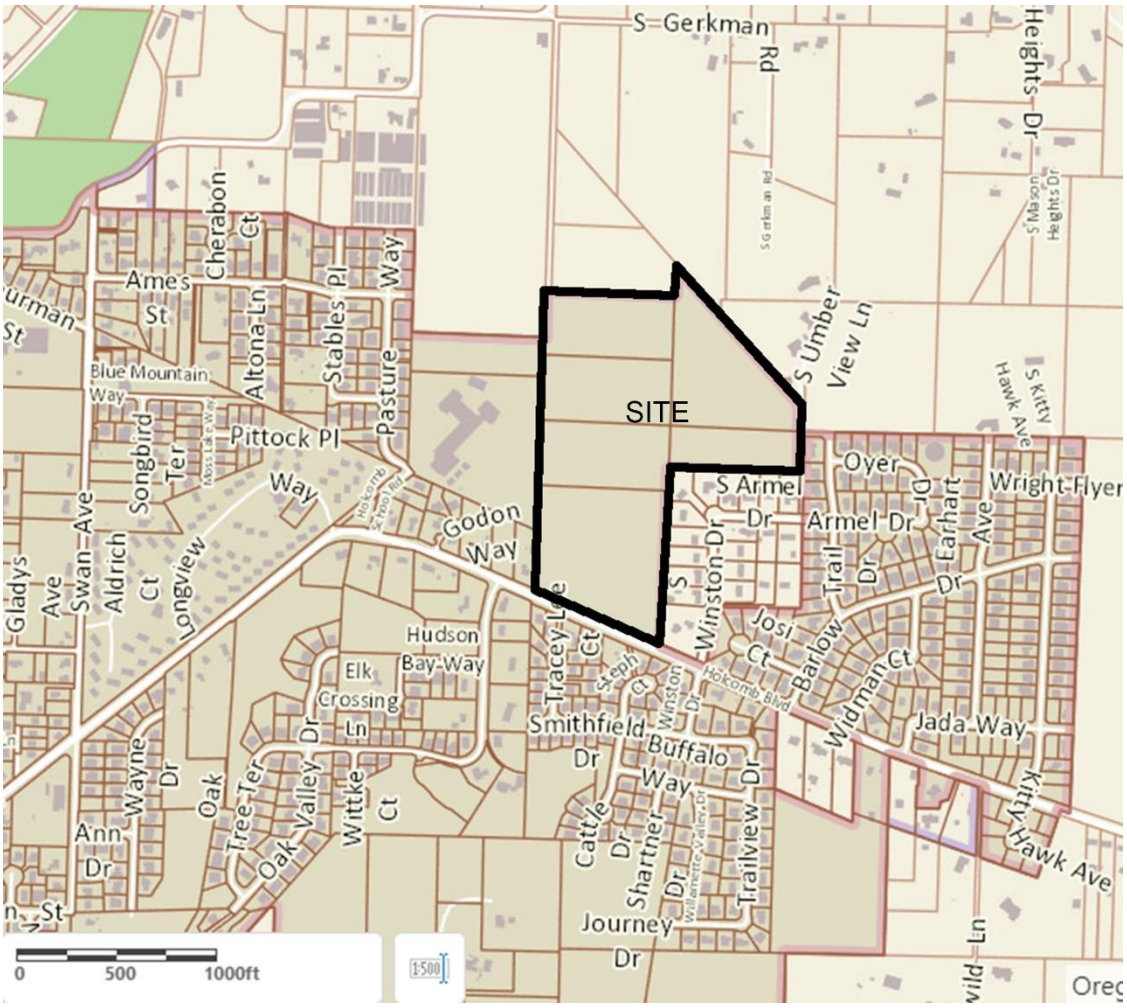


Figure 1: Vicinity Map

d. Land uses that surround the development site. This may also reference submitted maps, diagrams or photographs;

Comment: Surrounding land uses are shown on the map below:



Figure 2: Land Use and Zoning

To the west: Existing zoning of properties to the west is R-10. Holcomb Elementary School is adjacent to most of the western border of the property. There are three large lots, Tax Lots 22E28AB 500, 600 and 700, that lie between the subject property and the Godon Estates subdivision. These lots are developed with single-family homes but are large enough that they can be redeveloped at a higher density.

Provision of a street stub on the western border of the Serres Farms project to eventually connect through to Godon Way will allow for the future redevelopment of these properties at full urban density.

To the south: Across Holcomb Blvd. the Wasko Acres and Tracey Heights subdivisions are developed with single-family detached homes. Existing zoning in these neighborhoods is R-6.

To the north: The area to the north of the subject property is presently outside of the city limits and Urban Growth Boundary. Zoning is a mixture of Clackamas County FU-10 (Future Urbanizable-10 acres) and RRFF-5 (Rural Residential Farm Forest – 5 acres).

To the east: The Winston Hills subdivision is adjacent to the east of the site along Holcomb Blvd. This area is outside of the UGB and city limits. Lots are approximately ½ acre in size and the zoning is Clackamas County FU-10. The Barlow Crest subdivision, which is zoned R-10 lies to the east of the Winston Hills neighborhood and is adjacent to the subject property for a short distance on the eastern border. Kaylyn Drive is a half-street that extends towards the subject property and will be connected to the Phase 2 portion of the project. To the northeast, a rural residential property abuts the site and is zoned RRFF-5.

e. Previous land use approvals within the general development plan boundary and related conditions of approval, if applicable;

Comment: The only other land use approvals involving the subject property were the NROD verification application for the NROD mapped on GIS along the project's frontage on Holcomb Blvd. and the annexation that brought the subject property into the city limits. The approval of the NROD verification means that it is no longer applicable to the project site or this application. No other conditions of that approval are relevant to this application.

The annexation (AN 16-04), which was approved in 2017, contained conditions relating to transportation improvements needed at off-site intersections at Redland Road at Holcomb Boulevard/Abernethey Road and Hwy. 213 at Redland Road. These conditions are addressed in the Transportation Impact Analysis submitted with this application.

f. Existing utilization of the site;

Comment: Please refer to comments on a., above, and g., below.

g. Site Description:

Comment: As shown on Figure 3: Aerial Photograph, on the following page, the northern portion of the subject property has been actively farmed for decades by the Serres family. All of the property presently remains in the ownership of a Serres family trust. Tomatoes and other row crops have been grown on the property. The upper portion of the site is undeveloped vacant land. It is primarily vegetated with brush, blackberries and grass. There are a few old deciduous trees and a pocket of conifers near Kaylyn Drive on the east side of the site. There are no structures on the property. Please refer to the Existing Conditions Map for more details.

The topography of the property is gently sloping in a general pattern from southeast to northwest. Slopes are predominantly in the five to fifteen percent range, but there is a band of steeper slopes just below the northwest corner of the Winston Hills subdivision. City mapping shows that a small segment of this area is above twenty-five percent grade and field survey work confirms that slope category. It

should also be noted that a geologic investigation of the site revealed the absence of any geologic hazards on the property.

There is a 50-foot-wide powerline easement that passes through the property near its western border. PGE has an overhead line that is centered in this easement with wooden poles approximately every 300 feet. This easement will be a part of the open space and storm water detention facilities planned for the project.

City GIS mapping indicates the presence of two Natural Resources Overlay District (NROD) areas near the site. One is shown along Holcomb Blvd. This area was the subject of an NROD verification application in 2020 and was found not to exist. (NROD-20-00018 - Approved 12/10/2020). The second area is located off-site to the north of the subject property on Tax Lot 22E21D 02000. This area is the subject of a new NROD verification application being submitted with the Serres Farms project. The new study shows the presence of wetlands on that property, but it entails a much smaller area than was mapped on the City GIS website. This application makes use of the new study mapping.

h. Existing transportation analysis, including the following items. May also reference submitted maps, diagrams or photographs.

Comment: Please refer to traffic analysis prepared by Lancaster/Mobley Engineering, Inc.

i. Infrastructure facilities and capacity, including the following items:

Comment: The following infrastructure facilities and capacities are available to serve the proposed development:

Water: There is an existing 16-inch Oregon City ductile iron water main located within Holcomb Boulevard that will provide water service for the proposed development. Oregon City water in the Holcomb pressure zone is supplied though a master meter for water pumped through the Clackamas River Water District-owned Barlow Crest Pump Station. The applicant has confirmed with CRW that there is adequate pressure and volume to serve the proposed development. As shown on the preliminary utility plans, the system will be looped to provide for water circulation and avoidance of dead-end lines.

Sanitary Sewer: Sanitary sewer for the project is available from two sources: An 8-inch sanitary sewer main exists within Holcomb Boulevard with manholes located along the frontage of the property. City staff advised the applicants that the Holcomb Blvd. sewer is nearing capacity so no project sanitary sewer will be directed to that facility. An 8-inch sanitary sewer main also exists within Ames Street with a manhole located at the intersection of Ames Street and Pasture Way. The majority of the site must be served from the Ames Street location due to topographic considerations. The Ames Street sewer is located approximately 680 feet to the west of the subject property. The most direct route would cross land owned by the Serres family that is presently outside of the city limits and the Urban Growth Boundary. This location will require the approval of Clackamas County and the applicant is presently working with County Planning regarding this issue. Some minor amendments to the language of the County's Comprehensive Plan are needed in order to bring it into conformity with State statutes on extraterritorial extensions. It is anticipated that the amendments will be heard beginning in July of this year. If for some unforeseen reason the changes are not approved, the applicant has discussed obtaining an easement from Oregon City Public School District across the Holcomb Elementary property

to access sanitary sewer in Pasture Way via the pedestrian pathway alignment. Wes Rogers, the District's Director of Capital Projects, has indicated that this option would be acceptable to the District.

Storm Water Management: The subject property drains generally to the northwest towards a natural drainageway on the north side of Forsythe Road. The site plan provides for a storm water detention and treatment facility near the northwest corner of the site. As shown on the preliminary utility plan and discussed in the Preliminary Storm Water Report, off-site improvements to the ditch system will be needed to convey the water to the natural drainageway. This involves land under the ownership of the Serres family so any needed access and easements may be readily obtained.

Easements: All required easements for utilities are shown on the preliminary utility plan. A 10-foot-wide Public Utility Easement is required along all existing or proposed street rights-of-way. These easements are depicted on the site plan. There is an existing 50-foot-wide PGE powerline easement that crosses the western portion of the site. The majority of this easement will be contained within planned open space and storm water detention tracts. Easements are also provided for the Barlow Trail view corridor (30-feet-wide) and a pedestrian accessway (15-feet-wide).

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2. Maps and Plans.
a. Existing conditions site plan. Drawn at a minimum scale of one-inch equals one hundred feet (one inch equals one hundred feet) that shows the following items. At least one copy shall be eight and one-half inches x eleven inches in size, and black and white reproducible.
i. Date, north point, and scale of drawing.
ii. Identification of the drawing as an existing conditions site plan.
iii. Proposed development boundary.
iv. All parking, circulation, loading and service areas, including locations of all carpool, vanpool and bicycle parking spaces as required in Chapter 52 of this title.
v. Contour lines at two-foot contour intervals for grades zero to ten percent, and five-foot intervals for grades over ten percent.
b. A site plan or plans, to scale, for the general development plan site and surrounding properties containing the required information identified in OCMC 17.62.040.b, Vicinity map. Depicting the location of the site sufficient to define its location, including identification of nearest cross streets. At least one copy of the vicinity map shall be eight and one-half inches by eleven inches in size, and black and white reproducible.
c. Aerial photo. Depicting the subject site and property within two hundred fifty feet of the proposed development boundaries. At least one copy of the aerial photo shall be eight and one-half inches by eleven in size, and black and white reproducible.

Comment: An Existing Conditions Map has been prepared for the site by the project surveyors, Centerline Concepts, Inc. The information required in this section is shown on that plan. A Site Plan for the GDP has been prepared by the project planner and is included with the application submittal. An aerial photograph, with the proposed development plan overlaid upon it, is shown below as Figure 3 of this narrative.


Public Rd
Holcomb Elementary School
Jennetten Way
Tract A
Storm Detention
Kaylyn Dr
Palmer Pl
Laurel Hill Way
PHASE 1
PHASE 2
Tract B
Park
Serres Farms Way
Tract C
Peds Trail
Holcomb Blvd
S Holcomb Blvd
Winston Hills
S Winston Dr
S Armfield Dr
Barlow Crest
Josi Ct
SITE

Figure 3: Aerial Photograph

B. Proposed Development Submittal Requirements.

1. Narrative statement. An applicant shall submit a narrative statement that describes the following:

Comment: This narrative provides the information listed in this section. In response to the specific items listed, we submit the following:

a. The proposed duration of the GDP is 10 years. Although we anticipate that the final plats of both phases will be recorded much sooner than that, the ten-year window allows time for any unforeseen circumstances that may arise.

b. The propose development boundary is shown on the GDP Site Plan as well as other exhibits within this narrative and other plans.

c. The GDP submitted with the application shows both phases of the development. DDPs are also provided for each phase. It is anticipated that the first phase of the project, containing 62 lots, will be developed in the summer of 2022. The second phase, containing the remaining 61 lots, will be developed the following summer.

d. Please refer to the Purpose section of the discussion of the provisions of OCMC 17.65 on page 2 of this narrative for information on how the proposed development is consistent with the listed purposes.

e. The inventoried NROD area along Holcomb Blvd. has been determined not to exist per a previous NROD verification application. The NROD area at the north boundary of the site has been reviewed by Schott & Associates and it has been found that the wetlands to the north is smaller than shown on GIS mapping. An NROD verification is being submitted for review of that area. The proposed development maintains required buffers from the offsite wetlands. The Barlow Trail is known to have crossed a portion of the subject property. The site plan provides for the maintenance of a view corridor per City standards. The proposed alignment will be reviewed by the Historic Review Board. There are no other Goal 5 resources that affect the proposed development.

f. Transportation impacts are discussed under g., below. The proposed development will be served by a network of local streets. The street system provides for a connection to Kaylyn Drive, to the east of the subject property and a future connection to Ames Street, to the northwest of the subject property. A pedestrian trail is shown on the western border of the property, consistent with City trail plans. Adequate levels of sewer, water and storm water are available to service the proposed development, as shown on the preliminary utility plan and the storm report submitted with this application. The site plan provides for a 2-acre neighborhood park that will include an informational kiosk to provide information relating to the Barlow Trail view corridor.

The proposed development is being developed as a single-family residential subdivision. All lots are planned to be used for single-family detached homes, but will allow for ADU and other forms of housing allowed in the R-10 zone under City standards. The proposed development pattern is consistent with the character of the surrounding area.

g. The Traffic Impact Study prepared by Lancaster-Mobley Engineering contains the following summary of transportation issues. Please refer to the full study for more details:

- No significant trends or crash patterns were identified at the intersection of S Barlow Drive at S Holcomb Boulevard that were indicative of safety concerns. Accordingly, no safety mitigation is recommended per the crash data analysis.

- Provided any obstructing foliage near the access locations (along the north side of S Holcomb Boulevard) are removed or properly maintained, adequate sight distances can be made available at the proposed public and temporary emergency access intersections to allow safe and efficient operation along S Holcomb Boulevard. No other sight distance related mitigation is necessary or recommended.

- Left-turn lane warrants are projected to be met at the proposed public site access intersection at S Holcomb Boulevard under year 2025 buildout conditions during the evening peak hour.
- For the proposed public access connection onto S Holcomb Boulevard, spacing standards will be met provided that a mid-block pedestrian/bicycle access between the proposed access and S Oak Tree Terrace is constructed.

- For the proposed temporary emergency access connection onto S Holcomb Boulevard, spacing standards will be met between the other proposed access and existing driveways/intersecting cross-streets.

- As part of the Serres Farms Master Plan project, the installation of a mid-block pedestrian crossing is proposed along the west edge of the project site across S Holcomb Boulevard. The proposed location of the mid-block crossing is expected to operate safely with respect to available sight distances, following removal/proper maintenance of obstructing foliage at the south end of the crossing when viewing to the west.

- Per Metro's 2018 Regional Transportation Plan (RTP), both the proposed public access and S Barlow Drive are expected to have sufficient carrying capacity to serve existing daily trips plus trips generated by the proposed Serres Farms Master Plan development.

- All study intersections are currently operating acceptably per Oregon City standards and are projected to continue operating acceptably through the 2025 site buildout year and under future year 2030 conditions with the Park Place Master Plan project completed, regardless of whether the S Holly Lane connection to S Holcomb Boulevard is constructed.

h. As discussed under g., above, a full Traffic Impact Study has been prepared for the project by Lancaster-Mobley Engineering and is included with the application submittal.

i. The Traffic Impact Study addresses the impacts of both phases of the project at full build-out. The phasing plan is shown on the GDP.

j. The proposed Planned Unit Development is a residential development. The application includes a proposal to make use of the allowable 10% density adjustment permitted under OCMC 17.65.70.C.4. It is also proposed that a 20% adjustment to the R-10 minimum lot size standard be approved, reducing the minimum lot size from 10,000 sq. ft. to 8,000 sq. ft. An adjustment to reduce the interior side yard setback from 8 feet to 7 feet also be approved. Please refer to the discussion of adjustments under 17.65.70.C, below.

2. Maps and Diagrams. The applicant shall submit, in the form of scaled maps or diagrams, as appropriate, the following information:

a. A preliminary site circulation map is shown on the following page.

b. The site circulation map shows the location of all proposed streets alleys, other public ways, sidewalks, bicycle and pedestrian access ways and other bicycle and pedestrian ways, transit streets and facilities, neighborhood activity centers and easements on and within two hundred fifty feet of the site. The map identifies existing subdivisions and development and un-subdivided or unpartitioned land ownerships adjacent to the proposed development site and show how existing streets, alleys, sidewalks, bike routes, pedestrian/bicycle access ways and utilities within two hundred fifty feet may be extended to and/or through the proposed development.

c. The location of public facilities that will serve the site is shown on the Existing Condition Map and the preliminary utility plan.

d. The footprint of buildings that will be constructed on the individual lots will be determined at the time of building permit.

e. The locations of the proposed park and the Barlow Trail view corridor are shown on the General Development Plan.

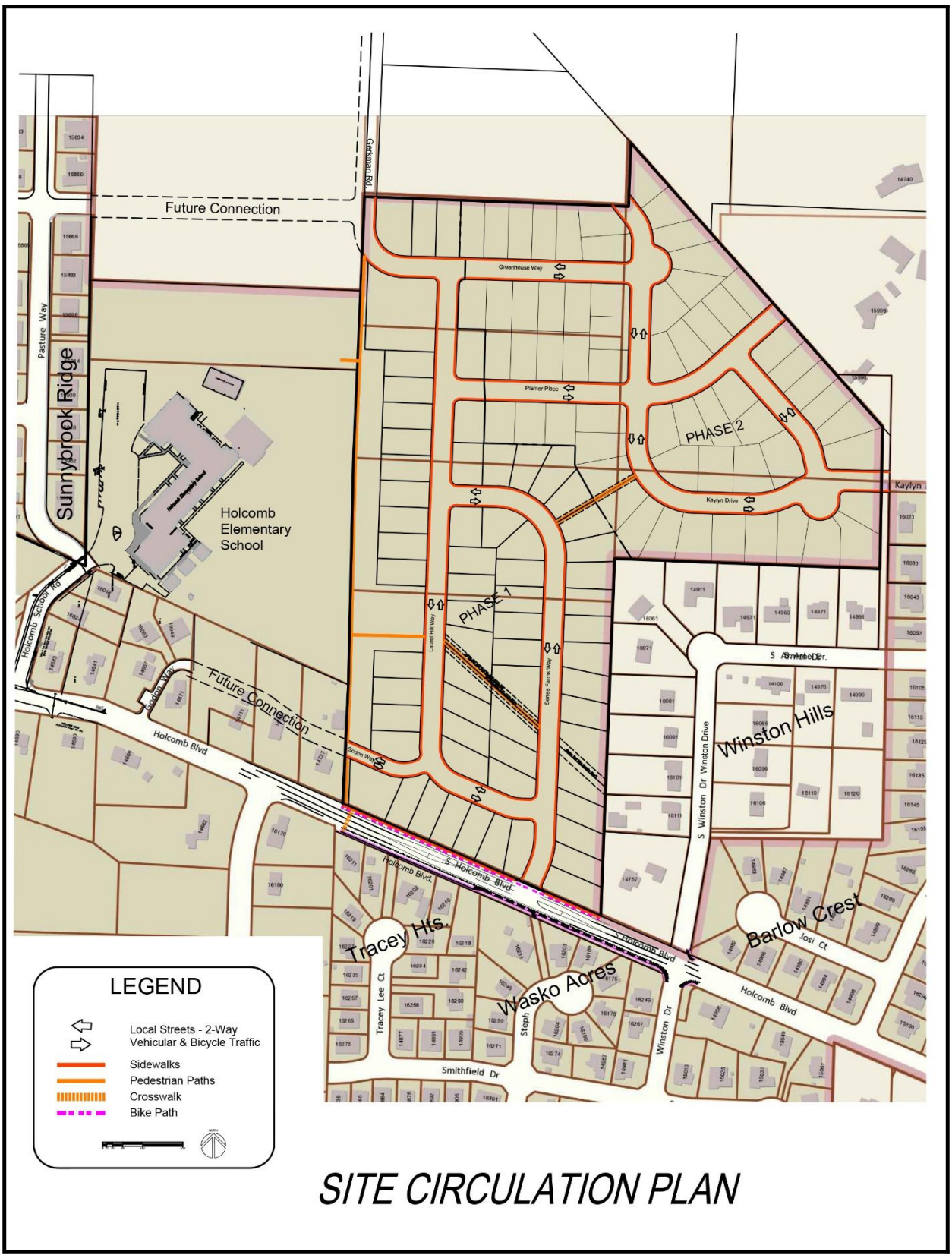


Figure 4: Site Circulation Plan

C. Approval Criteria for a General Development Plan. The planning commission may approve an application for general development plan only upon finding that the following approval criteria are met:

1. The proposed general development plan is consistent with the purposes of OCMC 17.65.

Comment: Compliance with the purpose statement of OCMC 17.65 is demonstrated in the applicant's response to OCMC 17.65.010 on Page 2 of this narrative.

2. Development shall demonstrate compliance with OCMC 12.04 16.12, 17.62, if applicable, and 16.08, if applicable.

Comment: The provisions of OCMC 12.04, 16.12 and 16.08 are addressed below in this narrative. OCMC 17.62, Site Plan and Design Review, is not applicable in Low Density Residential zoning districts.

3. Public services for transportation, water supply, police, fire, sanitary waste disposal, storm-water disposal, and any other needed public services and facilities including schools and parks for proposed residential uses, are capable of serving the proposed development, or will be made capable by the time each phase of the development is completed.

Comment: Please see comments on Page 8 of this report regarding sewer, water, and storm sewer services availability and adequacy. Please refer to the summary on page 12 of this narrative and the Lancaster/Mobley Traffic Impact Study for information on transportation services. Discussions with Wes Rogers of Oregon City School District indicate that the District has plans to service the school needs of this growing area of the city. Based upon the size of the project and the price range of the homes, he estimated that the development would only generate 10 to 20 elementary school students. Capacity at Holcomb Elementary was last counted pre-Covid 19, but it had adequate capacity to accommodate the anticipated students from this project. He stated that the junior high school and high school capacity is adequate with ongoing improvements to facilities. The proposed GDP provides a 2-acre park to serve the needs of the proposed development. Additionally, school playground facilities are available at Holcomb Elementary, immediately to the west of the site.

4. The proposed general development plan protects any inventoried Goal 5 natural, historic or cultural resources within the proposed development boundary consistent with the provisions of applicable overlay districts.

Comment: Please refer to comments on item e on page 11 of this narrative.

5. The proposed general development plan, including development standards and impact mitigation thresholds and improvements, adequately mitigates identified impacts from each phase of development. For needed housing, as defined in ORS 197.303(1), the development standards and mitigation thresholds shall contain clear and objective standards.

Comment: With the infrastructure improvements that will be provided to serve the project, as detailed in the Lancaster/Mobley Traffic Impact Study, and on the preliminary utility plan submitted with this application, this project will provide adequate mitigative measures per City standards.

6. The proposed general development plan is consistent with the Oregon City Comprehensive Plan.

Comment: The subject property is designated Low Density Residential (LDR) by the Oregon City Comprehensive Plan. The proposed density is consistent with the maximum and minimum density standards, as will be discussed below in findings on OCMC 17.65.070.C.4. The R-10 zone, which implements the LDR designation in this area, allows single-family detached and duplex uses and the proposed development is consistent with these uses. The development provides needed housing, and is therefore consistent with the Plan's housing goals. The proposal is consistent with Public Facilities and Services policies, as demonstrated by the availability of adequate services to the site and the information provided on the preliminary utility plan and associated documents. The application is consistent with transportation planning policies, as demonstrated by the Lancaster/Mobley Traffic Impact Study included with our submittal. The application is consistent with historic resources policies, as demonstrated by the provision of a view corridor for the Barlow Trail. Finally, the application is consistent with Section 5 of the Plan in that the NROD associated with an off-site wetland is adequately protected per City standards.

SECTION 1 – CITIZEN INVOLVEMENT

Policy 1.1.1 Utilize neighborhood associations as the vehicle for neighborhood-based input to meet the requirements of the Land Conservation and Development Commission (LCDC) Statewide Planning Goal 1, Citizen Involvement. The Citizen Involvement Committee (CIC) shall serve as the officially recognized citizen committee needed to meet LCDC Statewide Planning Goal 1.

Goal 1.4 Community Involvement Provide complete information for individuals, groups, and communities to participate in public policy planning and implementation of policies.

Policy 1.4.1 Notify citizens about community involvement opportunities when they occur.

Comment: Per OCMC 17.50.090 - Public notices, citizens will be notified pursuant to the required provisions for a Type III land use application.

SECTION 2 – LAND USE

Goal 2.1 Efficient Use of Land Ensure that property planned for residential, commercial, office, and industrial uses is used efficiently and that land is developed following principles of sustainable development.

Comment: The site plan provides for efficient use of the subject property by making use of a ten percent density adjustment allowed under OCMC 17.65.070 and by providing for duplex development on eighteen corner lots within the development. These provisions provide for an increased density that makes more efficient use of streets and public utilities that serve the project. They also provide for more homes to be located on this property under the existing R-10 zoning, thereby reducing pressure for future expansion of the UGB. The plan incorporates sustainable development practices by providing for treatment and detention of storm water, mitigating for trees that need to be removed for site development, and providing more than 2 acres of dedicated open space.

Policy 2.1.1 Create incentives for new development to use land more efficiently, such as by having minimum floor area ratios and maximums for parking and setbacks.

Comment: These particular standards relate more to multi-family, commercial and industrial uses than they do to Low Density Residential developments such as Serres Farms. However, as noted under Goal 2.1, the proposed development makes use of other code provisions to provide for a more efficient use of the land.

Policy 2.1.2 Encourage the vertical and horizontal mixing of different land-use types in selected areas of the city where compatible uses can be designed to reduce the overall need for parking, create vibrant urban areas, reduce reliance on private automobiles, create more business opportunities and achieve better places to live.

Comment: The proposed plan provides for a mixture of single-family detached and duplex development.

Policy 2.1.3 Encourage sub-area master planning for larger developments or parcels, including re-development, where it may be feasible to develop more mixed uses, or campus-style industrial parks, with shared parking and landscaping areas. Allow developments to vary from prescriptive standards if planned and approved under this provision.

Comment: The project is a larger development and, consistent with this policy, is making use of the master planning provisions of OCMC 17.65.

SECTION 3 – AGRICULTURAL LANDS

Comment: Not applicable. There are no designated agricultural lands within the city limits of Oregon City. Although portions of the subject property are presently used for agricultural purposes, the land is designated by the Oregon City Comprehensive Plan for Low Density Residential Development.

SECTION 4 – FOREST LANDS

Comment: Not applicable. There are no designated forest lands within the city limits of Oregon City.

SECTION 5 - OPEN SPACES, SCENIC AND HISTORIC AREAS, AND NATURAL RESOURCES

Goal 5.1 Open Space Establish an open space system that conserves fish and wildlife habitat and provides recreational opportunities, scenic vistas, access to nature and other community benefits.

Comment: There are no significant fish or wildlife habitat resources on the site. The site plan protects the small NROD to the north of the property in a manner consistent with adopted City standards, as discussed below in this narrative. The site has a scenic vista from the area near Kaylyn Drive that provides views of downtown Portland. The site plan has been designed to maximize view from homes in that area of the property. The plan also provides a 2-acre open space for recreational use.

Policy 5.1.1 Conserve open space along creeks, urban drainage ways, steep hillsides, and throughout Newell Creek Canyon.

Comment: Not applicable. There are no creeks, significant drainage ways or steep (in excess of 20% grade) hillsides on the property. The site is not within the Newell Creek Canyon.

Policy 5.1.2 Manage open space areas for their value in linking citizens and visitors with the natural environment, providing solace, exercise, scenic views and outdoor education. Built features in open space sites should harmonize with natural surroundings.

Comment: There are no identified open space resources areas on the subject property. There is a walking trail identified for the subject property and the site plan provides for this use.

Goal 5.2 Scenic Views and Scenic Sites Protect the scenic qualities of Oregon City and scenic views of the surrounding landscape.

Comment: There is a view from a portion of the property, but it is not identified in the Comprehensive Plan as a resource area. Homes in the area near Kaylyn Drive are oriented to take advantage of the view.

Policy 5.2.1 Identify and protect significant views of local and distant features such as Mt. Hood, the Cascade Mountains, the Clackamas River Valley, the Willamette River, Willamette Falls, the Tualatin Mountains, Newell Creek Canyon, and the skyline of the city of Portland, as viewed from within the city.

Comment: The site does not impact any of the identified view resources except for a distant view of the skyline of the city of Portland from a portion of the property. Homes in the area near Kaylyn Drive are oriented to take advantage of the view. Views of the skyline will also be available from sidewalks in this area so that they can be enjoyed by pedestrians.

Goal 5.3 Historic Resources Encourage the preservation and rehabilitation of homes and other buildings of historic or architectural significance in Oregon City.

Comment: The site does not contain any historic homes or other buildings. The Barlow Road corridor does pass through the site and the plan protects this corridor in a manner consistent with City standards.

Policy 5.3.8 Preserve and accentuate historic resources as part of an urban environment that is being reshaped by new development projects.

Comment: The Barlow Road corridor is the only historic resource that pertains to this property. The site plan provides for a view corridor along the corridor, consistent with City standards.

Goal 5.4 Natural Resources Identify and seek strategies to conserve and restore Oregon City's natural resources, including air, surface and subsurface water, geologic features, soils, vegetation, and fish and wildlife, in order to sustain quality of life for current and future citizens and visitors, and the long-term viability of the ecological systems.

Comment: The only significant natural resource potentially impacted by this development is the off-site NROD associated with a small wetland to the north of the subject property. The site plan conforms to all NROD requirements for the protection of this area, as discussed in the responses to OCMC 17.49 below in this narrative.

Policy 5.4.11 Maintain and enhance the function and quality of natural wetlands and create, where appropriate, wetlands or swales to moderate the quantity and velocity of water runoff entering streams during storm events and to reduce the amount of pollutants carried into streams.

Comment: There are no wetlands on the subject property, but there is a small one located off-site to the north on Tax Lot 2000. This wetland is the subject of an NROD verification application submitted concurrently with this land use application. Please see discussion of compliance with OCMC 17.49 below. The plans for managing storm water provide for detention and treatment of the water prior to conveyance to a natural drainageway to the north of Forsythe Road. This treatment will ensure that water quality standards are met. The flat grade of the drainage system that will convey the water will ensure that the velocity is appropriate.

Policy 5.4.16 Protect surfacewater quality by:

- providing a vegetated corridor to separate protected water features from development
- maintaining or reducing stream temperatures with vegetative shading
- minimizing erosion and nutrient and pollutant loading into water
- providing infiltration and natural water purification by percolation through soil and vegetation

Comment: The only protected water feature associated with this site is the wetland located to the north of the property on Tax Lot 2000. The site plan maintains the required setbacks set forth in OCMC 17.49 and discussed below. The storm water detention and treatment facility will ensure that sediments and other pollutants are removed from runoff in accordance with City standards. Infiltration and percolation is not a significant option in this area due to clay soils. Erosion from the property during construction will be controlled through the use of silt fencing and other measures consistent with City standards.

Policy 5.4.17 Protect and maintain groundwater recharge through conservation and enhancement of wetlands and open space.

Comment: The proposed development protects the small wetlands to the north in accordance with City standards set forth in OCMC 17.49 and discussed below.

SECTION 6 – QUALITY OF AIR, WATER, AND LAND RESOURCES

Goal 6.1 Air Quality Promote the conservation, protection and improvement of the quality of the air in Oregon City.

Policy 6.1.1 Promote land-use patterns that reduce the need for distance travel by single occupancy vehicles and increase opportunities for walking, biking and/or transit to destinations such as places of employment, shopping and education

Comment: This policy is primarily a guide to City action. The proposed development does, however, provide opportunities for walking and biking through construction of sidewalks and pathways as shown on the site plan.

Goal 6.2 Water Quality Control erosion and sedimentation associated with construction and development activities to protect water quality.

Comment: The proposed development includes provisions for detaining and treating storm water runoff to protect water quality. Measures required by City standards to control erosion during construction will also be met.

Policy 6.2.1 Prevent erosion and restrict the discharge of sediments into surface- and groundwater by requiring erosion prevention measures and sediment control practices.

Comment: The proposed development includes provisions for detaining and treating storm water runoff to protect water quality. Measures to restrict discharge of sediments and protect water quality will include inlet protection on proposed onsite and existing downstream catchbasins, silt fencing at site perimeter and the uphill side of proposed roads, straw wattles on at toe of and along steep slopes, and biofilter bags in any downstream ditches.

Policy 6.2.2 Where feasible, use open, naturally vegetated drainage ways to reduce stormwater and improve water quality.

The storm plan provides for use of open swales to convey storm water off-site towards Forsysthe Road for much of the distance to the discharge point.

Goal 6.3 Nightlighting Protect the night skies above Oregon City and facilities that utilize the night sky, such as the Haggart Astronomical Observatory, while providing for nightlighting at appropriate levels to ensure safety for residents, businesses, and users of transportation facilities, to reduce light trespass onto neighboring properties, to conserve energy, and to reduce light pollution via use of night-friendly lighting.

Comment: The proposed development will make use of current streetlights that reduce light trespass.

Policy 6.3.1 Minimize light pollution and reduce glare from reaching the sky and trespassing onto adjacent properties.

Comment: Street lights will be installed only to the levels required by City and PGE standards.

Policy 6.3.2 Encourage new developments to provide even and energy-efficient lighting that ensures safety and discourages vandalism. Encourage existing developments to retrofit when feasible.

Comment: Street lights will be installed per City and PGE standards and include energy-efficient lighting.

Goal 6.4 Noise Prevent excessive noise that may jeopardize the health, welfare, and safety of the citizens or degrade the quality of life.

Comment: Not applicable. The proposed development is Low Density Residential in nature and does not include any significant noise-generation sources.

SECTION 7 – NATURAL HAZARDS

Goal 7.1 Natural Hazards Protect life and reduce property loss from the destruction associated with natural hazards.

Comment: Other than the minor area of slopes in the 25-35 grade range, there are no hazard areas on the property. A geotechnical report has been prepared for the property and it shows that the site may be safely developed for the proposed use. There are no landslide or flooding hazards associated with this site.

Policy 7.1.1 Limit loss of life and damage to property from natural hazards by regulating or prohibiting development in areas of known or potential hazards.

Comment: Not applicable. There are no known hazards associated with this property.

SECTION 8 – PARKS AND RECREATION

Goal 8.1 Developing Oregon City's Park and Recreation System Maintain and enhance the existing park and recreation system while planning for future expansion to meet residential growth.

Policy 8.1.1 Provide an active neighborhood park-type facility and community park-type facility within a reasonable distance from residences, as defined by the Oregon City Park and Recreation Master Plan, to residents of Oregon City.

Comment: The proposed site plan includes a 2-acre park that adjoins the Holcomb Elementary School playground. The applicant proposes dedication of this park to the City of Oregon City. An HOA will own and maintain it should the City determine that it does not wish to accept the dedication.

Policy 8.1.14 Require or encourage developers to dedicate park sites as part of the subdivision review process. When possible, require or encourage developers to build parks to City standards and give them to the City to operate and maintain.

Comment: As discussed above, the applicant proposes dedication of the 2-acre park, consistent with this policy.

SECTION 9 – ECONOMIC DEVELOPMENT

Not applicable.

SECTION 10 - HOUSING

Goal 10.1 Diverse Housing Opportunities Provide for the planning, development and preservation of a variety of housing types and lot sizes.

Comment: The plan provides for both single-family detached and duplex housing units, consistent with this goal.

Policy 10.1.5 Allow Accessory Dwelling Units under specified conditions in single-family residential designations with the purpose of adding affordable units to the housing inventory and providing flexibility for homeowners to supplement income and obtain companionship and security.

Comment: ADUs will be allowed within this development consistent with City standards.

SECTION 11 - PUBLIC FACILTIES

Policy 11.1.4 Support development on underdeveloped or vacant buildable land within the city where public facilities and services are available or can be provided and where land-use compatibility can be found relative to the environment, zoning, and Comprehensive Plan goals.

Comment: All required public facilities and services are available or can be provided concurrently with the development of this site. Water is presently available in Holcomb Blvd. to service the development. Sanitary sewer service is available at the end of Ames Street and will need to be extended to the site across other property owned by the Serres family. Storm drainage will be provided by the use of existing and proposed swales and storm sewer to extend service to the natural drainageway off-site north of Forsysthe Road. The Serres family owns the intervening property and has agreed to allow the construction and use of these facilities.

Goal 11.2 Wastewater Seek the most efficient and economic means available for constructing, operating, and maintaining the City's wastewater collection system while protecting the environment and meeting state and federal standards for sanitary sewer systems.

Comment: Not applicable. This is a guide to City action.

Policy 11.2.1 Plan, operate and maintain the wastewater collection system for all current and anticipated city residents within the existing Urban Growth Boundary. Plan strategically for future expansion areas.

Comment: Not applicable. This is a guide to City action.

Policy 11.2.5 Implement the City's wastewater policies through the City of Oregon City Sanitary Sewer Master Plan.

Comment: The proposed plan for providing sewer service to this site is consistent with the City's Sanitary Sewer Master Plan.

Policy 11.3.1 Plan, operate and maintain the water distribution system for all current and anticipated city residents within its existing Urban Growth Boundary and plan strategically for future expansion areas.

Comment: Not applicable. This is a guide to City action.

Goal 11.4 Stormwater Management Seek the most efficient and economical means available for constructing, operating, and maintaining the City's stormwater management system while protecting the environment and meeting regional, state, and federal standards for protection and restoration of water resources and fish and wildlife habitat.

Comment: The proposed storm drainage plan is consistent with this goal in that it will employ a detention and treatment system to ensure water quality and will provide for efficient transmission of storm water from the site to the existing natural drainageway north of Forsysthe Road.

Policy 11.4.1 Plan, operate, and maintain the stormwater management system for all current and anticipated city residents within Oregon City's existing Urban Growth Boundary and plan strategically for future expansion areas.

Comment: Not directly applicable. This is a guide to City action. However, the plan provides for storm sewer and treatment facilities that are consistent with City standards and, by extension, this policy.

Policy 11.4.5 Design stormwater facilities to discharge surface water at pre-development rates and enhance stormwater quality in accordance with criteria in City of Oregon City Public Works Stormwater and Grading Design Standards.

Comment: The stormwater report submitted with this application demonstrates that the plans for stormwater management proposed for this project comply with this policy.

Goal 11.9 Fire Protection Maintain a high level of fire protection and emergency medical services.

Policy 11.9.1 Ensure that all areas, including newly annexed areas, receive fire protection and emergency medical services.

Comment: Fire protection services are available to serve the proposed development consistent with this goal and policy.

SECTION 12 – TRANSPORTATION

Goal 12.1 Land Use-Transportation Connection Ensure that the mutually supportive nature of land use and transportation is recognized in planning for the future of Oregon City.

Policy 12.1.1 Maintain and enhance citywide transportation functionality by emphasizing multi-modal travel options for all types of land uses.

Comment: Consistent with this goal and policy, a traffic impact analysis has been prepared for the proposed development. The traffic analysis demonstrates that the project complies with the requirements of this goal and policy as well as the provisions of OCMC Chapter 16. Please refer to the TIA for further information.

Policy 12.1.4 Provide walkable neighborhoods. They are desirable places to live, work, learn and play, and therefore a key component of smart growth.

Comment: The site plan provides for sidewalks on both sides of all streets within the development. Pedestrian pathways are provided in two areas where block length standards are exceeded. Additionally, a trail is provided from Holcomb Blvd. through the site along its western border.

Goal 12.3 Multi-Modal Travel Options Develop and maintain a transportation system that provides and encourages a variety of multi-modal travel options to meet the mobility needs of all Oregon City residents.

Comment: The site plan provides for pedestrian, bicycle and vehicular transportation modes.

Policy 12.3.1 Provide an interconnected and accessible street system that minimizes vehicle-miles-traveled and inappropriate neighborhood cut-through traffic.

Comment: The street system is interconnected within the development so that out of direction traffic is avoided. The plan provides for a connection to Kaylyn Drive to the east of the subject property. Additionally, provision is made for future connectivity by providing street stubs that will ultimately connect with Godin Way and Ames Street to the west of the site. Street stubs are also provided to allow for future connectivity to the north and west to areas that are presently outside of the Urban Growth Boundary.

Policy 12.3.2 Provide an interconnected and accessible pedestrian system that links residential areas with major pedestrian generators such as employment centers, public facilities, and recreational areas.

Comment: The site plan will provide for connectivity to Holcomb Elementary School by providing for access to the school's playground area at a location to be worked out with Oregon City School District. This is the only pedestrian generator in the area.

Policy 12.3.3 Provide a well-defined and accessible bicycle network that links residential areas, major bicycle generators, employment centers, recreational areas, and the arterial and collector roadway network.

Comment: The site plan provides for the maintenance of a bicycle pathway along the project's frontage on Holcomb Blvd. Other bicycle traffic will make use of local streets within the development.

Policy 12.3.4 Ensure the adequacy of pedestrian and bicycle connections to local, county, and regional trails.

Comment: Holcomb Blvd. has bicycle lanes on both sides of the street. The proposed development will provide for a pedestrian/bicycle trail at the west edge of the property that will provide for a connection to the bicycle lane.

Policy 12.3.5 Promote and encourage a public transit system that ensures efficient accessibility, mobility, and interconnectivity between travel modes for all residents of Oregon City.

Comment: Not applicable. Tri-Met does not provide service at this point on Holcomb Blvd.

Goal 12.6 Capacity Develop and maintain a transportation system that has enough capacity to meet users' needs.

Comment: As demonstrated in the Traffic Impact Analysis submitted with this application, the transportation system has sufficient capacity to meet City standards for this project.

Policy 12.6.1 Provide a transportation system that serves existing and projected travel demand.

Comment: The TIA prepared by Lancaster-Mobley, Inc. demonstrates sufficient capacity to meet existing and projected travel demand for this project.

Goal 12.8 Implementation/Funding Identify and implement needed transportation system improvements using available funding.

Policy 12.8.3 Provide incentives for private sector contributions to multi-modal transportation links and facilities, for example, establishing new standards in the zoning code.

SECTION 13 – ENERGY CONSERVATION

Goal 13.2 Energy Conservation Plan public and private development to conserve energy.

Comment: The proposed development provides for connectivity of the local street system that will result in energy savings due to reduced need for out of direction vehicle trips. The homes built in this project will be constructed to full building code energy standards.

SECTION 14 – URBANIZATION

Not applicable. The subject property is presently within the Urban Growth Boundary and city limits. Urbanization goals and policies guide future expansions of the UGB and city limits.

SECTION 15 – WILLAMETTE RIVER GREENAWAY

Not applicable. The subject property is not located within the boundaries of the Willamette River Greenway.

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7. The proposed general development plan is consistent with the underlying zoning district(s) and any applicable overlay zone or concept plans.

Comment: Please refer to comments under OCMC 17.08, below in this narrative.

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8. For projects with a residential use component, the proposed general development plan includes common open space for the recreational needs of the development's residents.

a. Required open space shall be located either on-site or off-site within one-quarter mile of the development.

b. Minimum required open space shall be one hundred square feet per residential unit in the development.

c. The open space area may be in private ownership or proposed for public dedication, at the city's discretion whether to accept.

d. The open space shall be developed with a unified design to provide for a mix of passive and active uses. Passive uses include, but are not limited to sitting benches, picnicking, reading, bird watching and natural areas. Active uses include, but are not limited to playgrounds, sports fields and courts, running and walking areas.

e. Land area to be used for the open space area that is required in this section shall not include required setback areas, required landscaping, streets, rights-of-way, driveways, or parking spaces.

f. Unless dedicated to the public, the applicant shall also provide an irrevocable legal mechanism for the maintenance of the open space and any related landscaping and facilities. The applicant shall submit, for city review and approval, all proposed deed restrictions or other legal instruments used to reserve open space and maintenance of open space and any related landscaping and facilities.

Comment: The site plan provides 2.01 acres (87,556 sq. ft.) of open space, as shown on the GDP. Part of this open space is within the powerline easement that crosses the site. This powerline easement is not required to be preserved as open space (it could be added to the rear yard areas of adjoining lots), but it should be noted that 38,851 sq. ft. of the 2.01-acre tract is outside of the powerline easement. This is more than three times the minimum requirement of 12,300 sq. ft. (123 units x 100 sq. ft./Unit). The open space will either be dedicated to the City for park purposes, if desired by the City, or privately owned and maintained by a Home Owner's Association. The open space will have a trail through the site parallel with the powerline easement. The area will be graded and seeded with grass. It will be useable for dog walking, running, walking and general play. Several picnic tables will be provided. An informational kiosk associated with the Barlow Trail is planned and will be coordinated with the Historic Review Board.

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9. For projects with a residential use component, the proposed general development plan includes a mix of residential uses such that no single residential use exceeds seventy-five percent of the total proposed units. The mix of residential uses shall provide variety of dwelling types and sizes that are integrated throughout the site, rather than isolated from one another, with smooth transitions between residential types including appropriate setbacks, landscaping or screening as necessary, while maintaining street and pedestrian connectivity between all residential uses. Tenancy (i.e. ownership versus rental) shall not be a consideration in determination of the mix of residential use. For the purposes of this section, residential uses include single-family detached, single-family attached, duplex, 3—4 plex, and multi-family.

Comment: The GDP provides for 123 lots. Eighteen corner lots, located throughout the project, will be designated to have duplex units built upon them, consistent with R-10 standards. These lots will provide for 36 duplex units. There will be 106 single-family detached units on the remaining lots in the project, for a total of 142 dwelling units in the master plan. The GDP provides for a maximum of 25.4% of the total units to be duplexes, and 74.6% to be single-family detached homes. This standard is met.

17.65.060 - Detailed development plan.

A. Submittal Requirements.

1. A transportation impact study

Comment: Please refer to Lancaster/Mobley Transportation Impact Study.

2. The location within the development and in the adjoining streets of existing and proposed sewers, water mains, culverts, drain pipes, underground electric, cable television and telephone distribution lines, gas lines, and the location of existing aerial electric, telephone and television cable lines, if any, to be relocated within the development.

Comment: Please refer to Existing Conditions Map and preliminary utility plan.

3. For portions of the project that would otherwise be subject to site plan and design review, a site plan or plans, to scale, containing the required information identified in OCMC 17.62.040.

Comment: Not applicable to Low Density Residential development.

4. For residential portions of the project not otherwise subject to site plan and design review, a site plan or plans, to scale, showing the proposed land uses and densities, building locations, lot patterns, circulation patterns, and open space locations and uses.

Comment: The DDP for each phase shows the building envelopes on each lot. Actual building location will be determined at the time of building permit for the home to be constructed on each lot. Circulation is shown on the Site Circulation Plan on page 14 of this narrative.

5. Any other information the community development director deems necessary to show that the proposed development will comply with all of the applicable Chapter 17 requirements.

Comment: No additional information has been requested in the pre-application conference notes or by other means.

B. Approval Criteria. The community development director shall approve an application for detailed development plan approval only upon findings that:

1. All development standards and impact mitigation meet the requirements of the approved general development plan, including conditions of approval.
2. Any other applicable zoning regulations that are not addressed in the general development plan are met, unless an adjustment to those regulations has been applied for and is approved. The approval standards applicable to adjustments required as part of a master plan or planned unit development are contained in OCMC 17.65.070.
3. The detailed development plan conforms with the base zone standards, applicable residential design standards, and applicable standards contained in Chapters 17.62, 17.52, 16.12, and 16.08 unless adjusted as provided in OCMC 17.65.070.

Comment: The DDPs that are included with this application conform to the GDP for the project and will comply with all conditions of approval that are adopted in the final decision on the project. All relevant zoning regulations are addressed in this narrative. The DDPs comply with the R-10 standards as modified per the adjustment process in OCMC 17.65.070, below.

17.65.070 - Adjustments to development standards.

A. Purpose. In order to implement the purpose of the city's master plan or planned unit development process, which is to foster the growth of major institutions, major residential, commercial or mixed-use development, and other large-scale development, while identifying and mitigating their impacts on surrounding properties and public infrastructure, an applicant may request one or more adjustments to the applicable development regulations as part of the master planning or planned unit development process, and are not required to go through the variance process pursuant to OCMC Chapter 17.60.

Comment: The applicant is requesting a 20 percent adjustment to the minimum lot size standard of the R-10 zone to allow lots as small as 8,000 sq. ft. An adjustment to the interior side setback standard from the 8-foot standard of the R-10 zone to 7-feet, which is the standard of the R-8 zone and, therefore, consistent with the smaller lot sizes requested. Finally, the applicant is requesting an increase in maximum residential density of 10 percent.

B. Procedure. Requests for adjustments shall be processed concurrently with a general development plan. An adjustment request at the detailed development plan review shall cause the detailed development plan to be reviewed as a Type III application.

Comment: The requested adjustments are proposed to be processed concurrently with the GDP, consistent with this standard.

C. Regulations That May be Adjusted. Adjustments may be allowed for the following items:

1. Dimensional standards of the underlying zone of up to twenty percent, except the perimeter of the development shall meet the underlying zone's setbacks when adjacent to residentially zoned property.

Comment: The requested adjustment to the minimum lot size standard from 10,000 sq. ft. to 8,000 sq. ft. is a 20 percent reduction, consistent with this provision. The adjustment of the interior side setback standard from 8 feet to 7 feet is a 12.5% adjustment and is allowable under this provision. Lots on the perimeter will maintain the underlying zone's setbacks adjacent to residential properties.

2. Site plan and design standards.

Comment: Not applicable.

3. Residential design standards.

Comment: No adjustments to residential design standards are requested.

4. Increase in allowed maximum residential density of up to ten percent.

Comment: The proposed development makes use of this provision to increase the maximum allowable density by ten percent. In preliminary discussions with City Planning staff at the pre-application conference, the possibility of a zone change to R-8 was considered. Based on the presence of R-6 zoning to the south across Holcomb Blvd. and a general policy of encouraging efficient use of residential land, staff indicated general support for the concept of a rezone. After

reviewing the density bonus provisions allowable in the provisions of this chapter, the applicant felt that the ten percent density bonus allowed a reasonable transition from the lower density development to the east.

The base density allowed in the R-10 zone for the subject property is calculated as follows:

Site Area = 1,533,162 SF
- Slopes 25-35% = 16,869 SF
- Street Area = 331,168 SF
- Power Line Area = 69,001 SF

Net Unrestricted Development Area = 1,116,124 SF
Divided by 10,000 SF/ Unit = 111.61 Units

Slopes 25-35% Grade = 16,869 SF or .387 Acres x 2 units/Acre = 0.77 Units

Total Base Density = 112 Units

Ten percent bonus = 11 Units
Total allowable density = 123 Units

If the property were zoned R-8 it could be developed with 140 units.

The proposed adjustment would allow for a modest increase in density over a standard subdivision in the R-10 zone, but would be 17 units less than would result if an R-8 zone change were approved.

5. Standards for land division approval.

Comment: The applicant requests the use of this section to adjust the provisions of OCMC 16.08.065 - Lot size reduction. The provisions of that section of the Subdivision standards conflict with the adjustments otherwise allowed under OCMC 17.65.070 in that they restrict the maximum reduction to 10 percent, as opposed to the 20% allowed in this chapter, and they limit the reduction to being only applicable to a maximum of 25% of the lots within a subdivision. Unless these provisions are adjusted, they would not allow any possible way of achieving the density bonus allowed under C.4, below, nor would it be possible to provide required open space while achieving allowable densities.

6. Additional uses allowed with residential projects, or residential component of projects:

   a. Notwithstanding the use provisions of the underlying zones, neighborhood commercial uses as defined in Chapter 17.24.020, including restaurants and eating and drinking establishments without a drive-through, retail trade, and services, are permitted on up to ten percent of the net developable area. The neighborhood commercial uses shall be planned and constructed so as to support and be compatible with the entire development and shall not alter the character of the surrounding area so as to substantially preclude, impair or limit the use of surrounding properties for the primary uses listed in the underlying district.

   Comment: No commercial uses are proposed.

b. Public or private parks and playgrounds, community buildings and/or outdoor recreational facilities, such as swimming pools and tennis courts.

Comment: The site plan proposes an open space of approximately 2 acres that will be either dedicated to the City for park purposes or owned and maintained by a Home Owner's Association.

c. Indoor recreational facilities, such as racquetball or tennis courts, fitness centers or swimming pools.

Comment: No indoor recreational facilities are proposed.

d. Common public and private open space including trails.

Comment: The 2-acre open space will include a trail, as shown on the GDP.

e. Primary or accessory uses that are not identified as a permitted or conditional use in the underlying zone but which are defined in the code.

Comment: No such uses are planned.

D. Regulations That May Not be Adjusted. Adjustments are prohibited for the following items:

1. To allow a primary or accessory use that is not identified as a permitted, or conditional use in the underlying zone, with the exception of the additional uses permitted under OCMC 17.65.070.C.6 above;
2. To any regulation that contains the word "prohibited";
3. As an exception to a threshold review, such as a Type III review process; and
4. Minimum density for residential sites may not be reduced.

Comment: None of the above regulations are proposed to be adjusted in this application.

E. Approval Criteria. A request for an adjustment to one or more applicable development regulations under this section shall be approved if the review body finds that the applicant has shown the following criteria to be met:

1. Granting the adjustment will equally or better meet the purpose of the regulation to be modified;

Comment: The adjustments requested in this application are:

1. <u>A ten percent increase in density pursuant to the provisions of OCMC 17.65.070.C.4.</u> OCMC 17.65.070.A lists the purpose of the adjustments allowed under the master plan/planned unit development process as, "In order to implement the purpose of the city's master plan or planned unit development process, which is to foster the growth of major institutions, major residential, commercial or mixed-use development, and other large-scale development, while identifying and mitigating their impacts on surrounding properties and public infrastructure, an applicant may request one or more adjustments to the applicable development regulations as part of the master planning or planned unit development process, and are not required to go through the variance process pursuant to OCMC Chapter 17.60." The density bonus is consistent with the stated purpose of fostering the growth of a major residential development. The increased density allows for a more efficient use of a limited resource of buildable residential land and makes more efficient use of the utilities and streets that are needed to service the

proposed development. Further, granting the increased density will not have any significant impacts on surrounding properties. Infrastructure and transportation service needs for the proposed density have been demonstrated to be available. The proposed density is consistent with densities allowed in other Low Density Residential districts that are found in nearby developments without adverse impacts.

2. A reduction in the minimum lot size and side setback standards of OCMC 17.08. Minimum lot size is proposed to be reduced from 10,000 sq. ft. to 8,000 sq. ft. Interior side setbacks are proposed to be reduced from 8 feet to 7 feet. OCMC 17.08 – Low Density Residential Districts provides no purpose statement for either of these standards. Similarly, there are no Comprehensive Plan goals or policies that address these standards. ORS 197.307(4) requires that local governments "adopt and apply only clear and objective standards, conditions and procedures regulating the development of housing, including needed housing." Given that the code provides no guidance as to the purpose of these standards, a requirement to demonstrate that an adjustment to the standards conforms to their purpose is neither clear nor objective. That said, the adjustment to lot size must occur in order for the 10% density adjustment to be feasible. The lot size proposed provides ample room for the construction of single-family detached homes and duplexes, which are the uses allowed in the R-10 zone. The side setback adjustment from 8 feet to 7 feet simply makes the setback consistent with the standard for the R-8 zone. This setback is clearly consistent with the intent of the setback standard since it is the distance applicable to the R-8 zone and the allowed uses are the same.

2. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project that is still consistent with the overall purpose of the zone;

Comment: There is no purpose statement for the R-10 zone provided in OMCC 17.08. It is noted that the R-10, R-8 and R-6 zones are designed for low density residential development. Even with the requested adjustments, the density of the proposed development falls between R-10 and R-8 and, therefore, is also suited for low density residential development.

3. City-designated Goal 5 resources are protected to the extent otherwise required by Title 17;

Comment: The NROD for the wetland area to the north of the subject property contains a buffer area that impacts Lots 61 and 62, and to a minor extent, Lot 63. As shown on the DDP for Phase 1, there remains an adequate building envelope on those lots to allow for the construction of a single-family home while remaining at least 5 feet removed from the buffer, consistent with NROD standards.

4. Any impacts resulting from the adjustment are mitigated such that the development does not create significant adverse impacts on adjacent properties;

Comment: This standard is neither clear nor objective and therefore cannot be applied as an approval criterion to this housing project pursuant to the provisions of ORS 197.307(4). That said, the property is adjacent to a school site and rural lands along its western and northern borders as well as a portion of the eastern boundary. The adjustment to density doesn't result in additional traffic impacts upon these properties as all vehicle trips are directed to Holcomb Blvd. Sewer and storm drainage services are demonstrated in the Storm Report and sewer analysis to be adequately provided for by the existing sewer line in Ames Street and by taking storm water to the north to outfall into a natural drainageway on the other side of Forsythe Road. The The Winston Hills subdivision that adjoins a portion of the eastern border is outside the city limits and has

approximately 20,000 sq. ft. lots developed with homes that are typically setback more than 50 feet from the subject property. Traffic from the site will predominantly go to Holcomb Blvd. and will have no impact upon these adjacent properties. The setbacks of the underlying zone will be maintained on lots on the periphery of the development so that there is no difference for abutting residential neighborhoods. The reduction in lot size is not out of character for designated Low Density Residential areas as R-6, R-8 and R-10 zones are allowed in this designation.

5. If an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable; and

Comment: The minor NROD area at the northwest corner of the property is the only environmental zone affecting the subject property. Please see discussion under item 3., above.

6. The proposed adjustment is consistent with the Oregon City Comprehensive Plan and a concept plan if applicable.

Comment: The subject property is not located within a concept plan area. The site is designated Low Density Residential by the Oregon City Comprehensive Plan. There are no comprehensive plan goals or policies that specifically address density, lot size or setbacks within the Low Density Residential designation. Looking to the adopted and acknowledged zoning districts that implement this plan designation is the only means of determining if the adjustments are consistent with the Comprehensive Plan. OCMC 17.08.010 states that the "R-10, R-8 and R-6 residential districts are designed for low density residential development." A maximum density of 7.3 dwelling units per acres is allowed within the Low Density Residential designation. The proposed adjustment would allow an increase of the 4.4 dwelling units per acre in the R-10 district to a proposed 4.78 dwelling units per acre density, which is well below the maximum allowed in the LDR designation. Lot sizes as small as 6,000 sq. ft. and interior side setbacks as small as 5 feet are allowed by the zoning code within this designation. The lot size and interior setbacks only allow the use of standards found in the R-8 zone, which are permissible in the LDR designation.

Allowing the requested adjustments would aid in meeting several of the goals of the Housing section of the Comprehensive Plan:

Policy 10.1.3

Designate residential land for a balanced variety of densities and types of housing, such as single-family attached and detached, and a range of multi-family densities and types, including mixed-use development.

Comment: The proposed adjustments will allow for a mixed-use development incorporating both single-family detached and duplex units.

Policy 10.1.4

Aim to reduce the isolation of income groups within communities by encouraging diversity in housing types within neighborhoods consistent with the Clackamas County Consolidated Plan, while ensuring that needed affordable housing is provided.

Comment: The plan intersperses duplex units throughout the site consistent with this policy. The adjustments to lot size, density and setbacks as requested are integral to being able to develop the site in this manner.

Policy 10.1.7 Use a combination of incentives and development standards to promote and encourage well-designed single-family subdivisions and multi-family developments that result in neighborhood livability and stability.

Comment: The incentive of the adjustments to density, lot size, and setbacks allows for the proposed Serres Farms project to provide a mix of housing types and open space that will result in it being a livable and stable residential neighborhood.

Chapter 17.41 - TREE PROTECTION, PRESERVATION, REMOVAL AND REPLANTING STANDARDS

17.41.010 - Protection of trees—Intent.

The intent of this chapter is to ensure that new development is designed in a manner that preserves trees to the maximum extent practicable. As a requirement of any Type II land use application, the siting of structures, roadways and utility easements, shall provide for the protection of tree resources to the maximum extent practicable. This chapter applies to all land division and site plan and design review applications.

Comment: The proposed application is a land division so the provisions of Chapter 17.41 are applicable.

17.41.020 - Tree protection—Applicability.

A. Applications for development subject to OCMC 16.08 (Land Divisions) or OCMC 17.62 (Site Plan and Design Review) shall demonstrate compliance with these standards as part of the review proceedings for those developments. Compliance with this chapter is required from the date a land use application is filed until a land division is recorded or other development approval is final.

Comment: These provisions are applicable to this land division application.

(Ord. No. 18-1009, § 1(Exh. A), 7-3-2019; Ord. No. 19-1008, § 1(Exh. A), 12-18-2019)

17.41.040 - Exemptions.

These regulations are not intended to regulate normal cutting, pruning and maintenance of trees on private property except where trees are located on lots that are undergoing development review or are otherwise protected within the natural resource overlay district (NROD) of OCMC 17.49. These standards are not intended to regulate farm and forest practices as those practices are defined under ORS 30.930, for farm or forestlands. These regulations to not apply to the removal of trees that are considered invasive species. An applicant for development may claim exemption from compliance with these standards if the development site containing the regulated grove or trees was a designated farm or forest use, tree farm, Christmas tree plantation, or other approved timber use within one year prior to development application. "Forest practices" and "forestlands" as used in this subsection shall have the meaning as set out in ORS 30.930. The community development director has the authority to modify or waive compliance in this case.

Comment: The removal of the proposed trees to be cut is necessary for the development of the proposed subdivision. No exemption is proposed or applicable.

17.41.050 - Compliance options.

Applicants for review shall comply with these requirements through one or a combination of the following procedures:

A. Option 1—Mitigation. Retention and removal of trees, with subsequent mitigation by replanting pursuant to OCMC 17.41.060;

B. Option 2—Dedicated Tract. Protection of trees or groves by placement in a tract within a new subdivision or partition plat pursuant to OCMC 17.41.080;

C. Option 3—Restrictive Covenant. Protection of trees or groves by recordation of a permanent restrictive covenant pursuant to OCMC 17.41.110; or

D. Option 4—Cash-in-lieu of planting pursuant to OCMC 17.41.120.

Comment: The applicant proposes to comply with Option 1 – On-site mitigation.

17.41.060 - Tree removal and replanting—Mitigation (Option 1).

A. Applicants for development who select this option shall ensure that all healthy trees shall be preserved outside the construction area as defined in OCMC 17.04 to the extent practicable. Preserved trees are subject to Option 3 of this chapter. Compliance with these standards shall be demonstrated in a tree mitigation plan report prepared by a certified arborist, horticulturalist or forester or other environmental professional with experience and academic credentials in forestry or arboriculture. Tree inventories for the purposes of mitigation calculations may be prepared by a licensed surveyor. At the applicant's expense, the city may require the report to be reviewed by a consulting arborist. The number of replacement trees required on a development site shall be calculated separately from, and in addition to, any public or street trees in the public right-of-way required under OCMC 12.08, Public and Street Trees, any required tree planting in parking lots, and any trees planted in pedestrian and bicycle accessways.

Comment: Serres Farms will make use of Option 1 for tree mitigation. The site plan preserves healthy trees to the extent practicable. All trees located on the subjected property were surveyed and tagged by Centerline Concepts, Inc., as shown on the Existing Conditions Map submitted with this application. Eleven conifers located along the western boundary of the site, between the powerline easement and Holcomb Elementary School, are located within planned open space and will not be disturbed by proposed development activities. The plan for the pedestrian path to be constructed in that area has been designed to swing to the east to avoid the trees.

Please note that there are eleven trees on the western border of the property adjacent to Holcomb Elementary School shown on the Existing Conditions Map. Those trees are located in proposed open space and will be retained. The area that tree removal is proposed is on the eastern portion of the property immediately south and west of the Kaylyn Drive dead-end. The mitigation plan relates to 60 trees in that area made up of a mix of Douglas fir and White Oak. The applicant retained the services of Mary Giersch, a consulting arborist, to assess the condition of the existing trees. Her report is included with the application package. Eight of the 60 trees are dead or dying. The arborist's report states: "The subject trees of this report are all grouped tightly together in a tree grove. Generally speaking, the trees along the western edge of the grove are in fair condition, and the trees deep inside the grove and along the eastern edge are in poor condition." To minimize tree impacts, Lot 97 has been designed as a large lot, over a half-acre in area, and a conservation easement is proposed to be established on the eastern 60 feet of that lot to preserve trees.

B. The applicant shall determine the number of trees to be mitigated on the site by counting all of the trees six-inch DBH (minimum four and one-half feet from the ground) or larger on the entire site and either:

1. Trees that are removed outside of the construction area shall be replanted with the number of trees specified in Column 1 of Table 17.41.060-1. Trees that are removed within the construction area shall be replanted with the number of replacement trees required in Column 2; or

Comment: The Tree Mitigation Plan submitted with this application identifies the trees that are proposed to be retained and those that will need to be removed to allow for the development of the property. It also shows whether the trees are located within or outside of the construction area.

2. Dying, diseased or hazardous trees, when the condition is verified by a certified arborist to be consistent with the definitions in OCMC 17.04, may be removed from the tree replacement calculation. Dead trees may also be removed from the calculation, with the condition of the tree verified either by the community development director or by a certified arborist at the applicant's expense, when the community development director cannot make a determination. To the extent that the community development director determines that the dead, dying, hazardous or diseased condition of the tree is the result of intentional action, the removal of that tree shall require mitigation pursuant to Column 2 of Table 17.41.060-1.

Comment: The eight dead and dying trees are proposed to be removed and are not subject to tree mitigation requirements.

Table 17.41.060-1 Tree Replacement Requirements

Size of Tree Removed (DBH)	Column 1 Number of Trees to be Planted (If removed outside of construction area)	Column 2 Number of Trees to be Planted (If removed within the construction area)
6 to 12"	3	1
13 to 18"	6	2
19 to 24"	9	3
25 to 30"	12	4
31 and over"	15	5

Steps for calculating the number of replacement trees:

1. Count all trees measuring six inches DBH (minimum four and one-half feet from the ground) or larger on the entire development site.
2. Designate the size (DBH) of all trees pursuant to accepted industry standards.
3. Document in a certified arborist report any trees that are currently dead, dying, diseased or hazardous.
4. Subtract the number of dead, dying, diseased or hazardous trees in step 3 from the total number of trees on the development site in step 1. The remaining number is the number of healthy trees on the site. Use this number to determine the number of replacement trees in steps 5 through 8.
5. Identify the construction area (as defined in OCMC 17.04.230).
6. Determine the number and diameter of trees to be removed within the construction area. Based on the size of each tree, use Column 2 to determine the number of replacement trees required.
7. Determine the number and diameter of trees to be removed outside of the construction area. Based on the size of each tree, use Column 1 to determine the number of replacement trees required.

8. Determine the total number of replacement trees from steps 6 and 7.

Comment: These calculations are shown on the Tree Mitigation Plan and in the chart below:

SCHEDULE 1: TREE MITIGATION CALCS.

SIZE TREE TO BE REMOVED	MITIGATION OUTSIDE OF CONSTRUCTION		MITIGATION WITHIN CONSTRUCTION		REQUIRED TREES TO PLANT
	# Rem.	Multiplier	# Rem.	Multiplier	
6 TO 12"	0	3	1	1	1
13 TO 18"	0	6	3	2	6
19 TO 24"	0	9	3	3	9
25 TO 30"	0	12	4	4	16
31" PLUS	0	15	1	5	5
TOTAL MITIGATION TREES TO BE PLANTED:					37

C. Planting Area Priority for Mitigation. Development applications which opt for removal of trees with subsequent replanting pursuant to OCMC 17.41.050.A shall be required to mitigate for tree cutting by complying with the following priority for replanting standards below:

1. First Priority. Replanting on the development site.

2. Second Priority. Off-site replacement tree planting locations. If the community development director determines that it is not practicable to plant the total number of replacement trees on-site, a suitable off-site planting location for the remainder of the trees may be approved that will reasonably satisfy the objectives of this section. Such locations may include either publicly owned or private land and shall be approved by the community development director.

Comment: All mitigation plantings will be planted on-site and conform with the First Priority option. One tree will be planted Lots 40 to 96 and Lots 108 & 109.

D. Replacement Tree Planting Standards.

1. All replacement trees shall be either two-inch caliper deciduous or six-foot high conifer.

2. Replacement tree species shall be approved by a landscape architect or certified arborist or shall be found on the city's native plant or street tree lists.

3. Due to their diminishing range in the region, Oregon white oak (Quercus garryana) trees, if removed, shall be replaced by the same species.

Comment: Trees to be planted will be selected in accordance with these provisions. A final planting plan will be submitted prior to final plat. One relatively large Oregon white oak must be removed to allow for construction of Kaylyn Drive. Five of the mitigation trees will be Oregon white oak, as required by this section.

E. All existing tree(s) in the tract shall be protected by a permanent restrictive covenant or easement approved in form by the city.

Comment: Existing trees to be retained are not located within a tract. A conservation easement will be created for the eastern 60 feet of Lot 97 to preserve trees in that area. Trees to be retained on other lots will be protected via restrictive covenant.

F. Alternative Mitigation Plan. The community development director may, subject to a Type II procedure, approve an alternative mitigation plan that adequately protects habitat pursuant to the standards for the natural resource overlay district alternative mitigation plan in OCMC 17.49.190.

Comment: No alternative mitigation is proposed.

17.41.080 - Tree preservation within subdivisions and partitions—Dedicated tract (Option 2).

17.41.110 - Tree protection by restrictive covenant (Option 3).

17.41.120 - Cash-in-lieu of planting (Option 4).

Comment: The applicant proposes to comply with Option 1 so these provisions do not apply.

17.41.130 - Regulated tree protection procedures during construction.

A. No permit for any grading or construction of public or private improvements may be released prior to verification by the community development director that regulated trees designated for protection or conservation have been protected according to the following standards. No trees designated for removal shall be removed without prior written approval from the community development director.

Comment: The applicant will obtain all required permits prior to tree removal.

B. Tree protection shall be as recommended by a qualified arborist or, as a minimum, to include the following protective measures:

1. Except as otherwise determined by the community development director, all required tree protection measures set forth in this section shall be instituted prior to any development activities, including, but not limited to clearing, grading, excavation or demolition work, and such measures shall be removed only after completion of all construction activity, including necessary landscaping and irrigation installation, and any required plat, tract, conservation easement or restrictive covenant has been recorded.
2. Approved construction fencing, a minimum of four feet tall with steel posts placed no farther than ten feet apart, shall be installed at the edge of the tree protection zone or dripline, whichever is greater. An alternative may be used with the approval of the community development director.
3. Approved signs shall be attached to the fencing stating that inside the fencing is a tree protection zone, not to be disturbed unless prior approval has been obtained from the community development director.
4. No construction activity shall occur within the tree protection zone, including, but not limited to; dumping or storage of materials such as building supplies, soil, waste items; nor passage or parking of vehicles or equipment.
5. The tree protection zone shall remain free of chemically injurious materials and liquids such as paints, thinners, cleaning solutions, petroleum products, and concrete or dry wall excess, construction debris, or run-off.
6. No excavation, trenching, grading, root pruning or other activity shall occur within the tree protection zone unless directed by an arborist present on-site and approved by the community development director.
7. No machinery repair or cleaning shall be performed within ten feet of the dripline of any trees identified for protection.
8. Digging a trench for placement of public or private utilities or other structure within the critical root zone of a tree to be protected is prohibited. Boring under or through the tree protection zone may be permitted if approved by the community development director and pursuant to the approved written recommendations and on-site guidance and supervision of a certified arborist.

9. The community development director may require that a certified arborist be present during any construction or grading activities that may affect the dripline of trees to be protected.

10. The community development director may impose conditions to avoid disturbance to tree roots from grading activities and to protect trees and other significant vegetation identified for retention from harm. Such conditions may include, if necessary, the advisory expertise of a qualified consulting arborist or horticulturist both during and after site preparation, and a special maintenance/management program to provide protection to the resource as recommended by the arborist or horticulturist.

Comment: These measures will be complied with during site construction activities.

C. Changes in soil hydrology due to soil compaction and site drainage within tree protection areas shall be avoided. Drainage and grading plans shall include provision to ensure that drainage of the site does not conflict with the standards of this section. Excessive site run-off shall be directed to appropriate storm drainage facilities and away from trees designated for conservation or protection.

Comment: Trees to be retained are located in the conservation easement on Lot 97 and within rear yard areas of lots. Lot grading will avoid compacting soils or changing hydrology in a way that would be injurious to the trees.

CHAPTER 17.44 – US - Geologic Hazards

17.44.025 - When required; regulated activities; permit and approval requirements.

No person shall engage in any of the following regulated activities within the adopted Oregon City Geologic Hazards Overlay Zone as defined in section 17.04.515 of the Oregon City Municipal Code without first obtaining permits or approvals as required by this chapter:

A. Installation or construction of an accessory structure greater than 500 square feet in area;

B. Development of land, construction, reconstruction, structural alteration, relocation or enlargement of any building or structure for which permission is required pursuant to the Oregon City Municipal Code;

C. Tree removal on slopes greater than 25 percent where canopy area removal exceeds 25 percent of the lot.

D. Excavation which exceeds two feet in depth, or which involves twenty-five or more cubic yards of volume;

Comment: The subject property contains a small area, just over a third of an acre, of slopes between 25% and 35% grade. This area is subject to these provisions and review for compliance with the provisions of this chapter is required in conjunction with the review of the proposed development application.

17.44.030 - Procedures.

No building or site development permit or other authorization for development shall be issued until the plans and other documents required by this chapter have been reviewed and found by the review authority to comply with the requirements of this chapter.

A. Where the development is part of a land use permit application, review shall occur in the manner established in Chapter 17.50 for review of land use decisions.

B. Where the development is part of a limited land use permit application, review shall occur in the manner established in Chapter 17.50 for review of limited land use decisions.

C. Where the development is solely part of a grading permit or building permit, the city engineer may allow review to occur in the manner established in Title 15, *Chapters* 15.04 *and* 15.48 *if the application meets Section 17.44.060 development standards.*

D. For any other proposed development not otherwise subject to review as a land use or limited land use permit application, review shall occur in the manner established in Chapter 17.50 *for limited land use decisions.*

Comment: The proposed development is a part of a development application and review will be in conjunction with the review of that application.

17.44.035 - Exemptions.

The following activities, and persons engaging in same, are EXEMPT from the provisions of this chapter.

Comment: Not applicable. None of the criteria for an exemption are met.

17.44.050 - Development—Application requirements and review procedures and approvals.

Except as provided by subsection B. of this section, the following requirements apply to all development proposals subject to this chapter:

Comment: The geotechnical report has been completed for this site and addresses the requirements of this section. Please refer to the report by GeoPacific Engineering, Inc. included with this submittal. Also, please refer to a September 20, 2021 letter from GeoPacific Engineering addressing development on slopes in excess of 25% grade.

17.44.060 - Development standards.

Notwithstanding any contrary dimensional or density requirements of the underlying zone, the following standards shall apply to the review of any development proposal subject to this chapter. Requirements of this chapter are in addition to other provision of the Oregon City Municipal Code. Where provision of this chapter conflict with other provision of the Oregon City Municipal Code, the provisions that are more restrictive of regulated development activity shall govern.

A. All developments shall be designed to avoid unnecessary disturbance of natural topography, vegetation and soils. To the maximum extent practicable as determined by the review authority, tree and ground cover removal and fill and grading for residential development on individual lots shall be confined to building footprints and driveways, to areas required for utility easements and for slope easements for road construction, and to areas of geotechnical remediation.

Comment: The small area of the site that is in excess of 25% grade is located within the boundaries of Lots 52-53 and 89-90. The site grading plan shows that the amount of grading required to address the slope issue is small and grading will only be as needed to establish

reasonable building pads. The GeoPacific letter demonstrates that this grading can be accomplished safely.

B. All grading, drainage improvements, or other land disturbances shall only occur from May 1 to October 31. Erosion control measures shall be installed and functional prior to any disturbances. The city engineer may allow grading, drainage improvements or other land disturbances to begin before May 1 (but no earlier than March 16) and end after October 31 (but no later than November 30), based upon weather conditions and in consultation with the project geotechnical engineer. The modification of dates shall be the minimum necessary, based upon the evidence provided by the applicant, to accomplish the necessary project goals. Temporary protective fencing shall be established around all trees and vegetation designed for protection prior to the commencement of grading or other soil disturbance.

Comment: Construction activities in these areas will be timed to occur within the allowable period. Required construction fencing will be provided, as shown on the Preliminary Grading and Erosion Control Plan.

C. Designs shall minimize the number and size of cuts and fills.

Comment: Please refer to the Preliminary Grading Plan, which demonstrates that the size of cuts and fills is minimal.

D. Cut and fill slopes, such as those for a street, driveway accesses, or yard area, greater than seven feet in height (as measured vertically) shall be terraced. Faces on a terraced section shall not exceed five feet. Terrace widths shall be a minimum of three feet and shall be vegetated. Total cut and fill slopes shall not exceed a vertical height of fifteen feet. Except in connection with geotechnical remediation plans approved in accordance with the chapter, cuts shall not remove the toe of any slope that contains a known landslide or is greater than twenty-five percent slope. The top of cut or fill slopes not utilizing structural retaining walls shall be located a minimum of one-half the height of the cut slope from the nearest property line.

Comment: No cuts or fills greater than 7 feet are proposed.

E. Any structural fill shall be designed by a suitably qualified and experienced civil or geotechnical engineer licensed in Oregon in accordance with standard engineering practice. The applicant's engineer shall certify that the fill has been constructed as designed in accordance with the provisions of this chapter.

Comment: Structural fills within the steep slope areas of the site will meet this requirement..

F. Retaining walls shall be constructed in accordance with the Oregon Structural Specialty Code adopted by the State of Oregon.

Comment: No retaining walls are proposed within the steep slope areas of the site.

G. Roads shall be the minimum width necessary to provide safe vehicle and emergency access, minimize cut and fill and provide positive drainage control. The review authority may grant a variance from the city's required road standards upon findings that the variance would provide safe vehicle and emergency access and is necessary to comply with the purpose and policy of this chapter.

Comment: No roads are proposed within the steep slope areas of the site.

H. Density shall be determined as follows:

1. *For those areas with slopes less than twenty-five percent between grade breaks, the allowed density shall be that permitted by the underlying zoning district;*
2. *For those areas with slopes of twenty-five to thirty-five percent between grade breaks, the density shall not exceed two dwelling units per acre except as otherwise provided in subsection I of this section;*
3. *For those areas with slopes over thirty-five percent between grade breaks, development shall be prohibited except as otherwise provided in subsection I.4. of this section.*

Comment: The slope analysis drawing submitted with this application depicts the area having slopes in the 25-35% range. All other slopes are less than this grade. Density calculations provided in the narrative on OMC 17.65 use the required density of 2 units per acre for the slopes in the 25-35% grade.

I. For properties with slopes of twenty-five to thirty-five percent between grade breaks:

1. *For those portions of the property with slopes of twenty-five to thirty-five percent, the maximum residential density shall be limited to two dwelling units per acre; provided, however, that where the entire site is less than one-half acre in size, a single dwelling shall be allowed on a lot or parcel existing as of January 1, 1994 and meeting the minimum lot size requirements of the underlying zone;*

Comment: Density calculations provided in the narrative on OMC 17.65 use the required density of 2 units per acre for the slopes in the 25-35% grade.

2. *An individual lot or parcel with slopes between twenty-five and thirty-five percent shall have no more than fifty percent or four thousand square feet of the surface area, whichever is smaller, graded or stripped of vegetation or covered with structures or impermeable surfaces.*

Comment: Finished grading will result in the affected lots not having slopes in excess of 25% grade. The final grading plans will be prepared prior to building permit application for each lot and will be reviewed for compliance with this section at that time.

3. *No cut into a slope of twenty-five to thirty-five percent for the placement of a housing unit shall exceed a maximum vertical height of fifteen feet for the individual lot or parcel.*

Comment: No cuts of in excess of fifteen feet are proposed.

4. *For those portions of the property with slopes over thirty-five percent between grade breaks:*

Comment: Not applicable. No slopes over 35% grade are located on the property.

J. The geotechnical engineer of record shall review final grading, drainage, and foundation plans and specifications and confirm in writing that they are in conformance with the recommendations provided in their report.

Comment: The geotechnical engineer will review the final grading and draingage plans and other recommendations as listed in the geotechnical report.

K. At the city's discretion, peer review shall be required for the geotechnical evaluation/investigation report submitted for the development and/or lot plans. The peer

reviewer shall be selected by the city. The applicant's geotechnical engineer shall respond to written comments provided by the city's peer reviewer prior to issuance of building permit.

Comment: Not applicable at this time. This is not an approval criterion.

L. The review authority shall determine whether the proposed methods of rendering a known or potential hazard site safe for construction, including proposed geotechnical remediation methods, are feasible and adequate to prevent landslides or damage to property and safety. The review authority shall consult with the city's geotechnical engineer in making this determination. Costs for such consultation shall be paid by the applicant. The review authority may allow development in a known or potential hazard area as provided in this chapter if specific findings are made that the specific provisions in the design of the proposed development will prevent landslides or damage. The review authority may impose any conditions, including limits on type or intensity of land use, which it determines are necessary to assure that landslides or property damage will not occur.

Comment: Not applicable at this time. This is not an approval criterion.

17.44.070 - Access to property.

A. Shared private driveways may be required if the city engineer or principal planner determines that their use will result in safer location of the driveway and lesser amounts of land coverage than would result if separate private driveways are used.

B. Innovations in driveway design and road construction shall be permitted in order to keep grading and cuts or fills to a minimum and to achieve the purpose and policy of this chapter.

C. Points of access to arterials and collectors shall be minimized.

D. The city engineer or principal planner shall verify that adequate emergency services can be provided to the site.

Comment: Driveway design for Lots 89 and 90 will likely be within the area where slopes are over 25% grade. Driveway design for these lots will be reviewed with the grading plans for these lots at the time of building permit application.

17.44.080 - Utilities.

All new service utilities, both on-site and off-site, shall be placed underground and under roadbeds where practicable. Every effort shall be made to minimize the impact of utility construction. Underground utilities require the geologic hazards permitting and review prescribed herein.

Comment: All proposed utilities will be placed underground as required.

17.44.090 - Stormwater drainage.

The applicant shall submit a permanent and complete stormwater control plan. The program shall include, but not be limited to the following items as appropriate: curbs, gutters, inlets, catch basins, detention facilities and stabilized outfalls. Detention facilities shall be designed to city standards as set out in the city's drainage master plan and design standards. The review authority may impose conditions to ensure that waters are drained from the development so as to limit degradation of water quality consistent with Oregon City's Title III section of the Oregon City Municipal Code Chapter 17.49 and the Oregon City Public Works Stormwater Management

Design Manual and Standards Plan or other adopted standards subsequently adopted by the city commission. Drainage design shall be approved by the city engineer before construction, including grading or other soil disturbance, has begun.

Comment: The preliminary storm report and Preliminary Utility Plan provided with this application provide information relating to proposed construction plans. Final engineering plans will be submitted for review prior to final plat recordation

17.44.100 - Construction standards.
During construction on land subject to this chapter, the following standards shall be implemented by the developer:

A. All development activity shall minimize vegetation removal and soil disturbance and shall provide positive erosion prevention measures in conformance with OCMC Chapter 17.47—Erosion and Sediment Control.

Comment: Site grading in the small area of slopes in excess of 25% grade will require the stripping of existing vegetation. Erosion control measures will be provided as required by this section.

B. No grading, clearing or excavation of any land shall be initiated prior to approval of the grading plan, except that the city engineer shall authorize the site access, brush to be cleared and the location of the test pit digging prior to approval of such plan to the extent needed to complete preliminary and final engineering and surveying. The grading plan shall be approved by the city engineer as part of the city's review under this chapter. The developer shall be responsible for the proper execution of the approved grading plan.

Comment: Construction will not begin prior to approval of the grading plan, except as may be authorized by this section.

C. Measures shall be taken to protect against landslides, mudflows, soil slump and erosion. Such measures shall include sediment fences, straw bales, erosion blankets, temporary sedimentation ponds, interceptor dikes and swales, undisturbed buffers, grooving and stair stepping, check dams, etc. The applicant shall comply with the measures described in the Oregon City Public Works Standards for Erosion and Sedimentation Control (Ordinance 99-1013).

Comment: Appropriate erosion control measures are indicated on the Preliminary Grading Plan.

D. All disturbed vegetation shall be replanted with suitable vegetation upon completion of the grading of the steep slope area.

Comment: Disturbed areas will be replanted as required by this section.

E. Existing vegetative cover shall be maintained to the maximum extent practicable. No grading, compaction or change in ground elevation, soil hydrology and/or site drainage shall be permitted within the drip line of trees designated for protection, unless approved by the city.

Comment: Existing vegetation will need to be stripped in the area of the 25-35% grades in order to allow for site grading. This work will not commence until required permits are approved by the City.

F. Existing perennial and intermittent watercourses shall not be disturbed unless specifically authorized by the review authority. This includes physical impacts to the stream course as well as siltation and erosion impacts.

Comment: Not applicable. There are no perennial or intermittent watercourses on the subject property.

G. All soil erosion and sediment control measures shall be maintained during construction and for one year after development is completed, or until soils are stabilized by revegetation or other measures to the satisfaction of the city engineer. Such maintenance shall be the responsibility of the developer. If erosion or sediment control measures are not being properly maintained or are not functioning properly due to faulty installation or neglect, the City may order work to be stopped. (Ord. 03-1014, Att. B3 (part), 2003: Ord. 94-1001 §2(part), 1994)

Comment: Erosion and sediment control measures will be maintained as specified in this section.

H. All newly created lots, either by subdivision or partition, shall contain building envelopes with a slope of thirty-five percent or less.

Comment: There are no slopes in excess of 35% grade on this site. All lots proposed will have building envelopes in areas with a finished slope of less than 25 percent grade.

I. The applicant's geotechnical engineer shall provide special inspection during construction to confirm that the subsurface conditions and assumptions made as part of their geotechnical evaluation/investigation are appropriate. This will allow for timely design changes if site conditions are encountered that are different from those anticipated.

Comment: Please refer to the recommendations of the geotechnical report.

J. Prior to issuing an occupancy permit, the geotechnical engineer shall prepare a summary letter stating that the soils- and foundation-related project elements were accomplished in substantial conformance with their recommendations.

Comment: The required letter will be provided.

OCMC 12.04 STREETS, SIDEWALKS AND PUBLIC PLACES

12.04.025 - Driveways.

Driveways shall be reviewed in accordance with OCMC 16.12.035. Driveway requirements may be modified through the procedures in OCMC 16.12.013.

Comment: Please see discussion under OCMC 16.12, below in this narrative.

12.04.170 - Street design—Purpose and general provisions.

All development shall be in conformance with the city's public facility master plans, public works policies, standard drawings and engineering specifications. All streets shall be reviewed and approved by the city engineer prior to construction. All streets and driveway connections to another jurisdiction's facility or right-of-way must be reviewed by the appropriate jurisdiction as a condition of the preliminary plat or site planning and when required by law or intergovernmental agreement shall be approved by the appropriate jurisdiction.

Comment: The proposed development has been designed in conformance with adopted City standards and policies. Engineering plans for all infrastructure improvements will be submitted for review and approval by the City prior to the commencement of on-site development activity.

OCMC 12.08 - Public and Street Trees

12.08.015 - Street tree selection, planting and maintenance requirements.

Comment: A conceptual plan for the planting of street trees is illustrated on the plans submitted with this application. The plan shows the trees 35' on center. The applicant plans on using Acer Griseum, "Paper Bark Maple" as the street tree for the project. A final street tree plan demonstrating full compliance with all spacing standards will be submitted with the engineering construction drawings prior to final plat approval.

OCMC 13.12 – Stormwater Management

13.12.090 - Approval criteria for engineered drainage plans and drainage report.

An engineered drainage plan and/or drainage report shall be approved only upon making the following findings:

A. The plan and report demonstrate how the proposed development and stormwater facilities will accomplish the purpose statements of this chapter.

B. The plan and report meet the requirements of the public works stormwater and grading design standards adopted by resolution under OCMC 13.12.020.

C. The storm drainage design within the proposed development includes provisions to adequately control runoff from all public and private streets and roof, footing, and area drains and ensures future extension of the current drainage system.

D. Streambank erosion protection is provided where stormwater, directly or indirectly, discharges to open channels or streams.

E. Specific operation and maintenance measures are proposed that ensure that the proposed stormwater quantity control facilities will be properly operated and maintained.

Comment: A stormwater management report and preliminary storm design has been prepared for the project by Emerio Design. Please refer to the report for demonstration of compliance with these standards.

OCMC 16.04 – General Provisions and Administration of Land Divisions

16.08.010 - Purpose and general provisions.

A. Applicability. This chapter controls the process and approval standards applicable to land divisions including:

1. Partitions, defined as a single division of land into two or three lots,
2. Subdivisions, defined as a single division of land into four or more lots,
3. Master plans and planned unit developments, and/or
4. Expedited land divisions.

Comment: The proposed development is both a subdivision and a planned unit development. These provisions apply.

B. Approval of a land division shall be granted only upon determination by the city that all applicable requirements of this title, ORS Chapter 92, the applicable zoning designation, applicable overlay districts, and OCMC 12.08, 13.12, 15.48, 16.12, 17.41, and 17.50 of the Oregon City Municipal Code are met or can be met with conditions of approval.

Comment: Compliance with the applicable standards is demonstrated in this narrative and the supporting plans and reports.

C. Minor partitions and subdivisions shall generally follow a Type II process and master plans/planned unit developments shall be processed as a Type III process pursuant to OCMC 17.50. However, if an applicant opts to process a subdivision as an expedited land division, the city shall follow the decision-making process provided by state law and apply the applicable approval standards set forth in this code and elsewhere.

Comment: Because the proposed development is also a Master Plan/PUD, a Type III process will be used for the review of the project. The applicant is not proposing an expedited land division.

16.08.025 - Preliminary plat—Required information.

A. The information provided on the GDP and DDP drawings will also serve to satisfy the site plan requirements.

B. A Site Circulation Plan is included in this narrative (see Figure 4 on page 14) and provides the map elements of the Traffic/Transportation Plan. The remaining information is contained in the Traffic Impact Statement prepared by Lancaster/Mobley Engineering.

C. Natural features are shown on the Existing Conditions Map and the GDP. Preliminary grading and drainage information is provided on the plans provided by Emerio Design.

D. The Planning Department has notified SHPO and the Tribes of the proposed development as required by this section.

16.08.030 - Preliminary plat—Narrative statement.

Comment: This narrative provides the information listed in A and B. A draft of proposed conditions and restrictions (CC & Rs) is provided with the application submission package.

This section requires that the application include information on overall density and density by unit type. The proposed development contains a total of 123 lots. On 35.2 acres. Of these 123 lots, 105 lots will be developed with single-family detached homes. The remaining 18 lots will be developed with duplex units. The gross site area is 1,533,162 sq. ft. Subtracting streets and power line easements, the net site area is 1,130,206 sq. ft. Of this total, single-family detached lots account for 980,516 sq. ft.

(22.51 acres) and duplex lots account for 149,690 sq. ft. (3.44 acres). The net density for the 106 single-family detached units is 4.41 units per acre. Duplex lots provide two dwelling units each, or a total of 36 units for the 18 total duplex lots. This equates to 10.5 units per net acre. It is important to note that OCMC 17.08.050.B.2 states that "Corner duplexes shall count as a single dwelling unit for the purposes of calculating density." Thus, for density calculation purposes, the net density of the duplex lots is 5.24 units per acre. It should also be noted that the adjustments allowed under OCMC 17.65.070 allow for a 10 percent density bonus over the maximum density figures that are listed in Table 17.08.050. The overall net density for the project is 123 units on 25.95 net acres, or 4.74 units per acre. The maximum density listed in Table 17.08.050 for the R-10 zone is 4.4 units per acre. A 10 percent bonus would raise the limit to 4.84 dwelling units per acre. The overall density of this project, as adjusted per OCMC 17.65.070, complies with the maximum density standard.

16.08.050 - Flag lots.

Comment: No flag lots are proposed so flag lot development standards are not applicable.

16.08.053 - Tracts.

Tracts which cannot be developed with a home or office, commercial, residential, institutional, industrial, parking or other uses as determined by the city engineer or community development director are not subject to compliance with the dimensional standards of the zoning designation, frontage requirements, or flag lot standards.

Comment: The proposed development contains three tracts. Tract A is 32,789 sq. ft. in area and is reserved for storm water treatment and detention. Consistent with City policy, it is proposed to be dedicated to the City of Oregon City for storm water management purposes on the final plat for the development. Tract B is 2.02 acres in area and is reserved as open space. The opens space contains a portion of the Holcomb Ridge Loop Trail designated in the Oregon City Trails Master Plan. It would also provide space for recreational opportunities and will provide for an informational kiosk in conjunction with the Barlow Road View Corridor. Tract C is 1,764 sq. ft. in area and contains a portion of the Holcomb Ridge Loop Trail. Both Tracts B and C are proposed to be dedicated to the City of Oregon City for park purposes. As noted in this section, these tracts are not subject to the dimensional standards of zoning designation, frontage requirements, or flag lot standards.

16.08.060 - Building sites.

A. The size, width, shape and orientation of building sites shall be rectangular or square to the maximum extent practicable.

B. Sites abutting an alley shall gain vehicular access from the alley unless deemed impracticable by the decision maker.

C. Adequate access for emergency services (fire and police) shall be provided.

Comment: Building envelopes are shown for the proposed lots. All lots have adequate area for construction of a home. The envelopes are as square as practicable given site terrain. There are no alleyways proposed. All lots are accessed from driveways onto local streets that are fully improved to City standards. The street system proposed will provide adequate access to all lots. Note that a temporary emergency vehicle access is provided onto Holcomb Blvd. This access will be gated or have bollards to Fire District specifications to restrict vehicular use to emergency vehicles only. This access

will cease to be used when other access to the surrounding street system is available with future development.

16.08.063 - Minimum density.

All layouts shall achieve at least the minimum density of the base zone for the net developable area as defined in OCMC 17.04. Alternatively, a site may be partitioned into two lots, though one of the lots shall not contain sufficient lot area to allow further division.

Comment: As discussed above under OCMC 17.65.070.C.4, the Net Development Area = 1,130,206 SF, or 25.95 acres. The minimum density standard for the R-10 zone per Table 17.08.050 is 3.5 dwelling units per acre. The minimum density for the development would be 91 units. The proposed development provides for 123 units (Note: duplexes on a single lot are counted as one dwelling unit per OCMC 17.08.050.B.2). The proposed development satisfies minimum density provisions.

16.08.065 - Lot size reduction.

Comment: Note that an adjustment to these standards is requested under the provisions of OCMC 17.65.070.C.5. Please refer to the discussion of that adjustment on page 20 of this narrative.

16.08.070 - Through lots.

Through lots and parcels shall be avoided except where they are essential to provide separation of residential development from major arterials or to overcome specific disadvantages of topography of existing development patterns. A reserve strip may be required. A planting screen restrictive covenant may be required to separate residential development from major arterial streets, adjacent nonresidential development, or other incompatible use, where practicable. Where practicable, alleys or shared driveways shall be used for access for lots that have frontage on a collector or minor arterial street, eliminating through lots.

Comment: Lots 1 through 7 are the only through lots proposed in this project. They are needed in order to provide separation from the homes from Holcomb Blvd., an arterial street. Homes will be faced towards Holcomb Blvd. per City standards, but will take access from the adjacent new streets within the subdivision (Laurel Hill Way and Godon Way). An alleyway design was considered but rejected as the proposed street system provided better site circulation in that area of the project.

16.08.075 - Building site—Lot and parcel side lines.

The lines of lots and parcels, as far as is practicable, shall run at right angles to the street upon which they face, except that on curved streets they shall be radial to the curve. Lot and parcel side lines for cluster housing projects proposed consistent with the standards in OCMC 17.20.020 are not subject to this standard.

Comment: To the degree feasible, lot lines are perpendicular or radial to the street upon which the lot faces. Variations had to be made where necessary given site topographic constraints, the need to align the Barlow Trail Corridor, and other factors.

16.08.080 - Setbacks and building location.

This standard ensures that lots are configured in a way that development can be oriented toward streets to provide a safe, convenient and aesthetically pleasing environment for pedestrians and bicyclists. Houses oriented in this manner assure a sense of openness by avoiding the "bowling alley" effect caused by uninterrupted, continuous privacy fences along higher volume streets. The objective is

for lots located on a neighborhood collector, collector or minor arterial street to locate the front yard setback on and design the most architecturally significant elevation of the primary structure to face the neighborhood collector, collector or minor arterial street,

A. The front setback of all lots located on a neighborhood collector, collector or minor arterial shall be orientated toward the neighborhood collector, collector or minor arterial street.

B. The most architecturally significant elevation of the house shall face the neighborhood collector, collector or minor arterial street.

C. On corner lots located on the corner of two local streets, the main façade of the dwelling may be oriented towards either street.

D. The decision maker may approve an alternative design, consistent with the intent of this section, where the applicant can show that existing development patterns preclude the ability to practically meet this standard.

Comment: As discussed under OCMC 16.08.075, Lots 1 through 7 are through lots that take driveway access from the adjoining local streets, but front onto an arterial street, Holcomb Blvd. The homes on these lots will be designed to have an architecturally significant elevation facing onto Holcomb Blvd.

16.08.085 - Division of large lots.

Comment: No lots capable of being redivided are proposed in this project so these provisions do not apply.

16.08.095 - Prohibition on additional private restrictions on housing types.

Private restrictions on the provision of accessory dwelling units, corner duplexes, or internal conversions executed after July 1, 2019 shall be prohibited. Conditions, covenants, and restrictions (CC&Rs) or similar legal instrument submitted with residential plats submitted for final plat approval after July 1, 2019 shall not prohibit or impose additional restrictions on accessory dwelling units, corner duplexes, and/or internal conversions to the extent permitted in the OCMC in place at the time of final plat submittal, and shall not impose additional restrictions on accessory dwelling units and internal conversions through any future amendment.

Comment: As demonstrated in the draft CC&Rs submitted with this application, no limitations on unit types allowed by City standards are proposed.

OCMC 16.12 – Minimum Public Improvements and Design Standards for Development

16.12.011 - Applicability.

A. Compliance with this chapter is required for all development including land divisions, site plan and design review, master plan, detailed development plan and conditional use applications and all public improvements. Minor site plan and design review applications shall not be subject to this chapter unless improvements are proposed within the right-of-way, or as otherwise provided in this chapter.

Comment: The proposed development is a master plan/PUD that includes a land division. It is subject to the provisions of this chapter.

16.12.013 - Modifications.

Comment: A modification is proposed for the construction of Godon Way. This is a minor local street that provides a stub to the west, just north of Holcomb Blvd., which will provide for a future connection to Godon Way when intervening properties are developed. The request is to use a constrained street

section with a 40-foot-wide right-of-way and a 26-foot-wide pavement section for this street. Godon Way as it exists to the west uses a constrained street section. The proposal conforms to the approval criteria of this section as follows:

The applicant may request and the review body may consider modification of the standards in this chapter resulting from constitutional limitations restricting the city's ability to require the dedication of property or for any other reason, based upon the criteria listed below and other criteria identified in the standard to be modified. All modifications, except for adjustments approved by the city engineer for tree preservation purposes pursuant to Section 16.12.013.A, shall be processed through a Type II land use application and may require additional evidence from a transportation engineer or others to verify compliance. Compliance with the following criteria is required:

A. The modification meets the intent of the standard;

Comment: The proposed modification is consistent with the intent of the standard in that it provides for adequate pedestrian and vehicular traffic, is compatible with the existing design of Godon Way to the west, and facilitates future connectivity from the subject property through to the existing terminus of Godon Way.

B. The modification provides safe and efficient movement of pedestrians, motor vehicles, bicyclists and freight;

Comment: The proposed modification provides room for two travel lanes and sidewalks on both sides. This will provide for the safe and efficient movement of all of these modes of transportation.

C. The modification is consistent with an adopted transportation or utility plan; and

Comment: The proposed modification will provide a standard that allows connectivity through a relatively restricted section of infill residential properties. Godon Way is presently a constricted street in its configuration to the west of the subject property. In order to extend through to the subject property, it must pass through three parcels that are each about .8 acre in size. This will only happen if the development is economically feasible, which means leaving sufficient room for lots. A standard road section would not allow for this to happen as readily as would a reduced-width street section. Connectivity is of greater importance in achieving transportation goals than is having a full-standard street section.

D. The modification is complementary with a surrounding street design; or, in the alternative;

Comment: As mentioned above, Godon Way to the west of this site is developed with a constrained street section, with a right-of-way measuring 28 feet in width at the eastern end of its stub. The proposed right-of-way width of 40 feet is complementary to that design and can be adjusted as need be when the intervening properties are further divided.

E. If a modification is requested for constitutional reasons, the applicant shall demonstrate the constitutional provision or provisions to be avoided by the modification and propose a modification that complies with the state or federal constitution. The city shall be under no obligation to grant a modification in excess of that which is necessary to meet its constitutional obligations.

Comment: Not applicable. The applicant is not requesting the modification for constitutional reasons.

Note: An additional modification is requested for the grades of two pedestrian pathways that cannot meet ADA requirements due to site topography. This modification is discussed under 16.12.032, below.

16.12.015 - Street design—Generally.

Development shall be required to provide existing or future connections to adjacent sites through the use of vehicular and pedestrian access easements where applicable. Development shall provide any necessary dedications, easements or agreements as identified in the transportation system plan, trails master plan, and/or parks and recreation master plan and this chapter, subject to constitutional limitations. The location, width and grade of street shall be considered in relation to: Existing and planned streets, topographical conditions, public convenience and safety for all modes of travel, existing and identified future transit routes and pedestrian/bicycle accessways, overlay districts, and the proposed use of land to be served by the streets. The street system shall assure an adequate traffic circulation system with intersection angles, grades, tangents and curves appropriate for the traffic to be carried considering the terrain. To the extent possible, proposed streets shall connect to all existing or approved stub streets that abut the development site. The arrangement of streets shall either:

Comment: The site plan provides for future connections to adjacent undeveloped or underdeveloped properties, as shown on the GDP. All streets will be dedicated to the City of Oregon City. Necessary easements are provided for public utilities and pedestrian access. The design of street and pedestrian improvements has been done in conformance with City standards with respect to intersection angles, grades, tangents and curves.

A. Provide for the continuation or appropriate projection of existing principal streets in the surrounding area and on adjacent parcels or conform to a plan for the area approved or adopted by the city to meet a particular situation where topographical or other conditions make continuance or conformance to existing streets impractical;

Comment: Existing streets in the area that have impacted the design of the subdivision include: Godon Way (to the west of the site near Holcomb Blvd.), Ames Street (to the west of the site in the Sunnybrook subdivision), Kaylyn Drive (a ½ street in the Barlow Crest neighborhood to the east of the site), and an unimproved rural public road right-of-way that terminates at the northwest corner of the property. The site plan provides for future connectivity to all of these streets.

B. Where necessary to give access to or permit a satisfactory future development of adjoining land, streets shall be extended to the boundary of the development and the resulting dead-end street (stub) may be approved with a temporary turnaround as approved by the city engineer. Notification that the street is planned for future extension shall be posted on the stub street until the street is extended and shall inform the public that the dead-end street may be extended in the future. Access control in accordance with OCMC 16.12.017 shall be required to preserve the objectives of street extensions.

Comment: The site plan provides for additional street stubs to undeveloped properties outside of the Urban Growth Boundary along the north and east borders of the subject property. These street stubs will provide for future connectivity at such time as these properties are brought into the UGB and annexed to the city.

C. Adequate right-of-way and improvements to streets, pedestrian ways, bike routes and bikeways, and transit facilities shall be provided and be consistent with the city's transportation system plan. Consideration shall be given to the need for street widening and other improvements in the area of the proposed development impacted by traffic generated by the proposed development. This shall include, but not be limited to, improvements to the right-of-way, such as installation of lighting, signalization, turn lanes, median and parking strips, traffic islands, paving, curbs and gutters, sidewalks, bikeways, street drainage facilities and other facilities needed because of anticipated vehicular and pedestrian traffic generation.

Comment: All interior streets have been designed in conformance with City local street standards, with the exception of Godon Way (for which a modification has been requested). The existing right-of-way width of Holcomb Blvd. will accommodate full improvement to City standards (including a left turn lane into the property, travel lane, bike path, and 7.5'-wide sidewalk). No additional right-of-way is needed.

16.12.016 - Street design.

Comment: Table 16.12.016 lists street section standards for varying categories of city streets. Holcomb Blvd. is a minor arterial in a residential area. Notes provided by Development Services at the pre-application conference provide the following guidance for the improvement of this road:

“Per direction of the City Engineer after the 2020 pre-application meeting, in accordance with the proposed Safe Route to School along Holcomb Boulevard, the required roadway improvements along Holcomb Boulevard on the subject side of the centerline shall consist of 16 feet of asphalt pavement (11-foot-wide travel lane and 5-foot-wide bike lane), 0.5-foot-wide curb, and a 7.5-footwide curb-tight sidewalk. Dedication of ROW along Holcomb Boulevard may be required for the associated frontage improvements.”

The existing width of the right-of-way along the project frontage is 70 feet. As discussed above, this width is adequate to accommodate planned a left turn lane into the property, 11’ travel lane, 5’-wide bike lane, .5’ curb and 7.5’-wide sidewalk). No additional right-of-way is needed.

For local residential streets, Table 16.12.016 calls for a 54’-wide right-of-way with 32’ of pavement, and .5’ curbs, 5.5’ planter strips, and 5’ sidewalks on both sides of the street. The proposed plan is consistent with these standards.

16.12.017 - Street design—Access control.

A. A street which is dedicated to end at the boundary of the development or in the case of half-streets dedicated along a boundary shall have an access control granted to the city as a city controlled plat restriction for the purposes of controlling ingress and egress to the property adjacent to the end of the dedicated street. The access control restriction shall exist until such time as a public street is created, by dedication and accepted, extending the street to the adjacent property.

B. The city may grant a permit for the adjoining owner to access through the access control.

C. The plat shall contain the following access control language or similar on the face of the map at the end of each street for which access control is required: "Access Control (see plat restrictions)."

D. Said plats shall also contain the following plat restriction note(s): "Access to (name of street or tract) from adjoining tracts (name of deed document number[s]) shall be controlled by the city of Oregon City by the recording of this plat, as shown. These access controls shall be automatically terminated upon the acceptance of a public road dedication or the recording of a plat extending the street to adjacent property that would access through those access controls."

Comment: The required access control strips at the end of all street stubs will be provided on the final plat, along with the required access control language of this section.

16.12.018 - Street design—Alignment.

The centerline of streets shall be:

A. Aligned with existing streets by continuation of the centerlines.

B. Offset from the centerline by no more than five feet, provided appropriate mitigation, in the judgment of the city engineer, is provided to ensure that the offset intersection will not pose a safety hazard.

C. Driveways that are at least twenty-four feet wide shall align with existing or planned streets on adjacent sites.

Comment: Streets and driveways, as shown on plans submitted with this application, have been designed in conformance with these standards.

16.12.019 - Traffic sight obstructions.

All new streets shall comply with the traffic sight obstructions in Chapter 10.32.

Comment: The vision clearance requirements will be maintained at all intersections.

16.12.020 - Street design—Intersection angles.

Except where topography requires a lesser angle, streets shall be laid out to intersect at angles as near as possible to right angles. In no case shall the acute angles be less than eighty degrees unless there is a special intersection design. An arterial or collector street intersecting with another street shall have at least one hundred feet of tangent adjacent to the intersection unless topography requires a lesser distance. Other streets, except alleys, shall have at least fifty feet of tangent adjacent to the intersection unless topography requires a lesser distance. All street intersections shall be provided with a minimum curb return radius of twenty-five feet for local streets. Larger radii shall be required for higher street classifications as determined by the city engineer. Additional right-of-way shall be required to accommodate curb returns and sidewalks at intersections. Ordinarily, intersections should not have more than two streets at any one point.

Comment: Project street intersections are designed in conformance with these standards, as shown on the plans submitted with this application.

16.12.021 - Same—Grades and curves.

Grades and center line radii shall conform to standards approved by the city engineer.

Comment: The grades and centerline radii are designed to City standards. The maximum street grade is 12 percent and the minimum centerline radius is 100 feet.

16.12.022 - Same—Development abutting arterial or collector street.

Where development abuts or contains an existing or proposed arterial or collector street, the decision maker may require: Access control; screen planting or wall contained in an easement or otherwise protected by a restrictive covenant in a form acceptable to the decision maker along the rear or side property line; or such other treatment it deems necessary to adequately protect residential properties or afford separation of through and local traffic. Reverse frontage lots with suitable depth may also be considered an option for residential property that has arterial frontage. Where access for development abuts and connects for vehicular access to another jurisdiction's facility then authorization by that jurisdiction may be required.

Comment: The subject property abuts Holcomb Blvd., a minor arterial street, along its southern border. Lots 1 through 7 are adjacent to this street. These lots are reverse frontage lots that are 130 feet deep, consistent with a listed design option. No driveway access will be allowed onto Holcomb Blvd. from these lots.

16.12.023 - Same—Pedestrian and bicycle safety.

Where deemed necessary to ensure public safety, reduce traffic hazards and promote the welfare of pedestrians, bicyclists and residents of the subject area, the decision maker may require that local streets be so designed as to discourage their use by nonlocal automobile traffic.

The city engineer may require that crosswalks include a large vegetated or sidewalk area which extends into the street pavement as far as practicable to provide safer pedestrian crossing opportunities. These curb extensions can increase the visibility of pedestrians and provide a shorter crosswalk distance as well as encourage motorists to drive slower. The city engineer may approve an alternative design that achieves the same standard for constrained sites.

Comment: The subject property does not provide any through-connections that would attract nonlocal traffic. We do not believe these measures are warranted.

16.12.024 - Same—Half street.

Comment: Not applicable. No half-streets are proposed.

16.12.025 - Same—Cul-de-sacs and dead-end streets.

The city discourages the use of cul-de-sacs and permanent dead-end streets except where construction of a through street is found by the decision maker to be impracticable due to topography or some significant physical constraint such as geologic hazards, wetland, natural or historic resource areas, pre-existing dedicated open space, pre-existing development patterns, arterial access restrictions or similar situation as determined by the decision maker. This section is not intended to preclude the use of curvilinear eyebrow widening of a street where needed.

A. When permitted, access from new cul-de-sacs and permanent dead-end streets shall be limited to a maximum of twenty-five dwelling units.

B. Cul-de-sacs and permanent dead-end streets shall include pedestrian/bicycle accessways to meet minimum block width standards as prescribed in OCMC 16.12.030.

C. Cul-de-sacs shall have sufficient radius to provide adequate turn-around for emergency vehicles in accordance with fire district and city adopted street standards.

D. Permanent dead-end streets shall provide public street right-of-way/easements sufficient to provide a sufficient amount of turn-around space complete with appropriate no-parking signs or markings to accommodate waste disposal, sweepers, emergency and other long vehicles in the form of a hammerhead or other design to be approved by the decision maker.

E. In the case of dead-end stub streets that will connect to streets on adjacent sites in the future, notification that the street is planned for future extension shall be posted on the stub street until the street is extended and shall inform the public that the dead-end street may be extended in the future. A dead-end street shall include signage or barricade meeting Manual on Uniform Traffic Control Devices (MUTCD).

Comment: No cul-de-sacs or permanent dead-end streets are proposed. Two semi-circular bubbles are shown where needed to provide sufficient frontage for the adjacent lots, but they are not deep enough to be considered cul-de-sacs. Where streets are stubbed to the boundaries of the site and are intended to serve future development, a sign will be posted containing a notification that the street may be extended to allow for future development. An appropriate barricade or signage per the MUTCD will be provided at all street stubs.

16.12.026 - Same—Alleys.

Alleys with public access easements on private property shall be provided in the Park Place and South End concept plan areas for the following districts R-5, R-3.5, R-2, MUC-1, MUC-2 and NC zones unless other permanent provisions for private access to off-street parking and loading facilities are approved by the decision maker. All alleys intended to provide access for emergency vehicles shall be a minimum width of twenty feet. The corners of alley intersections shall have a radius of not less than ten

feet and shall conform to standards approved by the city engineer. Access easements and maintenance agreements shall be recorded on affected properties.

Comment: The subject property is not located in the Park Place or South End concept plan areas so alleys are not required. No alleys are proposed in this project.

16.12.027 - Same—Off-site street improvements.

During consideration of the preliminary plan for a development, the decision maker shall determine whether existing streets impacted by, adjacent to, or abutting the development meet the applicable design or dimensional requirements. Where such streets fail to meet these requirements, the decision-maker shall require the applicant to make proportional improvements sufficient to achieve conformance with minimum applicable design standards required to serve the proposed development.

Comment: No off-site improvements are warranted by the traffic generated by this project. Please refer to the Traffic Impact Study regarding off-site impacts.

16.12.028 - Same—Transit.

Streets shall be designed and laid out in a manner that promotes pedestrian and bicycle circulation. The applicant shall coordinate with transit agencies where the application impacts transit streets as identified in OCMC 17.04.1310. Pedestrian/bicycle access ways shall be provided as necessary to minimize the travel distance to transit streets and stops and neighborhood activity centers. The decision maker may require provisions, including easements, for transit facilities along transit streets where a need for bus stops, bus pullouts or other transit facilities within or adjacent to the development has been identified.

Comment: All streets within the proposed development are local streets that provide for bicycle circulation in a shared manner with automobile traffic. A bike lane will be provided along Holcomb Blvd. Sidewalks are provided on all streets to address pedestrian needs. There is no Trimet bus service available on Holcomb Blvd. east of Holcomb Elementary School.

16.12.029 - Excavations—Restoration of pavement.

Whenever any excavation shall have been made in any pavement or other street improvement on any street or alley in the city for any purpose whatsoever under the permit granted by the engineer, it shall be the duty of the person making the excavation to restore the pavement in accordance with the city of Oregon City Public Works Pavement Cut Standards in effect at the time the permit is granted. The city commission may adopt and modify the city of Oregon City Public Works Pavement Cut Standards by resolution as necessary to implement the requirements of this chapter.

Comment: Any excavation of existing pavement on streets adjoining the proposed development will be repaired per this standard.

16.12.030 - Blocks—Width.

The width of blocks shall ordinarily be sufficient to allow for two tiers of lots with depths consistent with the type of land use proposed. The length, width and shape of blocks shall take into account the need for adequate building site size, convenient motor vehicle, pedestrian, bicycle and transit access, control of traffic circulation, and limitations imposed by topography and other natural features.

All new streets shall be designed as local streets unless otherwise designated as arterials and collectors in the current adopted transportation system plan. The maximum block spacing between streets is five hundred thirty feet and the minimum block spacing between streets is one hundred fifty feet as measured between the right-of-way centerlines except in zones GI, CI, MUE, I, and WFDD where determining the appropriate street spacing will be determined by the city engineer. If the maximum block

size is exceeded, pedestrian accessways shall be provided every three hundred thirty feet. The spacing standards within this section do not apply to alleys.

Comment: The block lengths have been designed in conformance with these standards. Two pedestrian accessways are proposed. One is located along the proposed Barlow Trail view corridor. The second accessway ties together the upper and lower sections of the site between Phases 1 and 2.

16.12.031 - Street design—Street names.

Except for extensions of existing streets, no street name shall be used which will duplicate or be confused with the name of an existing street. Street names shall conform to the established standards in the city and shall be subject to the approval of the city.

Comment: The proposed street names are shown on the site plan submitted with this application. The existing street name of Kaylyn Drive has been continued on the extension of that street into the site. Similarly, the street named Godon Way will eventually connect to the street stub of Godon Way to the west of the subject property. All other street names proposed are new and do not duplicate other street names in the city.

16.12.032 - Public off-street pedestrian and bicycle accessways.

Pedestrian/bicycle accessways are intended to provide direct, safe and convenient connections between residential areas, retail and office areas, institutional facilities, industrial parks, transit streets, neighborhood activity centers, rights-of-way, and pedestrian/bicycle accessways which minimize out-of-direction travel, and transit-orientated developments where public street connections for automobiles, bicycles and pedestrians are unavailable. Pedestrian/bicycle accessways are appropriate in areas where public street options are unavailable, impractical or inappropriate. Pedestrian and bicycle accessways are required through private property or as right-of-way connecting development to the right-of-way at intervals not exceeding three hundred thirty feet of frontage; or where the lack of street continuity creates inconvenient or out of direction travel patterns for local pedestrian or bicycle trips.

A. Entry points shall align with pedestrian crossing points along adjacent streets and with adjacent street intersections.

Comment: Not applicable for the two proposed pedestrian accessways. There are no other pedestrian crossing points or street intersections to align with.

B. Accessways shall be free of horizontal obstructions and have a nine foot six inch high vertical clearance to accommodate bicyclists. To safely accommodate both pedestrians and bicycles, accessway right-of-way widths shall be as follows:

1. Accessways shall have a fifteen-foot wide right-of-way with a seven-foot wide paved surface with a minimum four-foot planter strip on either side.

2. If an accessway also provides secondary fire access, the right-of-way width shall be at least twenty-four feet wide with a sixteen-foot paved surface between four-foot planter strips on either side.

Comment: The proposed accessways are centered in 15-foot-wide easements. They do not serve as secondary fire accesses. The design specifications of this section will be used in the final engineering.

C. Accessways shall be direct with at least one end point of the accessway always visible from any point along the accessway. On-street parking shall be prohibited within fifteen feet of the intersection of the accessway with public streets to preserve safe sight distance and promote safety.

Comment: Both accessways are straight lines that will maintain visibility from both ends. On-street parking will be marked and limited per this standard.

D. To enhance pedestrian and bicycle safety, accessways shall be lighted with pedestrian-scale lighting. Accessway lighting shall be to a minimum level of one-half-foot-candles, a one and one-half foot-candle average, and a maximum to minimum ratio of seven-to-one and shall be oriented not to shine upon adjacent properties. Street lighting shall be provided at both entrances.

Comment: Lighting will be provided per this section.

F. Accessways shall comply with Americans with Disabilities Act (ADA).

Comment: Due to topographic constraints, it is not feasible to comply with ADA standards. A modification to this requirement is proposed. See justification at the end of this section.

F. The planter strips on either side of the accessway shall be landscaped along adjacent property by installation of the following:

1. Either an evergreen hedge screen of thirty to forty-two inches high or shrubs spaced no more than four feet apart on average;
2. Ground cover covering one hundred percent of the exposed ground. No bark mulch shall be allowed except under the canopy of shrubs and within two feet of the base of trees;
3. A two-inch minimum caliper tree for every thirty-five feet along the accessway. Trees may be planted on either side of the accessway, provided they are spaced no more than thirty-five feet apart; and
4. In satisfying the requirements of this section, evergreen plant materials that grow over forty-two inches in height shall be avoided. All plant materials shall be selected from the Oregon City Native Plant List.

Comment: Landscaping will comply with this section. Plans for landscaping will be provided with final engineering.

G. Accessways shall be designed to prohibit unauthorized motorized traffic. Curbs and removable, lockable bollards are suggested mechanisms to achieve this.

Comment: Curbs and lockable bollards will be used, as specified in this section.

H. Accessway surfaces shall be paved with all-weather materials as approved by the city. Pervious materials are encouraged. Accessway surfaces shall be designed to drain stormwater runoff to the side or sides of the accessway. Minimum cross slope shall be two percent.

Comment: Both accessways will be paved per this standard.

I. In parks, greenways or other natural resource areas, accessways may be approved with a five-foot wide gravel path with wooden, brick or concrete edgings.

Comment: Not applicable. The accessways are not located in any of these areas.

J. The decision maker may approve an alternative accessway design due to existing site constraints through the modification process set forth in OCMC 16.12.013.

Comment: A modification to allow for greater grades than would otherwise be allowed by ADA standards is being requested.

K. Ownership, liability and maintenance of accessways. To ensure that all pedestrian/bicycle accessways will be adequately maintained over time, the city engineer shall require one of the following:

1. Dedicate the accessways to the public as public right-of-way prior to the final approval of the development; or

2. The developer incorporates the accessway into a recorded easement or tract that specifically requires the property owner and future property owners to provide for the ownership, liability and maintenance of the accessway.

Comment: The proposed accessways will be contained within easements on adjacent lots. Maintenance requirements will be incorporated into the easements.

A modification to the requirement of OCMC 16.12. 032.F is being requested in order to allow for grades that exceed ADA standards on the two pedestrian accessways in the project and the pedestrian trail in Tract C that connects from Godon Way to Holcomb Blvd. Site topography does not permit compliance with ADA maximum grade standards (7.5% for standalone walkways). For the accessway that runs between Lots 25 and 26 & Lots 32 and 33, we request a maximum trail running slope of 10.5%. The pathway between Lots 53 and 54 and Lots 88 and 89 complies with the running grade standard, but for both of these accessways we need flexibility to exceed grade standards at the intersection with the sidewalks at intersecting streets that are in excess of the ADA standard. For the walkway in Tract C, we request a maximum trail running slope of 10%.

The requested modification complies with the approval standards of OCMC 16.12.13 as follows:

A. The modification meets the intent of the standard;

Comment: The proposed modification is consistent with the intent of the standard in that it provides for adequate pedestrian connectivity through longer blocks than would otherwise be permitted.

B. The modification provides safe and efficient movement of pedestrians, motor vehicles, bicyclists and freight;

Comment: The proposed modification provides for a fully improved paved pathway that is consistent with all City standards. The modification would allow for a maximum 10 percent design grade for the pathways. While steeper than the ADA standard, it is similar to sidewalk grades on sections of streets within the project that approach 12 percent grade.

C. The modification is consistent with an adopted transportation or utility plan; and

Comment: The proposed modification will allow for connectivity that is consistent with the City's Transportation Systems Plan.

D. The modification is complementary with a surrounding street design; or, in the alternative;

Comment: The proposed grades are similar to what is allowed by City standards on the steeper stretches of roadways within the project. Site terrain dictates these grades.

E. If a modification is requested for constitutional reasons, the applicant shall demonstrate the constitutional provision or provisions to be avoided by the modification and propose a modification that complies with the state or federal constitution. The city shall be under no obligation to grant a modification in excess of that which is necessary to meet its constitutional obligations.

Comment: Not applicable. The modification is not being sought for constitutional reasons.

16.12.033 - Mobility standards.

Development shall demonstrate compliance with intersection mobility standards. When evaluating the performance of the transportation system, the city of Oregon City requires all intersections, except for the facilities identified in subsection E below, to be maintained at or below the following mobility standards during the two-hour peak operating conditions. The first hour has the highest weekday traffic volumes and the second hour is the next highest hour before or after the first hour. Except as provided otherwise below, this may require the installation of mobility improvements as set forth in the transportation system plan (TSP) or as otherwise identified by the city engineer.

Comment: Per Oregon City's Transportation System Plan and Metro's online 2018 Regional Transportation Plan (RTP) Network maps, the study intersections are located outside of the City's regional center and S Holcomb Boulevard is not designated on the arterial and throughway network. Therefore, per Section *16.12.033 – Mobility Standards* of the Oregon City Municipal Code, the following minimum acceptable operation standards apply to the study intersections.

- For intersections outside the boundaries of the regional center and not designated on the arterial and throughway network, as defined in the regional transportation plan, the following mobility standards apply:
    - For signalized intersections:
        - During the first hour, LOS "D" or better will be required for the intersection as a whole and no approach operating at worse than LOS "E" and a v/c ratio not higher than 1.0 for the sum of the critical movements.
        - During the second hour, LOS "D" or better will be required for the intersection as a whole and no approach operating at worse than LOS "E" and a v/c ratio not higher than 1.0 for the sum of the critical movements.
    - For unsignalized intersections outside of the boundaries of the regional center:
        - For unsignalized intersections, during the peak hour, all movements serving more than twenty vehicles shall be maintained at LOS "E" or better. LOS "F" will be tolerated at movements serving no more than twenty vehicles during the peak hour.

Intersection Capacity Analysis Summary

	PM Peak Hour			PM Peak Hour		
	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c
1. Site Access at S Holcomb Boulevard						
2025 Buildout Conditions	B	12	0.10	B	11	0.06
2030 Future Conditions	B	13	0.13	B	13	0.08

	2030 Future Conditions (w/ Holly Lane)		B	13	0.13		B	13	0.08
2. S Barlow Drive at S Holcomb Boulevard									
	2021 Existing Conditions		A	9	0.03		A	9	0.04
	2025 Background Conditions		B	10	0.03		A	10	0.04
	2025 Buildout Conditions		B	10	0.06		B	10	0.06
	2030 Future Conditions		B	11	0.06		B	11	0.07
	2030 Future Conditions (w/ Holly Lane)		B	14	0.17		C	17	0.13

Table Notes: BOLDED *text indicates intersection operation above jurisdictional standards.*

Based on the results of the operational analysis, all study intersections are currently operating acceptably per Oregon City standards and are projected to continue operating acceptably through the 2025 site buildout year and under future year 2030 conditions with the Park Place Master Plan project completed, regardless of whether the S Holly Lane connection to S Holcomb Boulevard is constructed. No operational mitigation is necessary or recommended at these intersections.

Please refer to the traffic Impact Study prepared by Lancaster-Mobley, Inc. for more detailed information.

16.12.035 - Driveways.

A. All new development and redevelopment shall meet the minimum driveway spacing standards identified in Table 16.12.035.A.

Comment: Driveways will be reviewed for compliance with this section at the time of building permit application for each lot.

16.12.085 - Easements.

The following shall govern the location, improvement and layout of easements:

A. Utilities. Utility easements shall be required where necessary as determined by the city engineer. Insofar as practicable, easements shall be continuous and aligned from block-to-block within the development and with adjoining subdivisions or partitions. Specific utility easements for water, sanitary or storm drainage shall be provided based on approved final engineering plans.

B. Unusual Facilities. Easements for unusual facilities such as high voltage electric transmission lines, drainage channels and stormwater detention facilities shall be adequately sized for their intended purpose, including any necessary maintenance roads. These easements shall be shown to scale on the preliminary and final plats or maps. If the easement is for drainage channels, stormwater detention facilities or related purposes, the easement shall comply with the requirements of the public works stormwater and grading design standards.

C. Watercourses. Where a development is traversed or bounded by a watercourse, drainageway, channel or stream, a stormwater easement or drainage right-of-way shall be provided which conforms substantially to the line of such watercourse, drainageway, channel or stream and is of a sufficient width to allow construction, maintenance and control for the purpose as required by the responsible agency. For those subdivisions or partitions which are bounded by a stream of established recreational value, setbacks or easements may be required to prevent impacts to the water resource or to accommodate pedestrian or bicycle paths.

D. Access. When easements are used to provide vehicular access to lots within a development, the construction standards, but not necessarily width standards, for the easement shall meet city specifications. The minimum width of the easement shall be twenty feet. The easements shall be improved and recorded by the applicant and inspected by the city engineer. Access easements may also provide for utility placement.

E. Resource Protection. Easements or other protective measures may also be required as the community development director deems necessary to ensure compliance with applicable review criteria protecting any unusual significant natural feature or features of historic significance.

Comment: Public utility easements 10 feet in width are provided along all street frontages. They are also provided where necessary for proposed utility lines, for a pedestrian accessways, for temporary emergency vehicle access, and for the existing powerlines that cross the site. All of these easements are consistent with the provisions of this section.

16.12.090 - Minimum improvements—Procedures.

Comment: All improvement work will comply with the requirements of this section for review and approval of construction plans, inspection during construction, erosion control, installation of utilities in streets prior to paving, provisions of as-built drawings, and working within such reasonable construction hours as may be set by the city engineer.

16.12.095 - Same—Public facilities and services.

The following minimum improvements shall be required of all applicants for a development, unless the decision-maker determines that any such improvement is not proportional to the impact imposed on the city's public systems and facilities:

Comment: As shown on the street and preliminary utility plans submitted with this application, the requirements of this section will be met. Transportation, stormwater, sanitary sewer, water, street trees, bench marks and other utilities. Oversizing of facilities is not needed. An Erosion Control Plan will be provided and followed during construction.

Comment: While most of the site is cleared of trees, there are a few pockets of trees that will need to be removed and mitigated in order to build the proposed development. The applicant will make use of Option 1 to mitigate for trees removed for this project.

OCMC 17.49 - NATURAL RESOURCE OVERLAY DISTRICT

17.49.030 - Map as reference.

1. This chapter applies to all development within the natural resources overlay district as shown on the NROD Map, which is a regulatory boundary mapped ten feet beyond the required vegetated corridor width specified in OCMC 17.49.110. The mapped NROD boundary is based on a GIS-supported application of the adopted documents, plans and maps listed in OCMC

17.49.020.A.1—17.49.020.A.8, however the adopted map may not indicate the true location of protected features.

2. Notwithstanding changing field conditions or updated mapping approved by the city (and processed as a Type I Verification per OCMC 17.49.255), the applicant may choose to either accept the adopted NROD boundary or provide a verifiable delineation of the true location of the natural resource feature pursuant to the Type I or Type II procedure in accordance with this chapter.
3. The NROD boundary shall be shown on all development permit applications.
4. The official NROD map can only be amended by the city commission.
5. Verification of the map shall be processed pursuant to OCMC 17.49.250.

Comment: The subject property abuts a wetland area located to the north of the site on the adjacent Tax Lot 2000. A wetlands verification memorandum for that wetland and the associated NROD designation, prepared by Schott & Associates, is included with this application packet. The verification memorandum concludes that the wetland area is significantly smaller than the City's NROD Map indicates. This Type I NROD verification is a part of this land use application.

17.49.035 - Addition of wetlands to map following adoption.

The NROD boundary shall be expanded to include a wetland identified during the course of a development permit review if it is within or partially within the mapped NROD boundary and meets the state of Oregon's definition of a "Locally Significant Wetland." In such cases, the entire wetland and its required vegetated corridor as defined in Table 17.49.110 shall be regulated pursuant to the standards of this chapter. The amended NROD boundary may be relied upon by the community development director for the purposes of subsequent development review.

Comment: Not applicable. No new wetland resources have been identified on the subject property.

17.49.040 - NROD permit and review process.

An NROD permit is required for those uses regulated under OCMC 17.49.090, Uses Allowed under Prescribed Conditions. An NROD permit shall be processed under the Type II development permit procedure, unless an adjustment of standards pursuant to OCMC 17.49.200 is requested or the application is being processed in conjunction with a concurrent application or action requiring a Type III or Type IV development permit.

Comment: The review of this project's compliance with NROD standards is being processed concurrently with the Type III review of the Serres Farm Master Plan/PUD.

17.49.070 - Prohibited uses.

The following development and activities are not allowed within the NROD:

A. Any new gardens, lawns, structures, development, other than those allowed outright (exempted) by the NROD or that is part of a regulated use that is approved under prescribed conditions. Note: Gardens and lawns within the NROD that existed prior to the time the overlay district was applied to a subject property are allowed to continue but cannot expand further into the overlay district.
B. New lots that would have their buildable areas for new development within the NROD are prohibited.
C. The dumping of materials of any kind is prohibited except for placement of fill as provided in subsection D. below. The outside storage of materials of any kind is prohibited unless they existed before the overlay district was applied to a subject property. Uncontained areas of hazardous

materials as defined by the Oregon Department of Environmental Quality (ORS 466.005) are also prohibited.

D. Grading, the placement of fill in amounts greater than ten cubic yards, or any other activity that results in the removal of more than ten percent of the existing native vegetation on any lot within the NROD is prohibited, unless part of an approved development activity.

Comment: As shown on the DDP for Phase 1, the NROD buffer area extends into the rear yards of Lots 61, 62 and a small portion of Lot 63. The buildable area of these lots does not extend into the NROD. These lots will conform with the requirements of this section.

17.49.080 - Uses allowed outright (exempted).

The following uses are allowed within the NROD and do not require the issuance of an NROD permit:

G. Land divisions provided they meet the following standards, and indicate the following on the final plat:

1. Lots shall have their building sites (or buildable areas) entirely located at least five feet from the NROD boundary shown on the city's adopted NROD map. For the purpose of this subparagraph, "building site" means an area of at least three thousand five hundred square feet with minimum dimensions of forty feet wide by forty feet deep;

2. All public and private utilities (including water lines, sewer lines or drain fields, and stormwater disposal facilities) are located outside the NROD;

3. Impervious streets, driveways and parking areas shall be located at least ten feet from the NROD; and

4. The NROD portions of all lots are protected by:

a. A conservation easement; or

b. A lot or tract created and dedicated solely for unimproved open space or conservation purposes.

Comment: The NROD associated with the wetland buffer area extends into the rear yards of proposed Lots 61, 62 and 63. As shown on the DDP, the building limits for those lots are located at least 5 feet away from the NROD boundary. All of the building sites exceed the 3,500 sq. ft. area and minimum dimensions of 40’ wide by 40’ deep (please refer to DDP for Phase 1). There is a private utility easement on Lots 61 and 62, but it is outside of the NROD area. A conservation easement will be applied to the NROD areas on Lots 61-63.

17.49.090 - Uses allowed under prescribed conditions.

The following uses within the NROD are subject to the applicable standards listed in OCMC 17.49.100 through 17.49.190 pursuant to a Type II process:

A. Alteration to existing structures within the NROD when not exempted by OCMC 17.49.080, subject to OCMC 17.49.130.

B. A residence on a highly constrained vacant lot of record that has less than three thousand square feet of buildable area, with minimum dimensions of fifty feet by fifty feet, remaining outside the NROD portion of the property, subject to the maximum disturbance allowance prescribed in OCMC 17.49.120.A.

C. A land division that would create a new lot for an existing residence currently within the NROD, subject to OCMC 17.49.160.

D. Land divisions when not exempted by OCMC 17.49.080, subject to the applicable standards of OCMC 17.49.160.

E. Trails/pedestrian paths when not exempted by OCMC 17.49.080, subject to OCMC 17.49.170 (for trails) or OCMC 17.49.150 (for paved pedestrian paths).

F. New roadways, bridges/creek crossings, utilities or alterations to such facilities when not exempted by OCMC 17.49.080.

G. Roads, bridges/creek crossings subject to OCMC 17.49.150.

H. Utility lines subject to OCMC 17.49.140.

I. Stormwater detention or pre-treatment facilities subject to OCMC 17.49.155.

J. Institutional, industrial or commercial development on a vacant lot of record situated in an area designated for such use that has more than seventy-five percent of its area covered by the NROD, subject to OCMC 17.49.120.B.

K. City, county and state capital improvement projects, including sanitary sewer, water and stormwater facilities, water stations, and parks and recreation projects.

L. Non-hazardous tree removal that is not exempted pursuant to OCMC 17.49.080.K.

M. Fences that do not meet the standards for exemption pursuant to OCMC 17.49.080.O.4.

Comment: Not applicable. None of the listed uses are proposed or found within the NROD boundaries.

17.49.100 - General development standards.

The following standards apply to all uses allowed under prescribed conditions within the NROD with the exception of rights-of-way (subject to OCMC 17.49.150), trails (subject to OCMC 17.49.170), utility lines (subject to OCMC 17.49.140), land divisions (subject to OCMC 17.49.160), and mitigation projects (subject to OCMC 17.49.180 or 17.49.190):

A. Native trees shall be preserved unless they are located within ten feet of any proposed structures or within five feet of new driveways, or if deemed not wind-safe by a certified arborist. Trees listed on the Oregon City Nuisance Plant List or Prohibited Plant List are exempt from this standard and may be removed. A protective covenant shall be required for any native trees that remain;

Comment: Not applicable. No trees are located within the NROD on the subject property.

B. The community development director may allow the landscaping requirements of the base zone, other than landscaping required for parking lots, to be met by preserving, restoring and permanently protecting habitat on development sites in the natural resource overlay district;

Comment: Not applicable. There are no landscaping requirements applicable to the R-10 zone.

C. All vegetation planted in the NROD shall be native and listed on the Oregon City Native Plant List or other locally adopted plant list (e.g. Metro or Portland), or as recommended by an environmental professional with experience and academic credentials in one or more natural resource areas such as ecology, arboriculture, horticulture, wildlife biology, botany, hydrology or forestry);

Comment: Any plantings that occur within the NROD area will be selected from the Oregon City Native Plant List.

D. Grading is subject to installation of erosion control measures required by the city;

Comment: Any grading will include required erosion control measures.

E. The minimum front, street, or garage setbacks of the base zone may be reduced to any distance between the base zone minimum and zero in order to minimize the disturbance area within the NROD portion of the lot;

Comment: Not necessary. All lots will have adequate room to allow for construction of a home without impacting the NROD boundaries.

F. Any maximum required setback in any zone, such as for multi-family, commercial or institutional development, may be increased to any distance between the maximum and the distance necessary to minimize the disturbance area within the NROD portion of the lot;

Comment: Not required. The building envelopes shown on the site plan will be included on the final plat.

G. Fences in compliance with OCMC 17.49.080.N;

Comment: Fences will conform to this standard.

H. Exterior lighting shall be placed or shielded so that they do not shine directly into resource areas;

Comment: Homes will be required to meet this standard.

I. If development will occur within the one hundred-year floodplain, the standards of OCMC 17.42 shall be met; and

Comment: Not applicable. The site is not within the one hundred-year floodplain.

J. Mitigation of impacts to the regulated buffer is required, subject to OCMC 17.49.180 or 17.49.190.

Comment: No such impacts are anticipated.

17.49.110 - Width of vegetated corridor.

A. Calculation of Vegetated Corridor Width within City Limits. The NROD consists of a vegetated corridor measured from the top of bank or edge of a protected habitat or water feature. The minimum required width is the amount of buffer required on each side of a stream, or on all sides of a feature if non-linear. The width of the vegetated corridor necessary to adequately protect the habitat or water feature is specified in Table 17.49.110.

Comment: As required by Table 17.49.110, the vegetated corridor width associated with the wetland is 50 feet. The grade in that area is less than 10% and the measuring point for the buffer is from the edge of the wetland as delineated by Schott & Associates.

17.49.120 - Maximum disturbance allowance for highly constrained lots of record.

Comment: Not appliable. The subject property is not a highly constrained lot of record.

17.49.130 - Existing development standards.

In addition to the General Development Standards of OCMC 17.49.100, the following standards apply to alterations and additions to existing development within the NROD, except for trails, rights-of-way, utility lines, land divisions and mitigation projects. As of June 1, 2010, applicants for alterations and additions to existing development that are not exempt pursuant to OCMC 17.49.080.J shall submit a Type II or Type III application pursuant to this section.

Mitigation is required, subject to OCMC 17.49.180 or 17.49.190.

Comment: Not applicable. No existing development is present on the site.

17.49.140 - Standards for utility lines.

Comment: Not applicable. No utility lines are proposed within the NROD.

17.49.150 - Standards for vehicular or pedestrian paths and roads.

Comment: Not applicable. No paths or roads are proposed within the NROD.

17.49.155 - Standards for stormwater facilities.

Comment: Not applicable. No stormwater facilities are proposed within the NROD.

17.49.160 - Standards for land divisions.

Other than those land divisions exempted by OCMC 17.49.070.G., new residential lots created within the NROD shall conform to the following standards:

Comment: Not applicable. The proposed subdivision is exempted under OCMC 1.49.070.G, as discussed above.

17.49.170 - Standards for trails.

Comment: Not applicable. No trails are proposed.

17.49.180 - Mitigation standards.

Comment: Not applicable. No development is proposed that will require mitigation.

17.49.200 - Adjustment from standards.

Comment: Not applicable. No adjustment from standards is required or requested.

17.49.210 - Type II development permit application.

Unless otherwise directed by the NROD standards, proposed development within the NROD shall be processed as a Type II development permit application. All applications shall include the items required for a complete application by OCMC 17.49.220—17.49.230, and 17.50.080 as well as a discussion of how the proposal meets all of the applicable NROD development standards in OCMC 17.49.100—17.49.170.

Comment: The proposed development is subject to a Type III process so the NROD review will be reviewed concurrently through that process type.

17.49.170 - Standards for trails.

All trails that are not exempt pursuant to OCMC 17.49.80.F shall be processed through a Type II or Type III process pursuant to this chapter; and shall provide mitigation, subject to OCMC 17.49.180 or 17.49.190.

Comment: Not applicable. No trails are proposed in the NROD area.

17.49.180 - Mitigation standards.

The following standards (or the alternative standards of OCMC 17.49.190) apply to required mitigation:

Comment: Not applicable. No area within the NROD will be disturbed so these provisions do not apply.

17.49.190 - Alternative mitigation standards.

Comment: Not applicable as no mitigation is required.

17.49.200 - Adjustment from standards.

Comment: Not applicable. No adjustments are necessary as all standards are being met.

17.49.230 - Mitigation plan report.

Comment: Not applicable. No mitigation is required as the NROD will not be disturbed.

17.49.240 - Density transfer.

The NROD allocates urban densities to the non-NROD portions of properties located partially within the NROD, generally resulting in a substantial increase in net development potential.

Comment: Not applicable. Only a minor area of the NROD extends into the site. No density transfer is proposed.

17.49.255 - Type I verification.

Comment: Not applicable. The NROD area contains an offsite wetland so the standards for a Type I verification are not met.

17.49.260 - Type II verification.

Verifications of the NROD which cannot be determined pursuant to the standards of OCMC 17.49.255 may be processed under the Type II permit procedure.

Comment: An application for a Type II NROD verification is included with the Serres Farms project application.

A. Applicants for a determination under this section shall submit a site plan meeting the requirements of OCMC 17.49.220 as applicable.

Comment: A site plan meeting these requirements is included with the application.

B. Such requests may be approved provided that there is evidence that demonstrates in an environmental report prepared by one or more qualified professionals with experience and credentials in natural resource areas, including wildlife biology, ecology, hydrology and forestry, that a resource function(s) and/or land feature(s) does not exist on a site-specific area.

Comment: The report prepared by Schott & Associates, Inc., an environmental consulting firm, contains information that documents that the wetland on Tax Lot 2000 is significantly smaller than City NROD mapping depicts and the NROD designation should be removed from portions of Tax Lot 2000 and the Serres Farms property.

C. Verification to remove a recently developed area from the NROD shall show that all of the following have been met:

1. All approved development in the NROD has been completed;
2. All mitigation required for the approved development, located within the NROD, has been successful; and
3. The previously identified resources and functional values on the developed site no longer exist or have been subject to a significant detrimental impact.

Comment: Not applicable. The verification does not relate to a recently developed NROD area.

17.49.265 - Corrections to violations.

Comment: Not applicable. No violations relate to the NROD associated with this application.

OCMC 17.50 – Administration and Procedures

Comment: The project includes several land use permits: Type II Subdivision, Type III Master Plan/Planned Unit Development, Type III Detailed Development Plans for both phases of the project, and a Type III Historic Review relating to the Barlow Trail view corridor. The subdivision, Master Plan/PUD, and Detailed Development Plans will be heard concurrently by the Planning Commission, consistent with the provisions of this chapter. The Historic Review will be heard in a Type III process by the Historic Review Board.

17.50.050 - Pre-application conference.

A. Pre-application Conference. Prior to a Type II—IV or legislative application, excluding historic review, being deemed complete, the applicant shall schedule and attend a pre-application conference with city staff to discuss the proposal, unless waived by the community development director. The purpose of the pre-application conference is to provide an opportunity for staff to provide the applicant with information on the likely impacts, limitations, requirements, approval standards, fees and other information that may affect the proposal.

Comment: A pre-application conference with City staff was held on March 21, 2020 (PA 21-0004). The notes from the pre-application conference are included with this application submittal. This application is being submitted within the required maximum six-month period since the pre-application conference date.

17.50.055 - Neighborhood association meeting.

Neighborhood Association Meeting. The purpose of the meeting with the recognized neighborhood association is to inform the affected neighborhood association about the proposed development and to receive the preliminary responses and suggestions from the neighborhood association and the member residents.

Comment: A meeting with the Park Place Neighborhood Association was held on April 19, 2021. Contact with the Neighborhood Association was done per the requirements of this section. Notes of the meeting are included with the application package.

17.50.060 - Application requirements.

A permit application may only be initiated by the record property owner or contract purchaser, the city commission or planning commission. If there is more than one record owner, then the city will not complete a Type II—IV application without signed authorization from all record owners. All permit applications shall be submitted on the form provided by the city, along with the appropriate fee and all necessary supporting documentation and information, sufficient to demonstrate compliance with all applicable approval criteria. The applicant has the burden of demonstrating, with evidence, that all applicable approval criteria are, or can be, met.

Comment: The application form is signed by the property owner.

17.50.070 - Completeness review and one hundred twenty-day rule.

Comment: The applicant understands the procedural and time requirements for review of quasi-judicial land use applications that will apply to this application.

17.50.080 - Complete application—Required information.

Unless stated elsewhere in OCMC 16 or 17, a complete application includes all the materials listed in this subsection. The community development director may waive the submission of any of these materials if not deemed to be applicable to the specific review sought. Likewise, within thirty days of when the application is first submitted, the community development director may require additional information, beyond that listed in this subsection or elsewhere in Titles 12, 14, 15, 16, or 17, such as a traffic study or other report prepared by an appropriate expert. In any event, the applicant is responsible for the completeness and accuracy of the application and all of the supporting documentation, and the city will not deem the application complete until all information required by the community development director is submitted. At a minimum, the applicant shall submit the following:

A. One copy of a completed application form that includes the following information:

1. An accurate address and tax map and location of all properties that are the subject of the application;

2. Name, address, telephone number and authorization signature of all record property owners or contract owners, and the name, address and telephone number of the applicant, if different from the property owner(s);

B. A complete list of the permit approvals sought by the applicant;

C. A complete and detailed narrative description of the proposed development;

D. A discussion of the approval criteria for all permits required for approval of the development proposal that explains how the criteria are or can be met or are not applicable, and any other information indicated by staff at the pre-application conference as being required;

E. One copy of all architectural drawings and site plans shall be submitted for Type II—IV applications. One paper copy of all application materials shall be submitted for Type I applications;

F. For all Type II—IV applications, the following is required:

1. An electronic copy of all materials.

2. Mailing labels or associated fee for notice to all parties entitled under OCMC 17.50.090 to receive mailed notice of the application. The applicant shall use the names and addresses of property owners within the notice area indicated on the most recent property tax rolls.

3. Documentation indicating there are no liens favoring the city on the subject site.

4. A receipt from the county assessor's office indicating that all taxes for the lot or parcels involved are paid in full for the preceding tax year.

5. A current preliminary title report or trio for the subject property(ies);

G. All required application fees;

H. Annexation agreements, traffic or technical studies (if applicable);

I. Additional documentation, as needed and identified by the community development director.

Comment: The requirements of this section are addressed in this narrative, attached reports, plans and other documentation included in our submittal package. Per City requirements during Covid-19, all materials are being submitted electronically.

The remaining requirements of this chapter relate to public notice and posting of signage. The applicant will comply with these requirements.

Chapter 17.40 - HISTORIC OVERLAY DISTRICT

Comment: The Barlow Trail corridor passes through the site of the proposed Serres Farms PUD. An application to slightly modify the location of the view corridor required by Chapter 17.40 was reviewed and approved by the Historic Review Board on June 22, 2021 (HR-21-13). Please refer to the record of that application for further details.

From: Rick Givens
To: Kelly Reid
Cc: Mark Handris; Harlan Borow; Darren Gusdorf; Eric Evans; Tyler Korb; Josh Wheeler
Subject: Re: Serres Farm questions
Date: Monday, September 20, 2021 4:39:22 PM
Attachments: Serres Farms Master Plan Addendum_FINAL_091521 (1).pdf
Serres Farms Narrative - 9-20-2021.docx
Serres Master Plan - GDP-combined.pdf
5545-Serres Farms Addendum on Slopes.pdf

Hi Kelly,

We are emailing you the updated plan sets for Serres Farms as adjusted to 123 lots due to the final survey confirming a small area of slopes in the 25-35% range. The revised narrative now includes findings relating to the Geologic Hazards section of the Code. A letter is also included from Geo-Pacific relating to the safety of developing on the small area of steeper slopes.

In response to the questions that for which you requested answers in your Sept. 7th email, we are providing the following responses:

- Please describe your proposal to barricade the street stub in the NW corner of the site to the north and treat it as a dead end. This street, as shown in the current plans, is partially in the NROD; however, your narrative does not discuss any impacts to the NROD. If you are proposing to limit the street construction to areas outside of the NROD, please indicate this.

Comment: Yes, we are proposing that the improvements for the street that stubs to the northwest corner of the site stop at the border of the NROD and a barricade be provided at that location. It is uncertain at this time whether future development in the areas to the north of our site that are currently outside of the UGB will actually need this connection or whether the road will simply turn to the west to connect to Ames Street. Given that, it is not appropriate to impact the wetlands buffer by providing street improvements that may not be needed.

- The 20ft-wide flag pole property on the east boundary is owned by the Serres Family and is required make the street connection to Kaylyn Drive. Please explain your proposal to construct this street connection to city standards, and also describe how the County would be involved in review and permitting, if known.

Comment: We anticipate making the connection to the existing half-street of Kaylyn Drive and anticipate either dedicating to the City the area of the 20' strip that is needed to make that connection or providing a road easement if the City does not wish to take the dedication of this land that is outside of the city limits. Clackamas County is not likely to accept the dedication of this area as it is not contiguous to any other County Road. They would not be involved in the dedication of right-of-way or roadway easement to the City.

Items we want to bring to your attention:

- Holcomb Blvd improvements – We will require a 6-foot bike lane and a planter strip/sidewalk combination of 15.5 feet (16.12.016 requires sidewalk of 5 feet and planter strip of 10.5 feet, but we could accept a different ratio; for example, 7.5 or 8 ft

each)

Comment: We have reviewed our plans to confirm that the proposed improvements required by the Holcomb Blvd. Pedestrian Enhancement Concept Plan will fit within the existing right-of-way.

- Your stormwater assumptions are 3000 sf of impervious surface per lot - we think that is low based on Abernethy Landing and neighboring subdivisions. We can condition a maximum impervious area per lot but this would have to be handled through covenants or restrictions on future alterations to the lots – probably not a great option for future owners want to build patios, etc. Please coordinate further with Sang Pau.

Comment: Emerio Design has informed me that there is adequate room within the proposed stormwater detention tract to provide for the use of the 3,500 sq. ft. impervious surface figure. They are amenable to a condition of approval that the final storm calculations make use of this figure.

- Driveways are shown in the plans as 12 feet wide. If driveways are wider, the street tree plan will not be feasible. You may want to clarify your proposal as it pertains to driveways

Comment: The new plans have been revised to show a 20' wide driveway approach.

- As mitigation for the density adjustment, we are working on a condition of approval with some options that you could choose from. The Planning Commission may want more certainty or they may be willing to have a few options and leave it up to the applicant. One of the recommended mitigation options will be to utilize the tree protection tract code on the east side near Kaylyn Dr where all the trees are, preserve the healthy trees in an open space tract while keeping the same number of lots.

Comment: The site plan has been revised to provide for a 60' wide conservation easement on Lot 97 (this lot is more than 1/2 acre in area) to protect trees along the eastern border of the site. We believe that this proposal satisfies the concern you expressed about tree preservation. The option of a tree conservation easement is preferable to the applicant over an HOA-owned tract. As you know, we are proposing more than 2 acres of open space in the western portion of the property. I have calculated that over 38,000 sq. ft. of this area is outside of the powerline easement. Also, it should be noted that much of the powerline could be added to the rear yards of the adjacent lots if we weren't committed to providing as much usable open space as possible.

With this additional information being provided today, we are meeting the schedule discussed by you and Josh Wheeler in order to maintain the October 25th hearing schedule.

Thanks for your assistance,

Rick

On Tue, Sep 7, 2021 at 10:26 AM Kelly Reid <kreid@orcity.org> wrote:

> Hi Rick,

To follow up on our conversation last week at the office, we have a few questions along with some items that we wanted to bring to your attention regarding Serres Farms. Let me know if you would like to schedule a time to discuss anything.

We will need the following information prior to 9/15 to be able to make proper findings in the staff report. Otherwise we will need a continuance and a 120 extension:

- Please describe your proposal to barricade the street stub in the NW corner of the site to the north and treat it as a dead end. This street, as shown in the current plans, is partially in the NROD; however, your narrative does not discuss any impacts to the NROD. If you are proposing to limit the street construction to areas outside of the NROD, please indicate this.
- The 20ft-wide flag pole property on the east boundary is owned by the Serres Family and is required make the street connection to Kaylyn Drive. Please explain your proposal to construct this street connection to city standards, and also describe how the County would be involved in review and permitting, if known.

Items we want to bring to your attention:

- Holcomb Blvd improvements – We will require a 6-foot bike lane and a planter strip/sidewalk combination of 15.5 feet (16.12.016 requires sidewalk of 5 feet and planter strip of 10.5 feet, but we could accept a different ratio; for example, 7.5 or 8 ft each)
- Your stormwater assumptions are 3000 sf of impervious surface per lot - we think that is low based on Abernethy Landing and neighboring subdivisions. We can condition a maximum impervious area per lot but this would have to be handled through covenants or restrictions on future alterations to the lots – probably not a great option for future owners want to build patios, etc. Please coordinate further with Sang Pau.
- Driveways are shown in the plans as 12 feet wide. If driveways are wider, the street tree plan will not be feasible. You may want to clarify your proposal as it pertains to driveways
- As mitigation for the density adjustment, we are working on a condition of approval with some options that you could choose from. The Planning Commission may want more certainty or they may be willing to have a few options and leave it up to the applicant. One of the recommended mitigation options will be to utilize the tree protection tract code on the east side near Kaylyn Dr where all the trees are, preserve the healthy trees in an open space tract while keeping the same number of lots.

Thanks,

Kelly Reid

She/her/hers

Planner

Community Development Department, City of Oregon City

695 Warner Parrott Rd, Oregon City, OR 97045

kreid@orcity.org

(503) 496-1540 Direct

(503) 722-3789 Main

Website

Interactive Maps and Apps

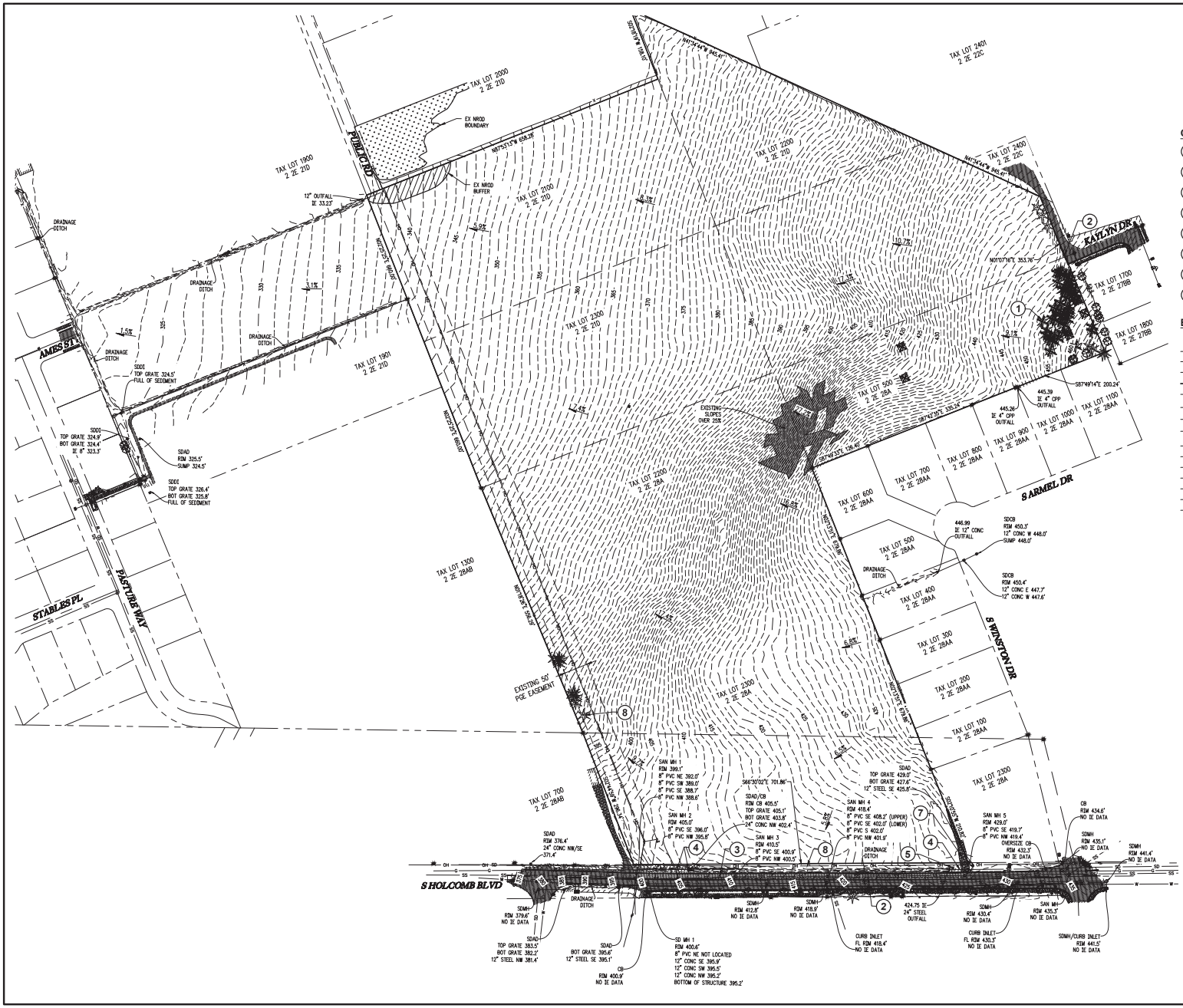
On-Line Submittal of Land Use Applications

The City of Oregon City continues to offer services and programs in-person and online - find facility hours of operation here.

Website: www.orcity.org
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State Retention Schedule and may be made available to the public.

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Rick Givens
Planning Consultant
18680 Sunblaze Dr.
Oregon City, OR 97045
Office: (503) 479-0097
Cell: (503) 351-8204



SERRES FARMS SUBDIVISION
123 LOT SUBDIVISION
TAX LOTS 500, 2200, 2300
2100, 2200, & 2300
OREGON CITY, OREGON

EXISTING CONDITIONS, TREE REMOVAL & DEMOLITION PLAN

REVISIONS

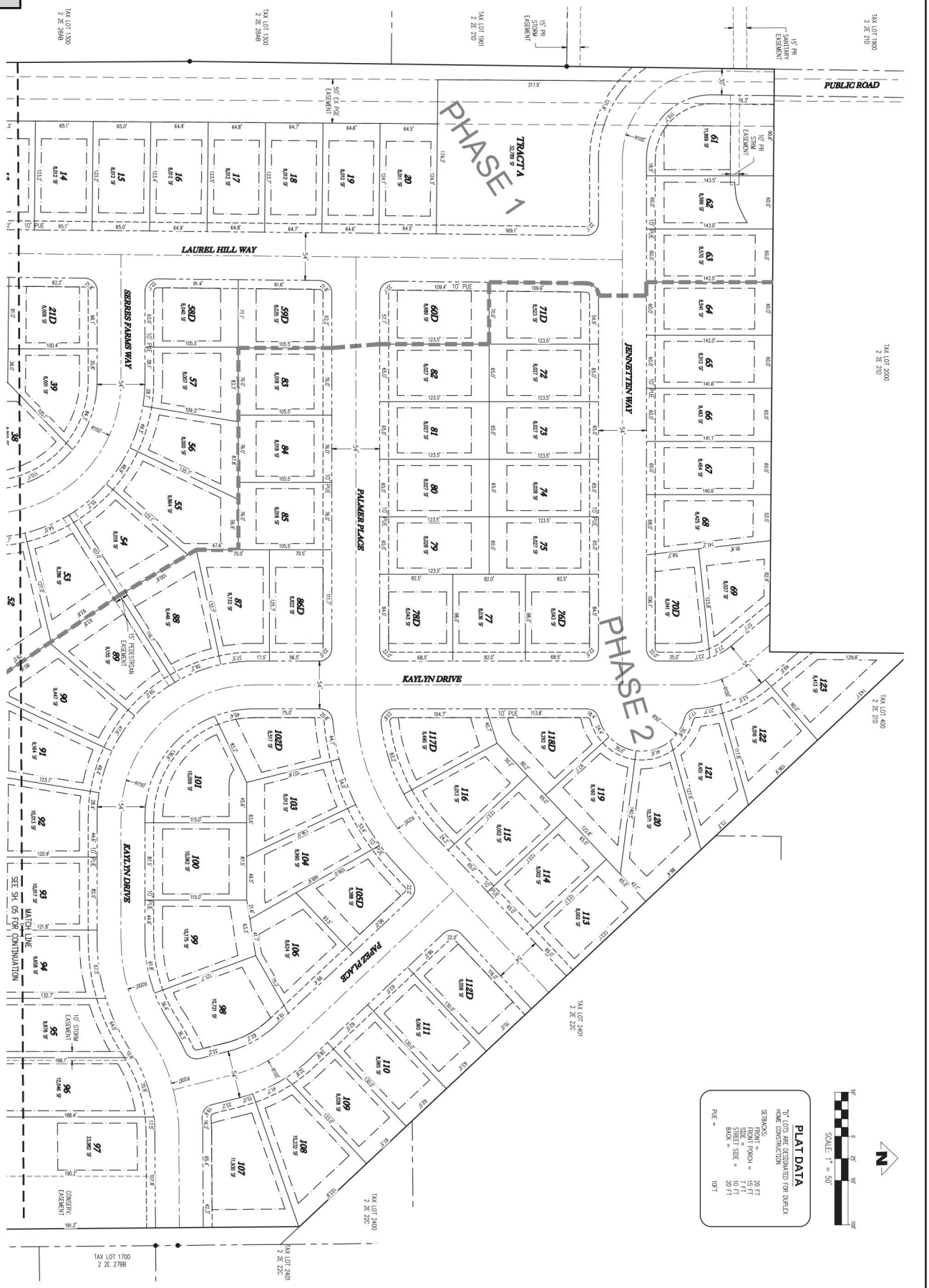
NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

EMERIO
6445 SW FALLBROOK PLACE, SUITE 100
BEAVERTON, OREGON 97008
TEL: (503) 746-8812
FAX: (503) 626-8910
www.emeriodesign.com

REGISTERED PROFESSIONAL ENGINEER
OREGON
JANUARY 11, 2005
TYLER DANIEL EVANS
EXPIRES: 12/31/2021

SHEET 03 OF 31

FILE P:\0082-005 Serres Farms\dwg\plan\0082-005_03exn, Layout: 03 EXISTING CONDITIONS TREE REMOVAL & DEMOLITION PLAN, Plot Date: 9/20/2021 4:07 PM, by: Tyler Korb



REVISIONS		
NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

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BEAVERTON, OREGON 97008
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FAX: (503) 639-9592
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REGISTERED PROFESSIONAL ENGINEER — OREGON — JANUARY 13, 2009 — DANIEL EVANS — RENEWS: 12/31/2021

PRELIMINARY PLAT (NORTH)

SERRES FARMS SUBDIVISION
123 LOT SUBDIVISION
TAX LOTS 500, 2200, 2300
2100, 2200, & 2300
OREGON CITY, OREGON

SHEET 04 OF 31

REVISIONS		
NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

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6445 SW FALLBROOK PLACE, SUITE 100
BEAVERTON, OREGON 97008
TEL: (503) 746-8812
FAX: (503) 639-9592
www.emeriodesign.com

REGISTERED PROFESSIONAL ENGINEER
OREGON
JANUARY 11, 2008
PRESTON LAMONT EVANS
54460PE
EXPIRES: 12/31/2021

PRELIMINARY PLAT (SOUTH)

SERRES FARMS SUBDIVISION
123 LOT SUBDIVISION
TAX LOTS 500, 2200, 2300
2100, 2200, & 2300
OREGON CITY, OREGON

SHEET 05 OF 31

FILE:P:\0082-005 Serres Farms\dwg\plan\0082-005_05plat02, Layout: 05 PRELIMINARY PLAT (SOUTH), Plot Date: 9/20/2021 4:08 PM, by: Tyler Korb

SERRES FARMS SUBDIVISION

N.E. 1/4 SEC.28 T.2S. R.2E. W.M.
OREGON CITY, OREGON
123 LOT SUBDIVISION

PROJECT CONTACTS

OWNER:

ICON CONSTRUCITON
1969 WILLAMETTE FALLS DR #260
WEST LINN, OR 97068
PORTLAND, OR 205
CONTACT: HARLAN BOROW
(503) 657-0406 (P)

CIVIL ENGINEER:

EMERIO DESIGN, LLC
6445 SW FALLBROOK PLACE
SUITE 100
BEAVERTON, OR 97008
CONTACT: ERIC EVANS, P.E.
(503) 746-8812 (P)
(503) 639-9592 (F)

LAND USE PLANNING:

RICK GIVENS PLANNING CONSULTANT
1860 SUNBLAZE DR
OREGON CITY, OR 97045
(503) 479-0097 (P)

SURVEYOR:

CENTERLINE CONCEPTS
19376 MOLALLA AVE, SUITE 100
OREGON CITY, OR 97045
CONTACT: TOBY BOLDEN
(503) 650-0188 (P)

SITE DATA

SITE AREA = 1,533,162 SF

STREET AREA = 331,168 SF

POWER LINE AREA = 68,999 SF

NET DEVELOPMENT AREA = 1,132,995 SF

DIVIDED BY 10,000 SF/ UNIT = 112 UNITS

TEN PERCENT BONUS = 11 UNITS

TOTAL ALLOWED DENSITY = 123 UNITS

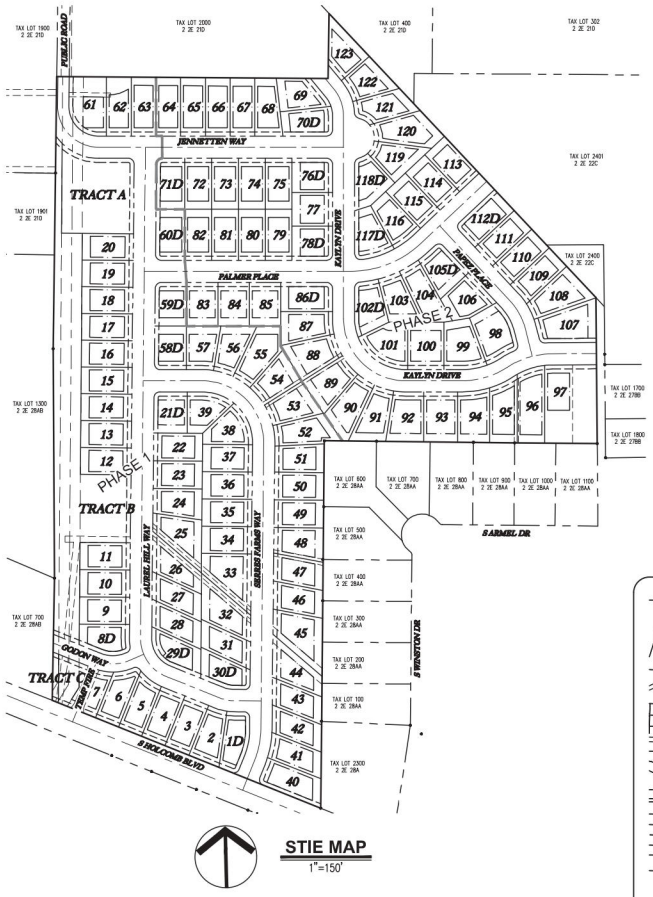
SETBACKS:

FRONT =	20 FT
FRONT PORCH =	15 FT
SIDE =	7 FT
STREET SIDE =	10 FT
BACK =	20 FT
PUE =	10FT

IMPERVIOUS AREA:

ONSITE ROW =	273,320 SF
ONSITE HOUSES =	430,500 SF (3,500 SF PER LOT)
TOTAL ONSITE =	703,820 SF

FRONTAGE IMPROVEMENTS = 18,185 SF



STIE MAP
1"=150'

SHEET INDEX

NO.	TITLE
01	COVER SHEET & INDEX
02	TYPICAL STREET SECTIONS
03	EXISTING CONDITIONS, TREE REMOVAL & DEMOLITION PLAN
04	PRELIMINARY PLAT (NORTH)
05	PRELIMINARY PLAT (SOUTH)
06	PROPOSED GRADING PLAN (NORTH)
07	PROPOSED GRADING PLAN (SOUTH)
08	SITE PLAN (NORTH)
09	SITE PLAN (SOUTH)
10	COMPOSITE UTILITY PLAN (OFFSITE)
11	COMPOSITE UTILITY PLAN (NORTH)
12	COMPOSITE UTILITY PLAN (SOUTH)
13	JENNETTEN WAY STA 10+00-15+00 PLAN & PROFILE
14	JENNETTEN WAY STA 15+00-19+00 PLAN & PROFILE
15	KAYLYN DR STA 9+75-14+50 PLAN & PROFILE
16	KAYLYN DR STA 14+50-18+50 PLAN & PROFILE
17	KAYLYN DR STA 18+50-24+00 PLAN & PROFILE
18	PAPEZ PL STA 9+75-15+00 PLAN & PROFILE
19	LAUREL HILL WAY STA 9+50-13+50 PLAN & PROFILE
20	LAUREL HILL WAY STA 13+50-17+50 PLAN & PROFILE
21	LAUREL HILL WAY STA 17+50-21+50 PLAN & PROFILE
22	LAUREL HILL WAY STA 21+50-26+00 PLAN & PROFILE
23	PALMER PLACE STA 9+50-14+25 PLAN & PROFILE
24	PALMER PLACE STA 14+25-19+25 PLAN & PROFILE
25	GODON WAY STA 9+50-13+50 PLAN & PROFILE
26	TEMP FIRE ACCESS PLAN & PROFILE
27	S HOLCOMB BLVD STA 9+75-13+50 PLAN & PROFILE
28	S HOLCOMB BLVD STA 13+50-17+25 PLAN & PROFILE
29	SERRES FARMS WAY STA 9+75-15+25 PLAN & PROFILE
30	SERRES FARMS WAY STA 15+25-19+25 PLAN & PROFILE
31	SERRES FARMS WAY STA 19+25-22+75 PLAN & PROFILE



VICINITY MAP
NTS

SERRES FARMS SUBDIVISION
123 LOT SUBDIVISION
TAX LOTS 500, 2200, 2300
2100, 2200, & 2300
OREGON CITY, OREGON

COVER SHEET & INDEX

REVISIONS

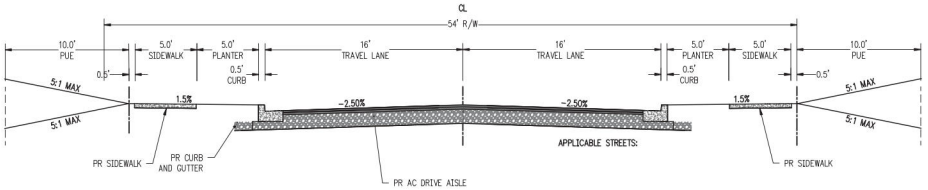
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REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 11, 2006
ERIC DANIEL EVANS
EXPIRES: 12/31/2021
PRELIMINARY

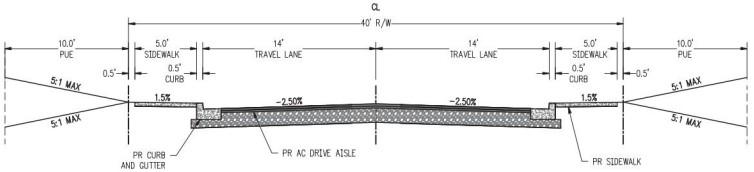
SHEET 01 OF 31

FILE:P:\0082-005 Serres Farms\dwg\plan\0082-005_01cov, Layout: 01 COVER SHEET & INDEX, Plot Date: 9/30/2021 4:07 PM, by: Tyler Kotz



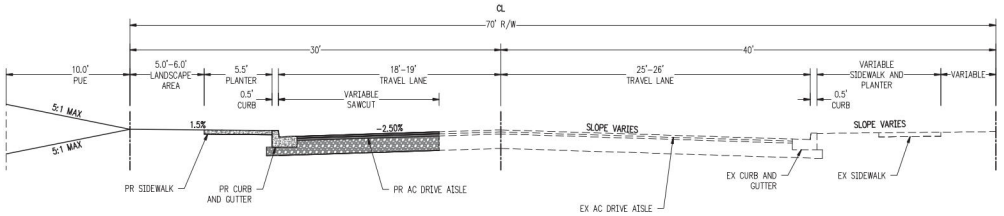
JENNETTEN WAY, KAYLYN DR, PALMER PL, PAPEZ PL, LAUREL HILL WAY, & SERRES FARMS WAY (LOCAL) - TYPICAL SECTION

SCALE: 1" = 5'



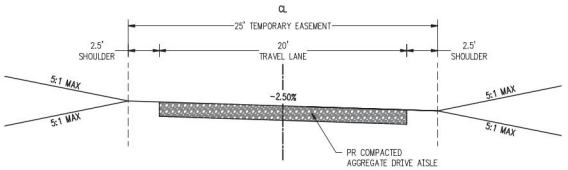
GODON WAY (LOCAL) - TYPICAL SECTION

SCALE: 1" = 5'



S HOLCOMB BLVD (ARTERIAL) - TYPICAL SECTION

SCALE: 1" = 5'



TEMPORARY FIRE ACCESS - TYPICAL SECTION

SCALE: 1" = 5'

SERRES FARMS SUBDIVISION
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2100, 2200, & 2300
OREGON CITY, OREGON

TYPICAL STREET SECTIONS

REVISIONS

NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

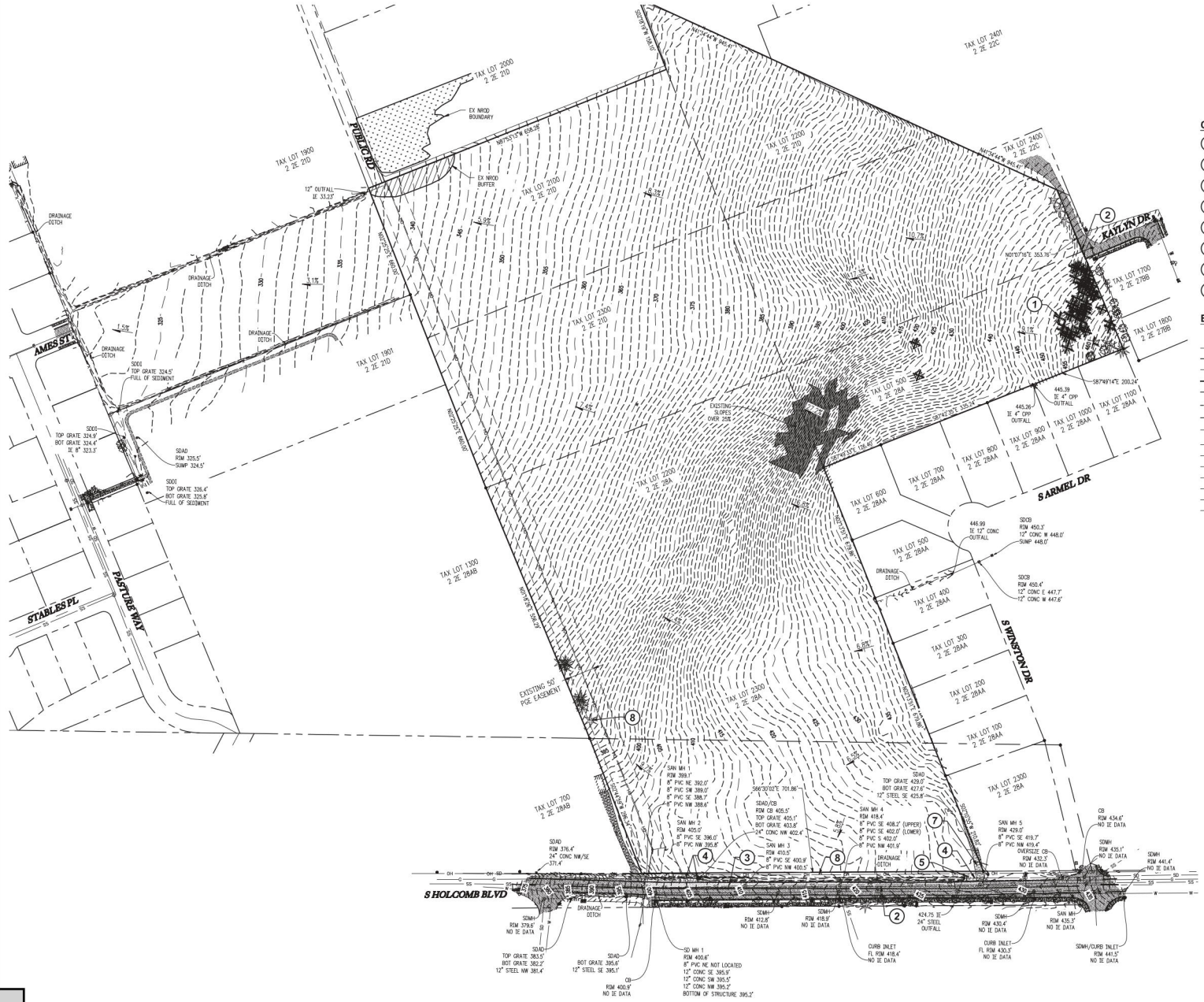
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OREGON
JULY 11, 2006
ERIC DANIEL EVANS
EXPIRES: 12/31/2021

PRELIMINARY

SHEET 02 OF 31

FILE:P:\0062-005 Serres Farms\dwg\plan\0062-005_02sect, Layout: 02 TYPICAL STREET SECTIONS, Plot Date: 9/20/2021 4:07 PM, by: Tyler Korb



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OREGON CITY, OREGON

EXISTING CONDITIONS, TREE REMOVAL & DEMOLITION PLAN

REVISIONS

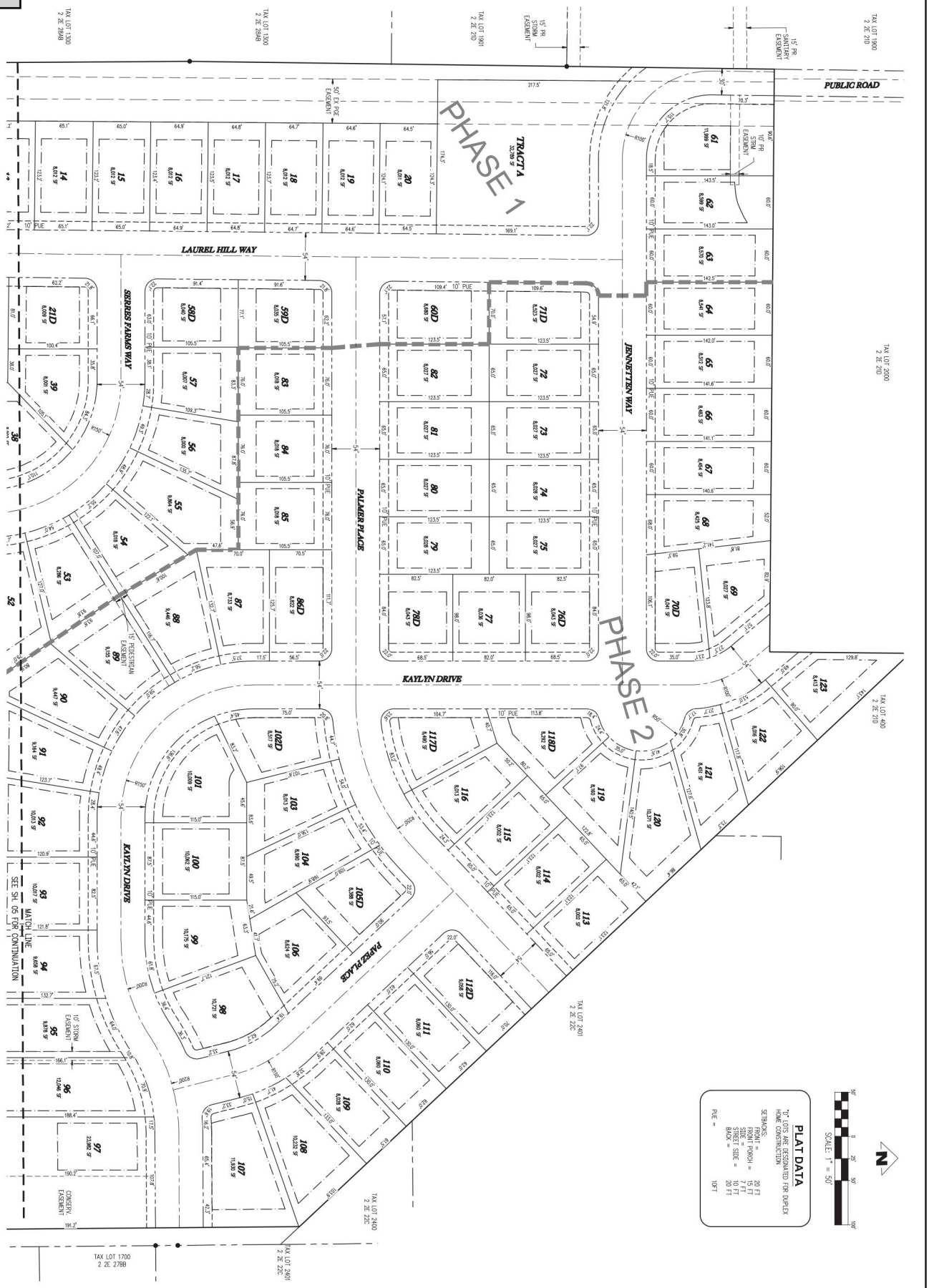
NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

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OREGON
JULY 11, 2006
DANIEL EVANS
EXPIRES: 12/31/2021

SHEET 03 OF 31

FILE P:\2062-005 Serres Farms\dwg\plan\2062-005_03serrs_Layout: 03 EXISTING CONDITIONS TREE REMOVAL & DEMOLITION PLAN, Plot Date: 9/20/2021 4:07 PM, by: Tyler Korb



REVISIONS		
NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

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SHEET 04 OF 31

PRELIMINARY PLAT (NORTH)

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OREGON CITY, OREGON

REVISIONS		
NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

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REGISTERED PROFESSIONAL ENGINEER
OREGON JULY 11, 2008
PRESTON LAMIN EVANS
EXPIRES: 12/31/2021

SHEET 05 OF 31

PRELIMINARY PLAT (SOUTH)

SERRES FARMS SUBDIVISION
123 LOT SUBDIVISION
TAX LOTS 500, 2200, 2300
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OREGON CITY, OREGON

FILE:P:\0082-005 Serres Farms\dwg\plan\0082-005_05plat02, Layout: 05 PRELIMINARY PLAT (SOUTH), Plot Date: 9/20/2021 4:08 PM, by: Tyler Korb

SHEET 06 OF 31

EXPIRES: 12/31/2021

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NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

PROPOSED GRADING PLAN (NORTH)

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NO.	DATE	DESCRIPTION
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2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

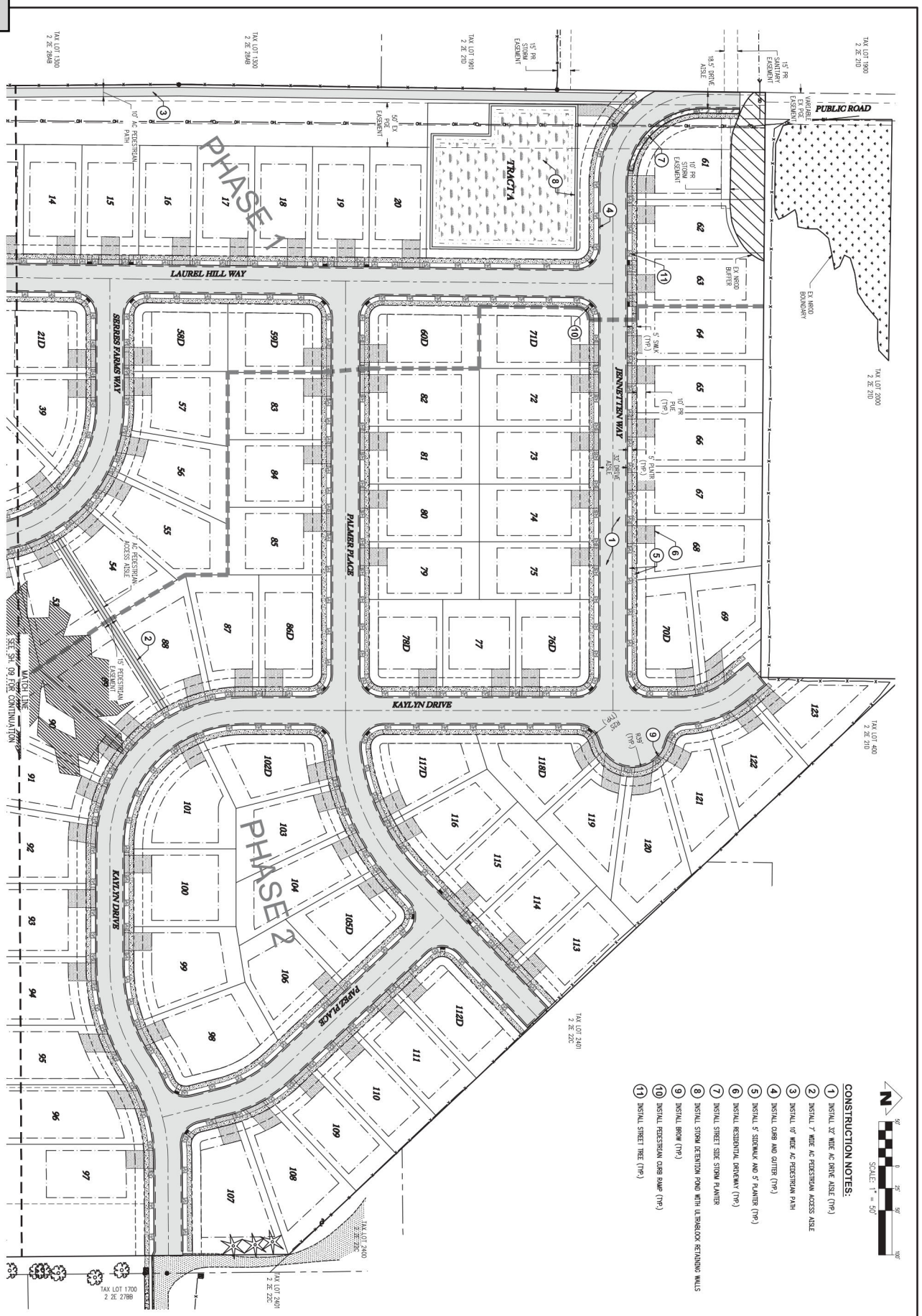
PROPOSED GRADING PLAN (SOUTH)

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123 LOT SUBDIVISION
TAX LOTS 500, 2200, 2300
2100, 2200, & 2300
OREGON CITY, OREGON

REGISTERED PROFESSIONAL ENGINEER — OREGON — DANIEL EVANS — EXPIRES: 12/31/2021

SHEET 07 OF 34

FILE:P:\0082-005 Serres Farms\dwg\plan\0082-005_07grad02, Layout: 07 PROPOSED GRADING PLAN (SOUTH), Plot Date: 9/20/2021 4:08 PM, by: Tyler Korb



SHEET 08 OF 34	EMERIO ENGINEERING • SURVEYING • DESIGN 6445 SW FALLBROOK PLACE, SUITE 100 BEAVERTON, OREGON 97008 TEL: (503) 746-8812 FAX: (503) 639-9592 www.emeriodesign.com	REVISIONS NO. DATE DESCRIPTION 1 05/2021 1ST LAND USE SUBMITTAL 2 07/2021 2ND LAND USE SUBMITTAL 3 09/2021 3RD LAND USE SUBMITTAL

SITE PLAN (NORTH)

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OREGON CITY, OREGON

FILE:P:\0082-005 Serres Farms\dwg\plan\0082-005_08site01, Layout: 08 SITE PLAN (NORTH), Plot Date: 9/20/2021 4:08 PM, by: Tyler Korb

PHASE 1
PHASE 2
LAUREL HILL WAY
SERRES FARMS WAY
S WINSTON DR
S ARMRIL DR
GODDON WAY
BIDDLEFORD LN
TRACT B
TRACT C
TEMP FIRE
MATCH LINE SEE SH. 08 FOR CONTINUATION
TAX LOT 1300 2 2E 28AB
TAX LOT 700 2 2E 28AB
TAX LOT 2300 2 2E 28A
TAX LOT 100 2 2E 28A
TAX LOT 200 2 2E 28A
TAX LOT 300 2 2E 28A
TAX LOT 400 2 2E 28A
TAX LOT 500 2 2E 28A
TAX LOT 600 2 2E 28AA
TAX LOT 700 2 2E 28AA
TAX LOT 800 2 2E 28AA
TAX LOT 900 2 2E 28AA
TAX LOT 1000 2 2E 28AA
TAX LOT 1100 2 2E 28AA
1D
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8D
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29D
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REVISIONS		
NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

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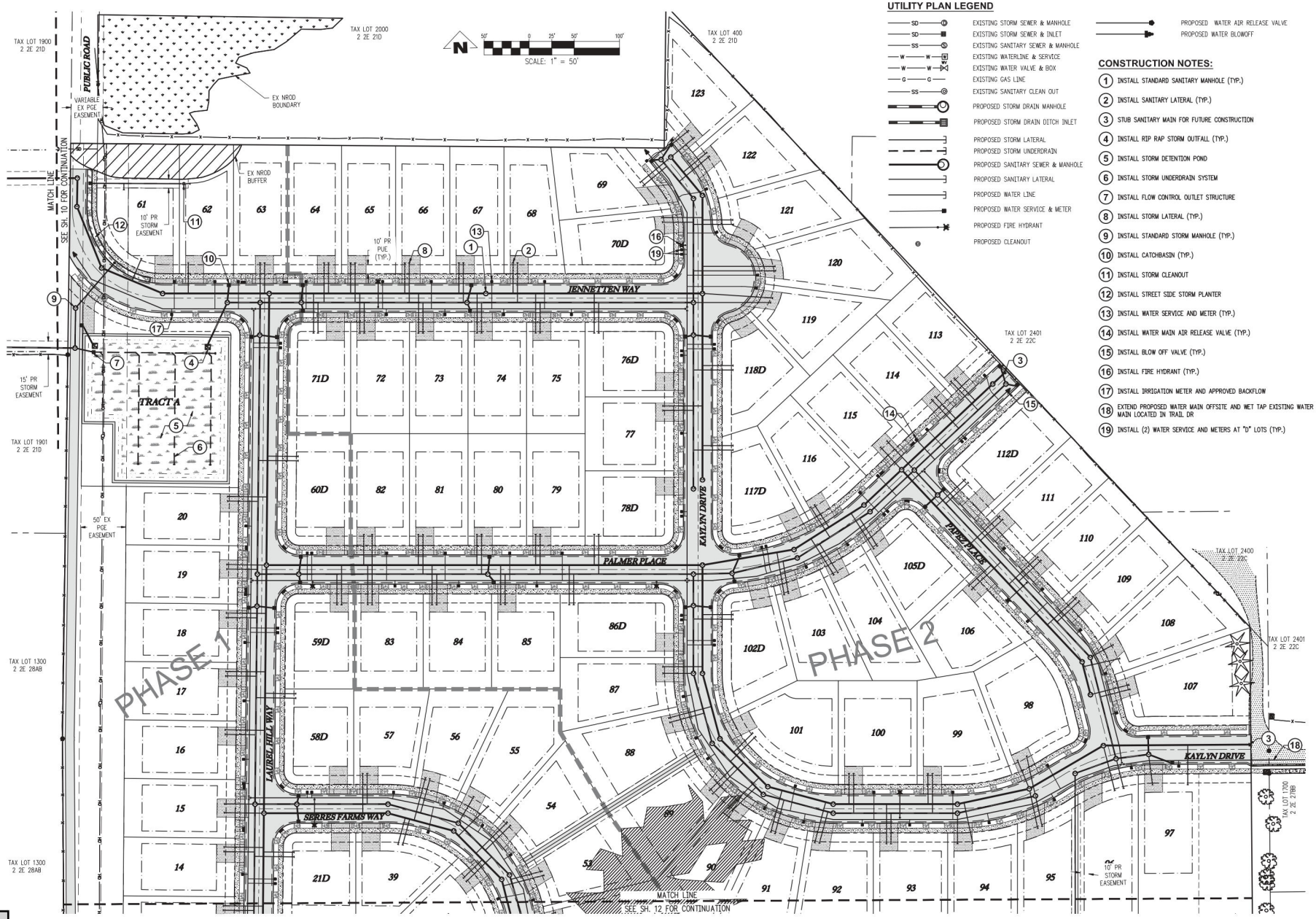
REGISTERED PROFESSIONAL ENGINEER
OREGON
DANIEL EVANS
EXPIRES: 6/30/2022

COMPOSITE UTILITY PLAN (OFFSITE)

SERRES FARMS SUBDIVISION
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SHEET 10 OF 31

FILE:P:\0082-005 Serres Farms\dwg\plan\0082-005_10cup01, Layout: 10 COMPOSITE UTILITY PLAN (OFFSITE), Plot Date: 9/20/2021 4:09 PM, by: Tyler Korb



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COMPOSITE UTILITY PLAN (NORTH)

REVISIONS

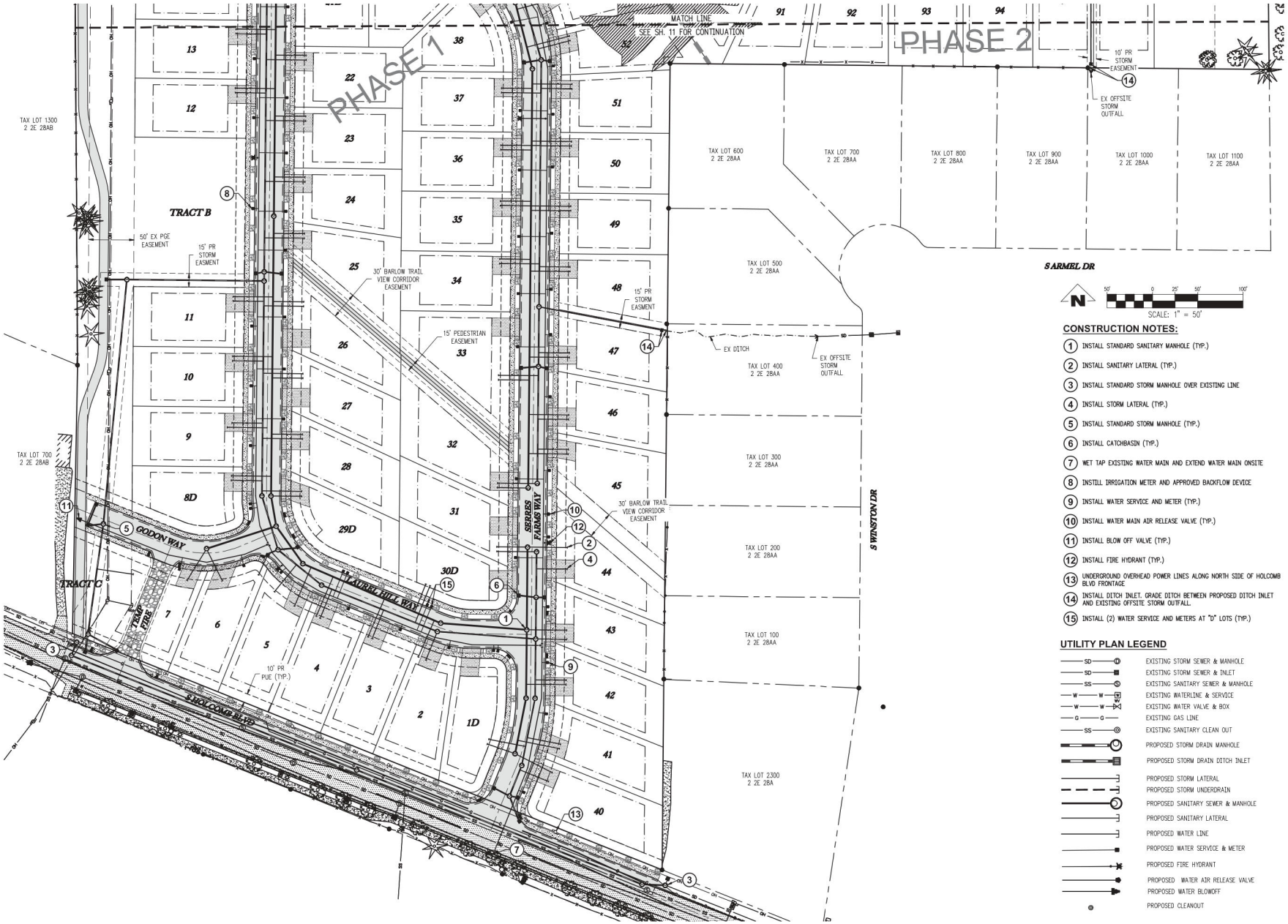
NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

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OREGON
JULY 11, 2006
DANIEL EVANS
EXPIRES: 12/31/2021
PRELIMINARY

SHEET 11 OF 31

FILE P:\2082-005 Serres Farms\dwg\plan\2082-005_11comp02, Layout: 11 COMPOSITE UTILITY PLAN (NORTH), Plot Date: 9/20/2021 4:09 PM, by: Tyler Korb



CONSTRUCTION NOTES:

1. INSTALL STANDARD SANITARY MANHOLE (TYP.)
2. INSTALL SANITARY LATERAL (TYP.)
3. INSTALL STANDARD STORM MANHOLE OVER EXISTING LINE
4. INSTALL STORM LATERAL (TYP.)
5. INSTALL STANDARD STORM MANHOLE (TYP.)
6. INSTALL CATCHBASIN (TYP.)
7. WET TAP EXISTING WATER MAIN AND EXTEND WATER MAIN ONSITE
8. INSTILL IRRIGATION METER AND APPROVED BACKFLOW DEVICE
9. INSTALL WATER SERVICE AND METER (TYP.)
10. INSTALL WATER MAIN AIR RELEASE VALVE (TYP.)
11. INSTALL BLOW OFF VALVE (TYP.)
12. INSTALL FIRE HYDRANT (TYP.)
13. UNDERGROUND OVERHEAD POWER LINES ALONG NORTH SIDE OF HOLCOMB BLVD FRONTAGE
14. INSTALL DITCH INLET. GRADE DITCH BETWEEN PROPOSED DITCH INLET AND EXISTING OFFSITE STORM OUTFALL.
15. INSTALL (2) WATER SERVICE AND METERS AT "D" LOTS (TYP.)

UTILITY PLAN LEGEND

- EXISTING STORM SEWER & MANHOLE
- EXISTING STORM SEWER & INLET
- EXISTING SANITARY SEWER & MANHOLE
- EXISTING WATERLINE & SERVICE
- EXISTING WATER VALVE & BOX
- EXISTING GAS LINE
- EXISTING SANITARY CLEAN OUT
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED STORM DRAIN DITCH INLET
- PROPOSED STORM LATERAL
- PROPOSED STORM UNDERDRAIN
- PROPOSED SANITARY SEWER & MANHOLE
- PROPOSED SANITARY LATERAL
- PROPOSED WATER LINE
- PROPOSED WATER SERVICE & METER
- PROPOSED FIRE HYDRANT
- PROPOSED WATER AIR RELEASE VALVE
- PROPOSED WATER BLOWOFF
- PROPOSED CLEANOUT

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COMPOSITE UTILITY PLAN (SOUTH)

REVISIONS

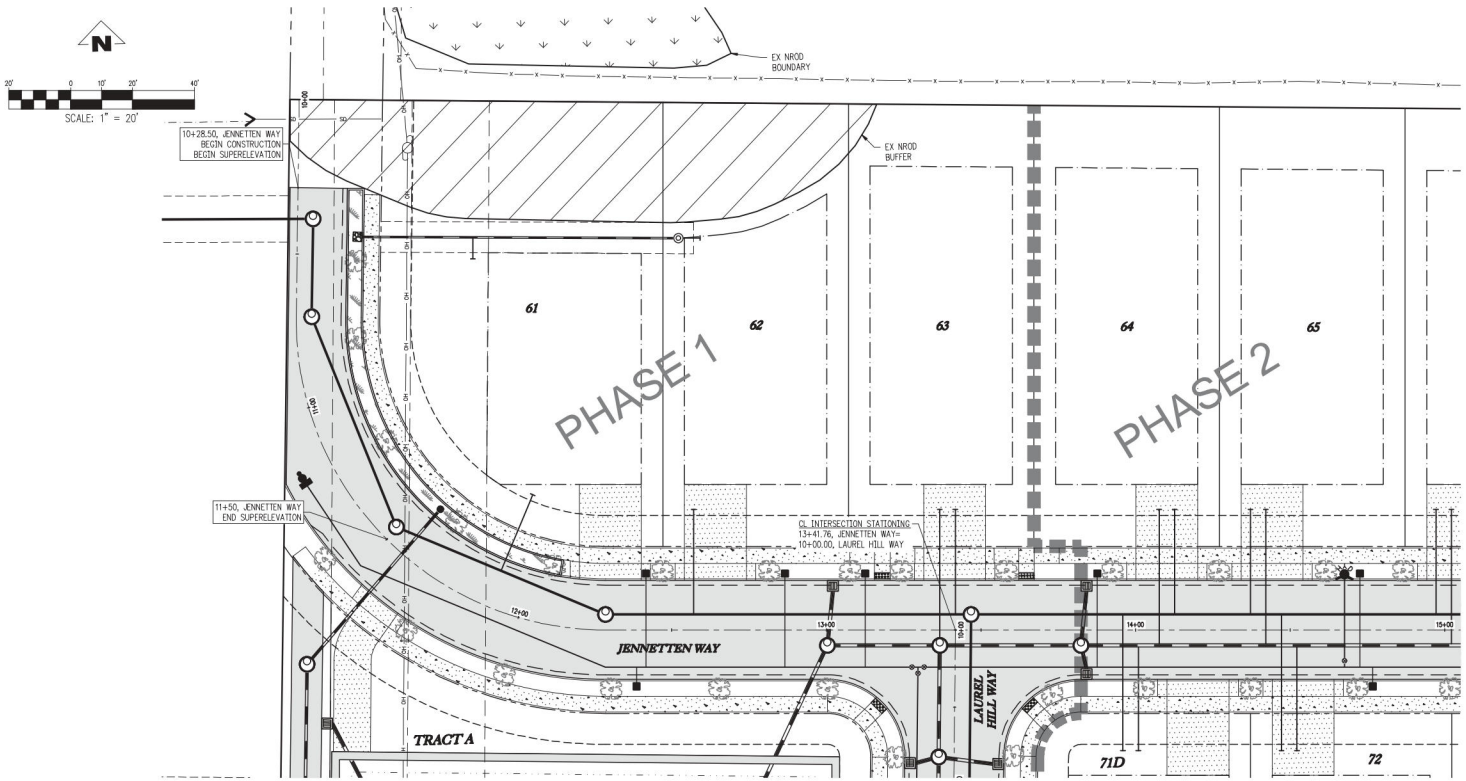
NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

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OREGON
JULY 11, 2006
DANIEL EVANS
EXPIRES: 12/31/2021
PRELIMINARY

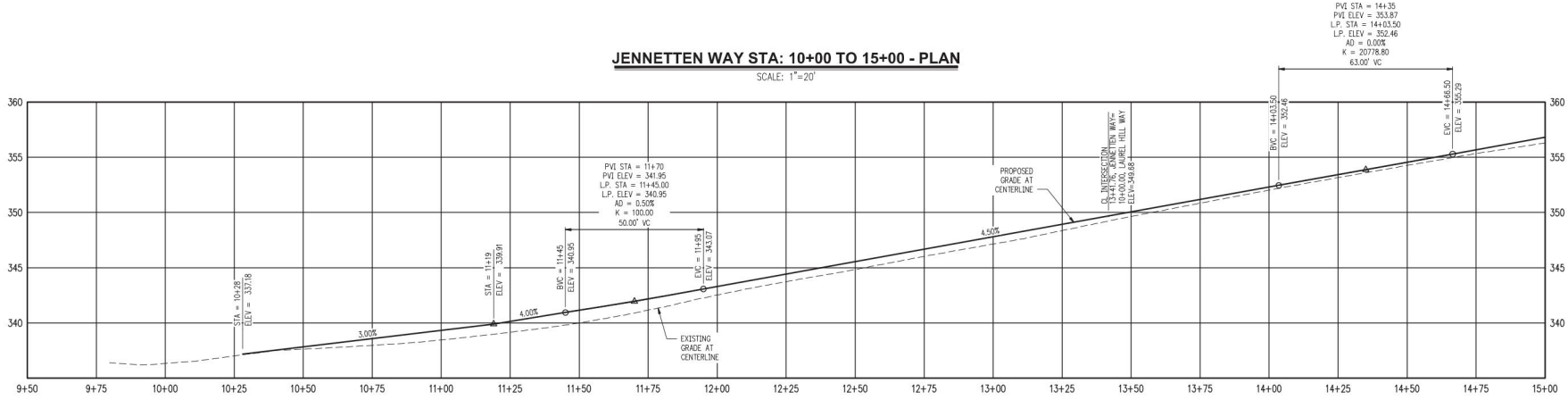
SHEET 12 OF 31

FILE:P:\0262-005 Serres Farms\dwg\plan\0262-005_12cup03, Layout: 12 COMPOSITE UTILITY PLAN (SOUTH), Plot Date: 9/20/2021 4:09 PM, by Tyler Korb



JENNETTEN WAY STA: 10+00 TO 15+00 - PLAN

SCALE: 1"=20'



JENNETTEN WAY STA: 10+00 TO 15+00 - PROFILE

SCALE: H:1"=20' V:1"=5'

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JENNETTEN WAY STA 10+00-15+00 PLAN & PROFILE

REVISIONS

NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

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JULY 11, 2006
DANIEL EVANS
EXPIRES: 12/31/2021
PRELIMINARY

SHEET 13 OF 31

FILE P:\0262-005 Serres Farms\dwg\plan\0262-005_13st01, Layout: 13 JENNETTEN WAY STA 10+00-15+00 PLAN & PROFILE, Plot Date: 9/20/2021 4:10 PM, by Tyler Korb

REVISIONS		
NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

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REGISTERED PROFESSIONAL ENGINEER
OREGON JULY 10, 1998
CHANNEL EVANS
EXPIRES: 12/31/2021

SHEET 14 OF 31

JENNETTEN WAY STA 15+00-19+00 PLAN & PROFILE

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FILE:P:\0082-005 Serres Farms\dwg\plan\0082-005_14st02, Layout: 14 JENNETTEN WAY STA 15+00-19+00 PLAN & PROFILE, Plot Date: 9/20/2021 4:10 PM, by: Tyler Korb

REVISIONS		
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1	05/2021	1ST LAND USE SUBMITTAL
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3	09/2021	3RD LAND USE SUBMITTAL

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SHEET 15 OF 31

KAYLYN DR STA 9+75-14+50 PLAN & PROFILE

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OREGON CITY, OREGON

Item #2.

KAYLYN DR STA: 14+50 TO 18+50 - PLAN

SCALE: 1"=20'

KAYLYN DR STA: 14+50 TO 18+50 - PROFILE

SCALE: H:1"=20', V:1"=5'

REVISIONS		
NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
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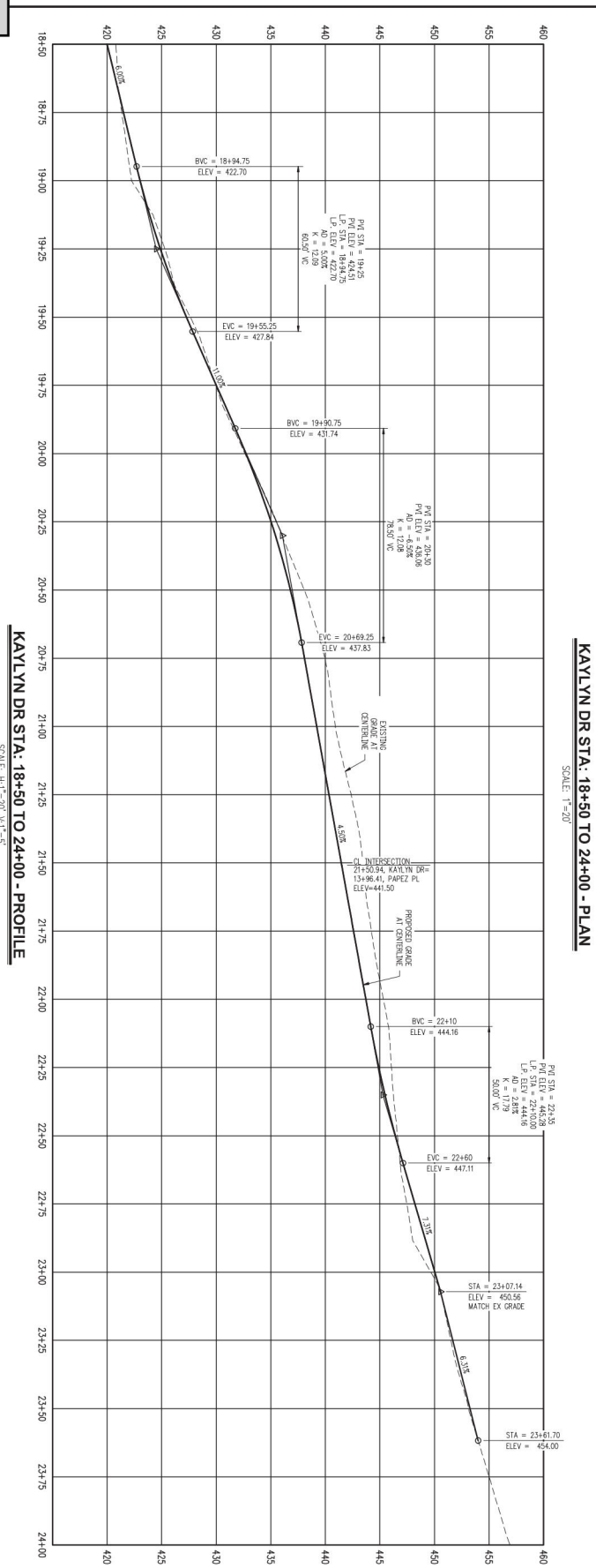
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OREGON JANUARY 13, 1998
DANIEL EVANS
RENEWAL: 12/31/2021

SHEET 16 OF 31

KAYLYN DR STA
14+50-18+50 PLAN & PROFILE

SERRES FARMS SUBDIVISION
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FILE:P:\0082-005 Serres Farms\dwg\plan\0082-005_13st04, Layout: 16 KAYLYN DR STA 14+50-18+50 PLAN & PROFILE, Plot Date: 9/20/2021 4:11 PM, by: Tyler Korb



REVISIONS		
NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
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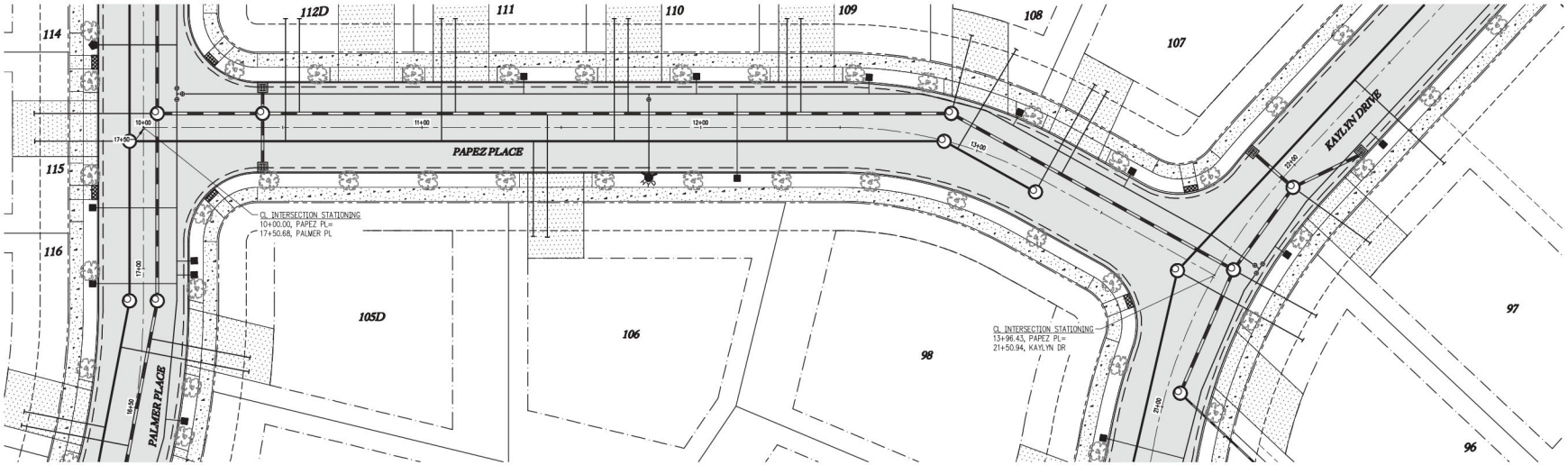
REGISTERED PROFESSIONAL ENGINEER — OREGON — JANUARY 19, 2010 — PRESTON CHANNEL EVANS — RENEWS: 12/31/2021

SHEET 17 OF 34

KAYLYN DR STA 18+50-24+00 PLAN & PROFILE

SERRES FARMS SUBDIVISION
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2100, 2200, & 2300
OREGON CITY, OREGON

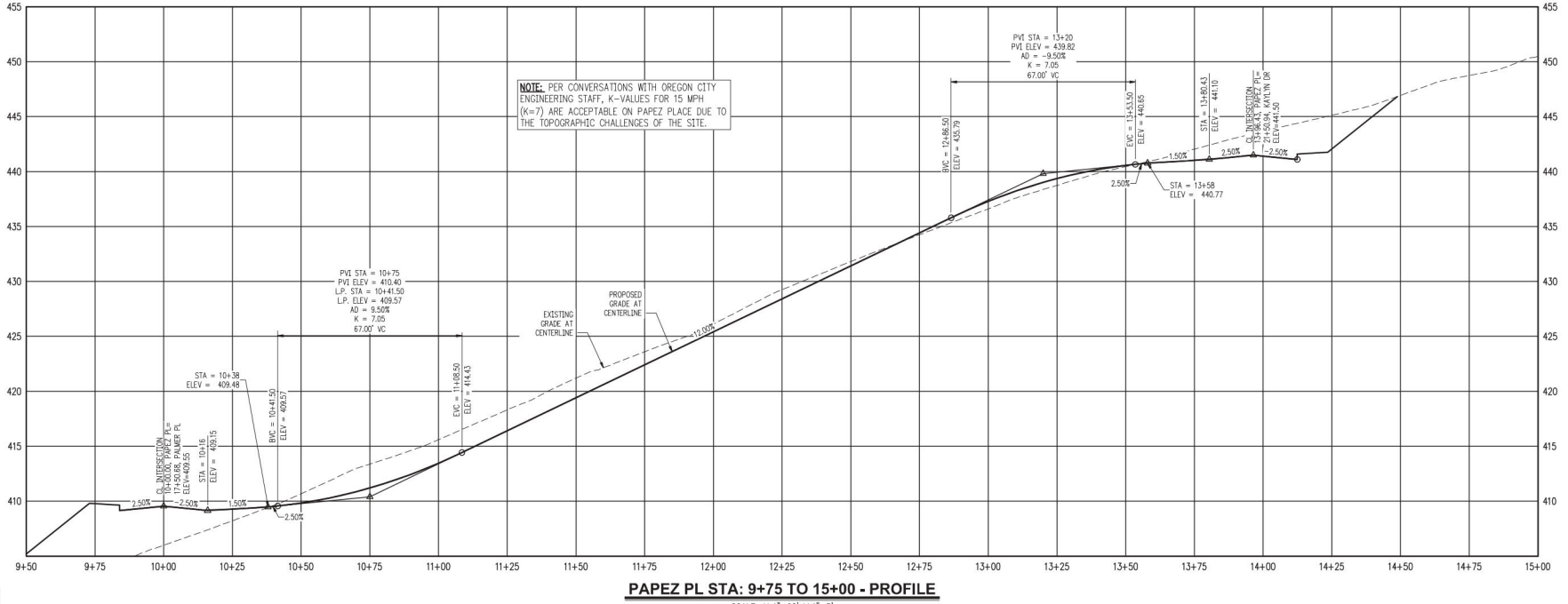
Item #2.



PAPEZ PL STA: 9+75 TO 15+00 - PLAN

SCALE: 1"=20'

SCALE: 1" = 20'



PAPEZ PL STA: 9+75 TO 15+00 - PROFILE

SCALE: H:1"=20' V:1"=5'

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123 LOT SUBDIVISION
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2100, 2200, & 2300
OREGON CITY, OREGON

PAPEZ PL STA 9+75-15+00
PLAN & PROFILE

REVISIONS

NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
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3	09/2021	3RD LAND USE SUBMITTAL

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REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 11, 2006
TYLER DANIEL EVANS
EXPIRES: 12/31/2021

PRELIMINARY

SHEET 18 OF 31

FILE P:\2062-005 Serres Farms\dwg\plan\2062-005_Rb106_Layout 18 PAPEZ PL STA 9+75-15+00 PLAN & PROFILE, Plot Date: 9/20/2021 4:11 PM, by: Tyler Korb

LAUREL HILL WAY STA: 9+50 TO 13+50 - PLAN

SCALE: 1"=20'

LAUREL HILL WAY STA: 9+50 TO 13+50 - PROFILE

SCALE: H:1"=20' V:1"=5'

SHEET 19 OF 34	EMERIO ENGINEERING • SURVEYING • DESIGN 6445 SW FALLBROOK PLACE, SUITE 100 BEAVERTON, OREGON 97008 TEL: (503) 746-8812 FAX: (503) 639-9592 www.emeriodesign.com	REVISIONS NO. / DATE / DESCRIPTION 1 / 05/2021 / 1ST LAND USE SUBMITTAL 2 / 07/2021 / 2ND LAND USE SUBMITTAL 3 / 09/2021 / 3RD LAND USE SUBMITTAL
LAUREL HILL WAY STA 9+50-13+50 PLAN & PROFILE	SERRES FARMS SUBDIVISION 123 LOT SUBDIVISION TAX LOTS 500, 2200, 2300 2100, 2200, & 2300 OREGON CITY, OREGON	

FILE:P:\0082-005 Serres Farms\dwg\plan\0082-005_19st07, Layout: 19 LAUREL HILL WAY STA 9+50-13+50 PLAN & PROFILE, Plot Date: 9/20/2021 4:11 PM, by: Tyler Korb

LAUREL HILL WAY STA: 13+50 TO 17+50 - PLAN

LAUREL HILL WAY STA: 13+50 TO 17+50 - PROFILE

SCALE: H:1"=20' V:1"=5'

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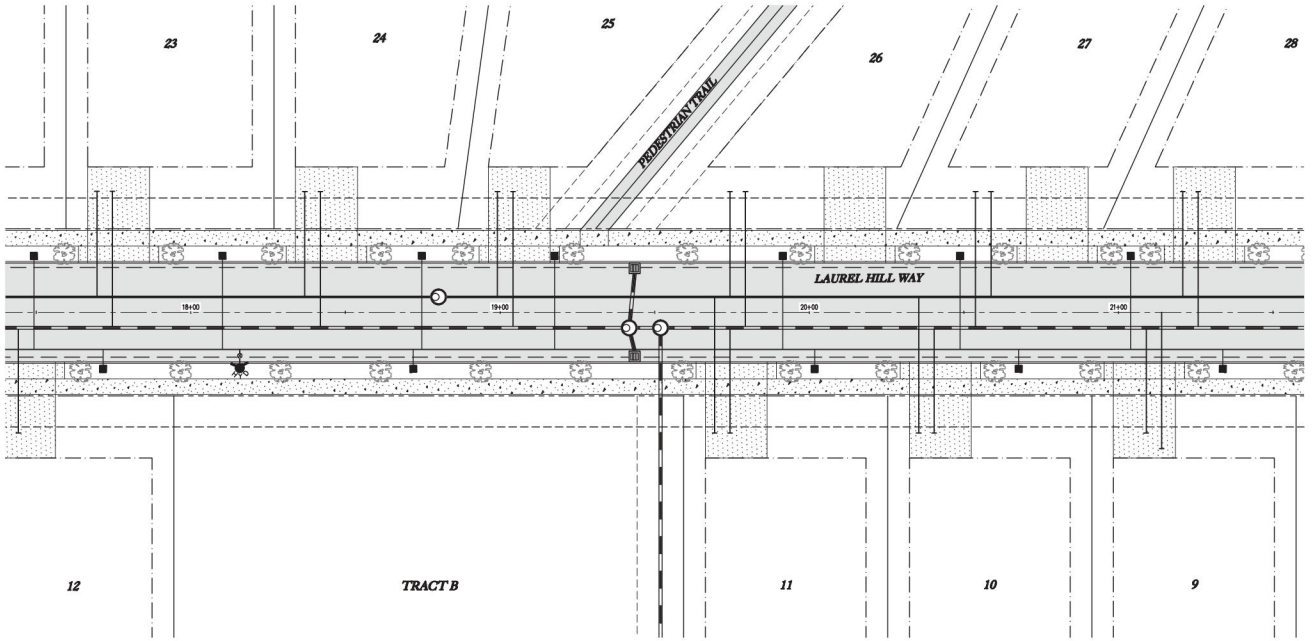
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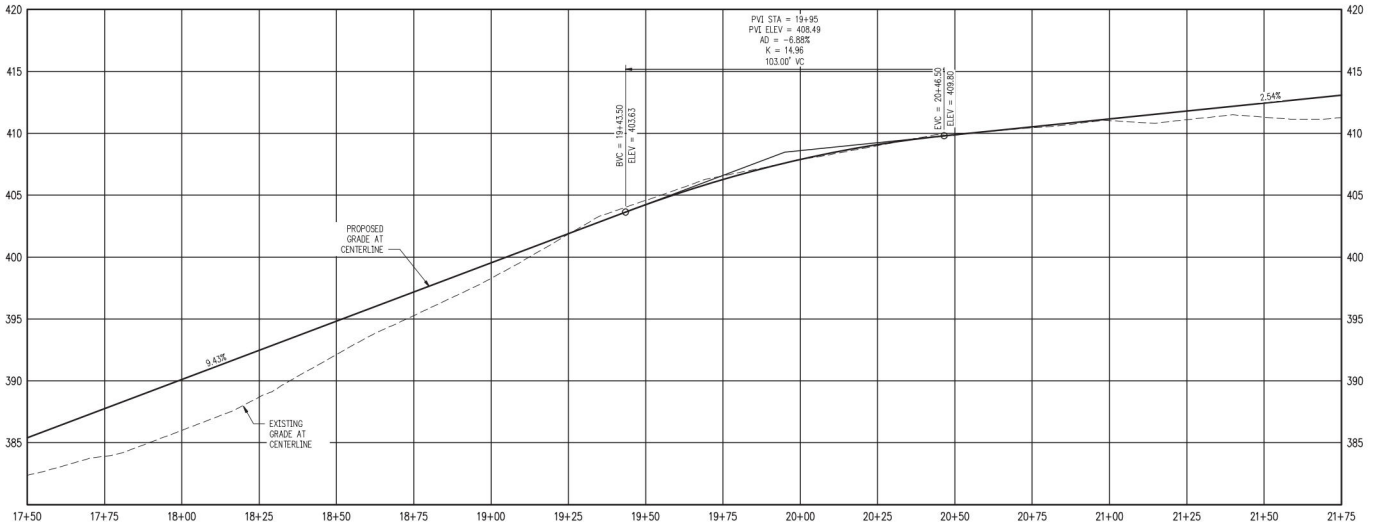
LAUREL HILL WAY STA 13+50-17+50 PLAN & PROFILE

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LAUREL HILL WAY STA: 17+50 TO 21+50 - PLAN

SCALE: 1"=20'



LAUREL HILL WAY STA: 17+50 TO 21+50 - PROFILE

SCALE: H:1"=20' V:1"=5'

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LAUREL HILL WAY STA
17+50-21+50 PLAN &
PROFILE

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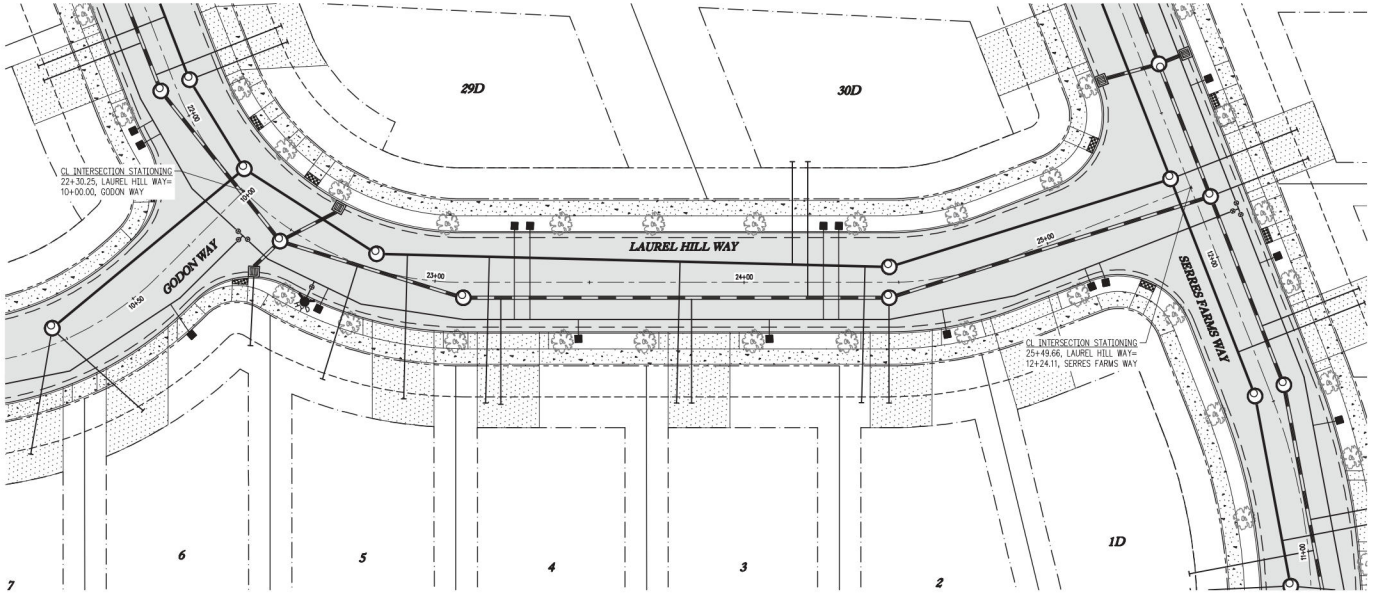
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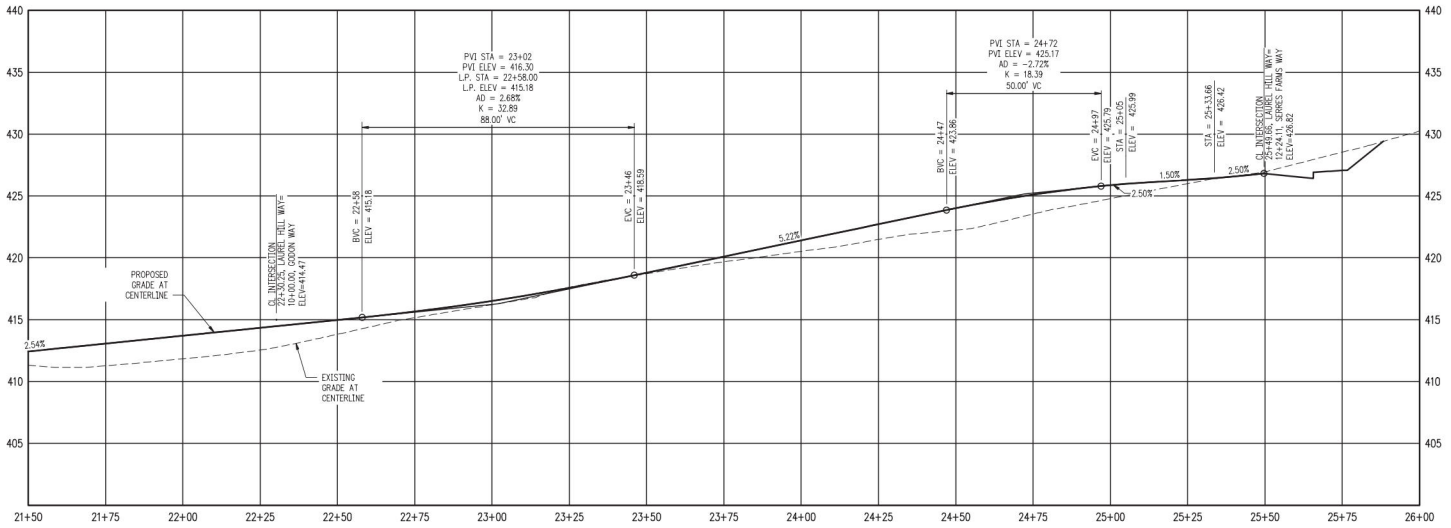
SHEET 21 OF 31

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LAUREL HILL WAY STA: 21+50 TO 26+00 - PLAN

SCALE: 1"=20'



LAUREL HILL WAY STA: 21+50 TO 26+00 - PROFILE

SCALE: H:1"=20' V:1"=5'

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LAUREL HILL WAY STA
21+50-26+00 PLAN &
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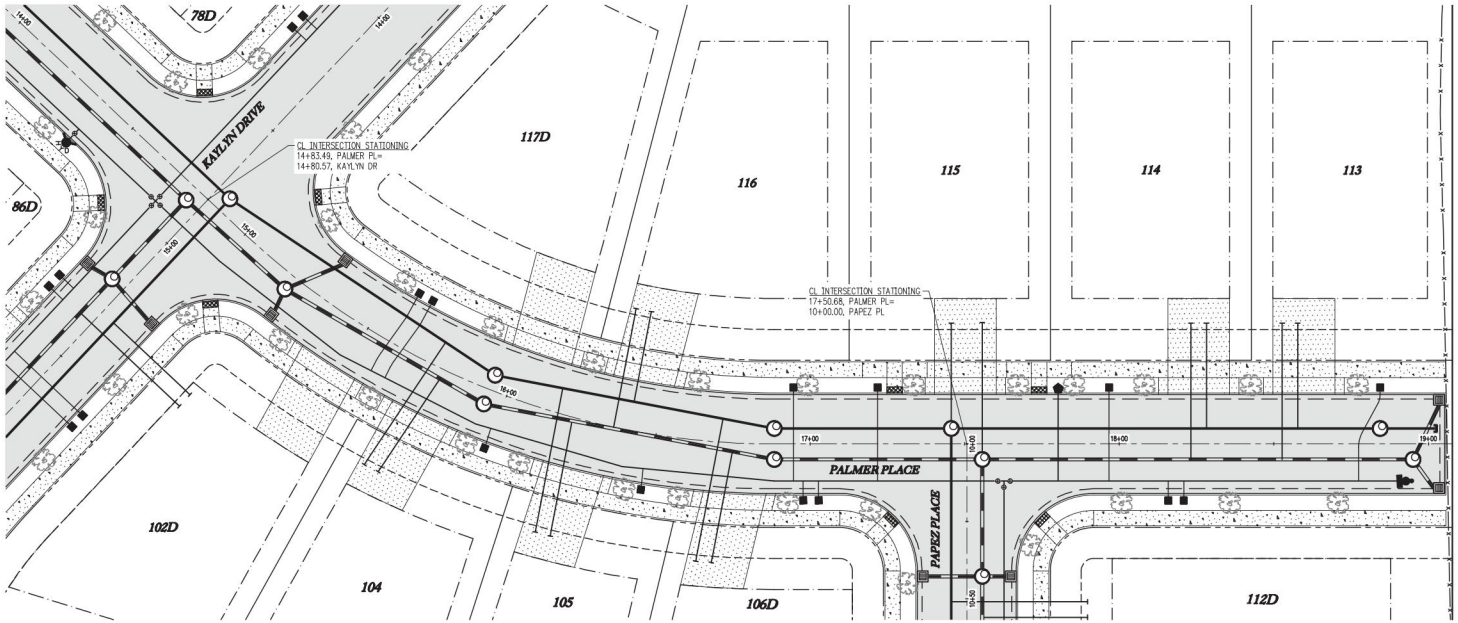
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PALMER PLACE STA 9+50-14+25 PLAN & PROFILE

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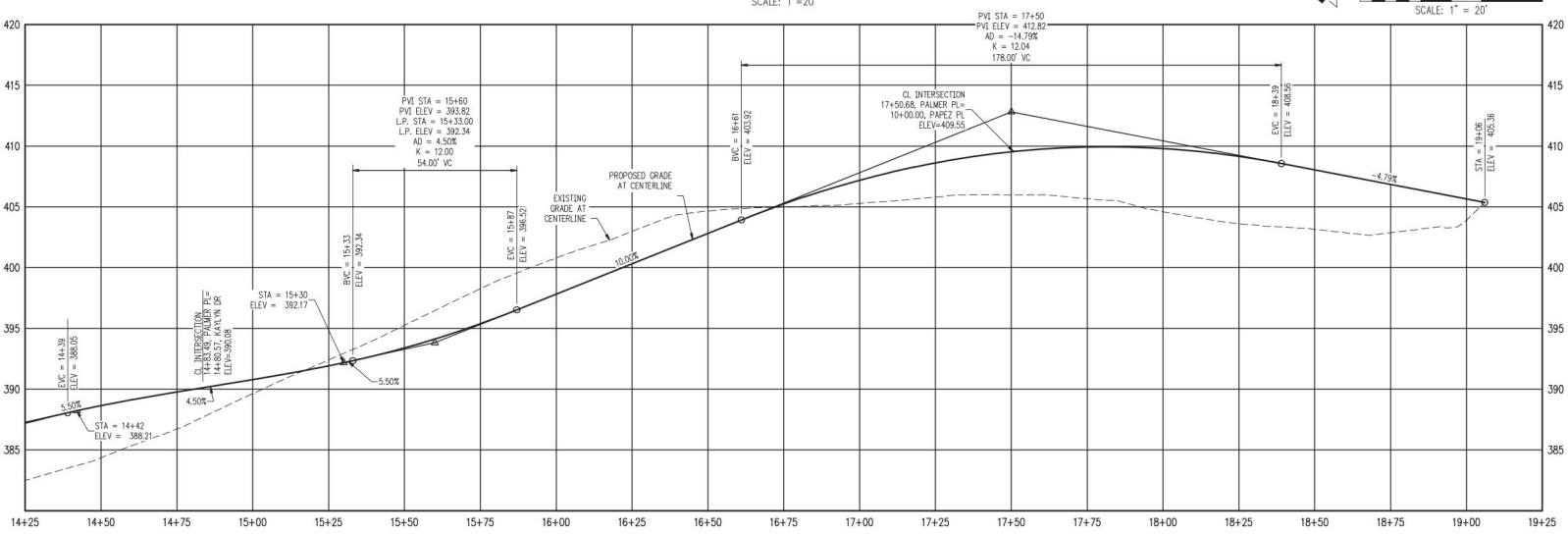
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PALMER PLACE STA: 14+25 TO 19+25 - PLAN

SCALE: 1"=20'

SCALE: 1" = 20'



PALMER PLACE STA: 14+25 TO 19+25 - PROFILE

SCALE: H:1"=20' V:1"=5'

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PALMER PLACE STA
14+25-19+25 PLAN &
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FILE:P:\0082-005 Serres Farms\dwg\plan\0082-005_24x12, Layout: 24 PALMER PLACE STA 14+25-19+25 PLAN & PROFILE, Plot Date: 9/20/2021 4:12 PM, by: Tyler Korb

GODON WAY - PLAN
SCALE: 1" = 20'

GODON WAY - PROFILE
SCALE: H:1"=20' V:1"=5'

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GODON WAY STA 9+50-13+50 PLAN & PROFILE		**SERRES FARMS SUBDIVISION** **123 LOT SUBDIVISION** **TAX LOTS 500, 2200, 2300** **2100, 2200, & 2300** **OREGON CITY, OREGON**

FILE:P:\0082-005 Serres Farms\dwg\plan\0082-005_25st13, Layout: 25 GODON WAY STA 9+50-13+50 PLAN & PROFILE, Plot Date: 9/20/2021 4:13 PM, by: Tyler Korb

TEMP FIRE ACCESS - PLAN
SCALE: 1"=20'

TEMP FIRE ACCESS - PROFILE
SCALE: H:1"=20' V:1"=5'

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TEMP FIRE ACCESS PLAN & PROFILE

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FILE:P:\0082-005 Serres Farms\dwg\plan\0082-005_26st14, Layout: 26 TEMP FIRE ACCESS PLAN & PROFILE, Plot Date: 9/20/2021 4:13 PM, by: Tyler Korb

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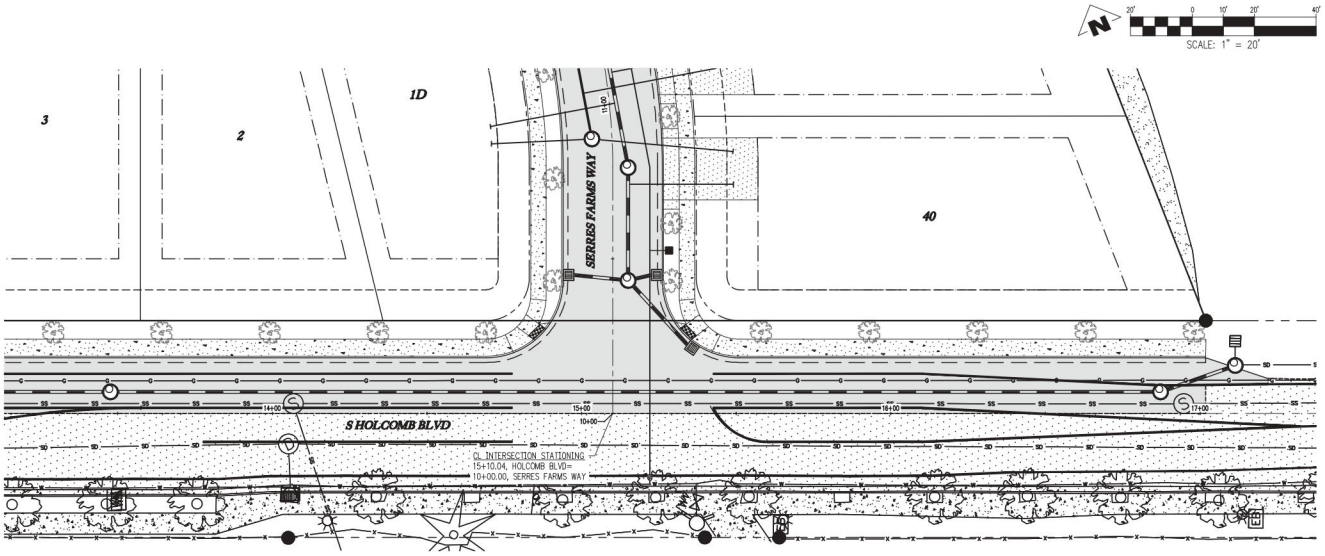
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REGISTERED PROFESSIONAL LAND SURVEYOR — OREGON — DANIEL EVANS — EXPIRES: 06/30/2022

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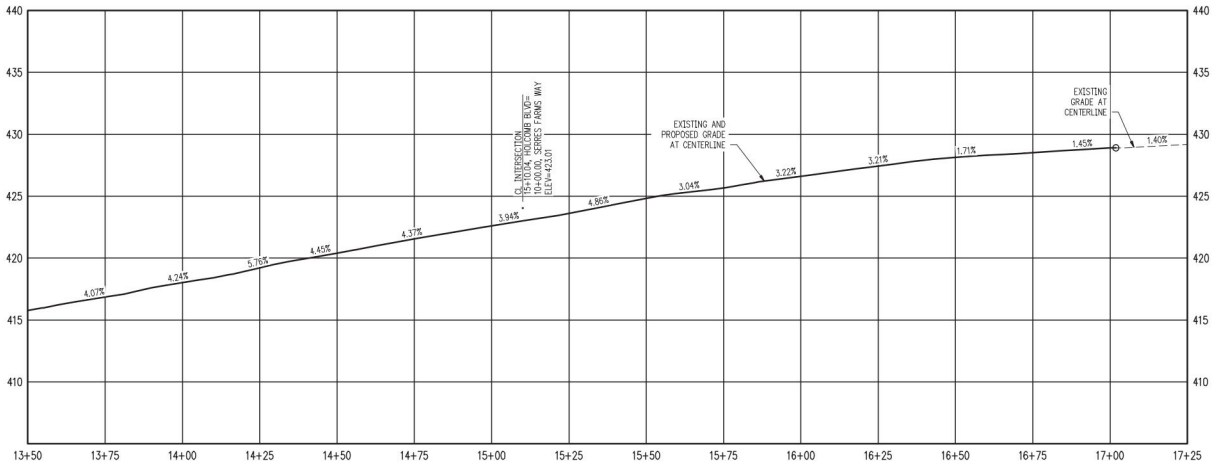
S HOLCOMB BLVD STA 9+75-13+50 PLAN & PROFILE

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S HOLCOMB BLVD STA: 13+50 TO 17+25 - PLAN

SCALE: 1"=20'



S HOLCOMB BLVD STA: 13+50 TO 17+25 - PROFILE

SCALE: H:1"=20' V:1"=5'

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S HOLCOMB BLVD STA
13+50-17+25 PLAN &
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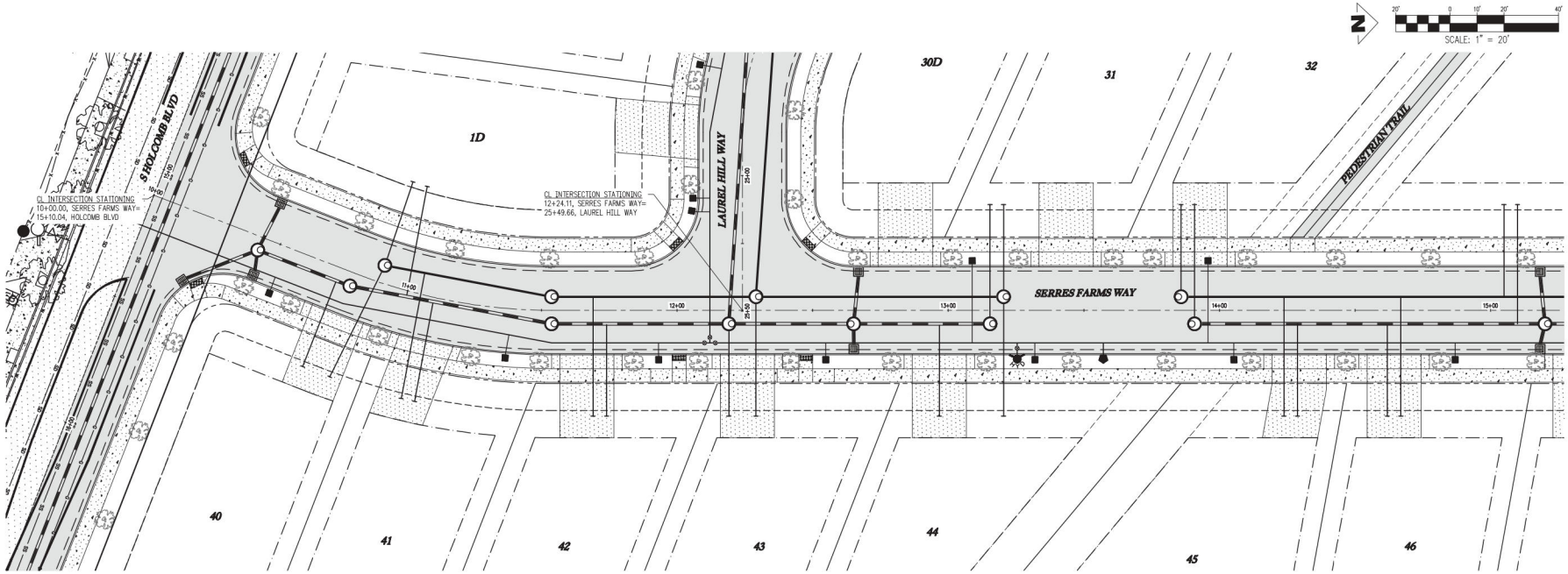
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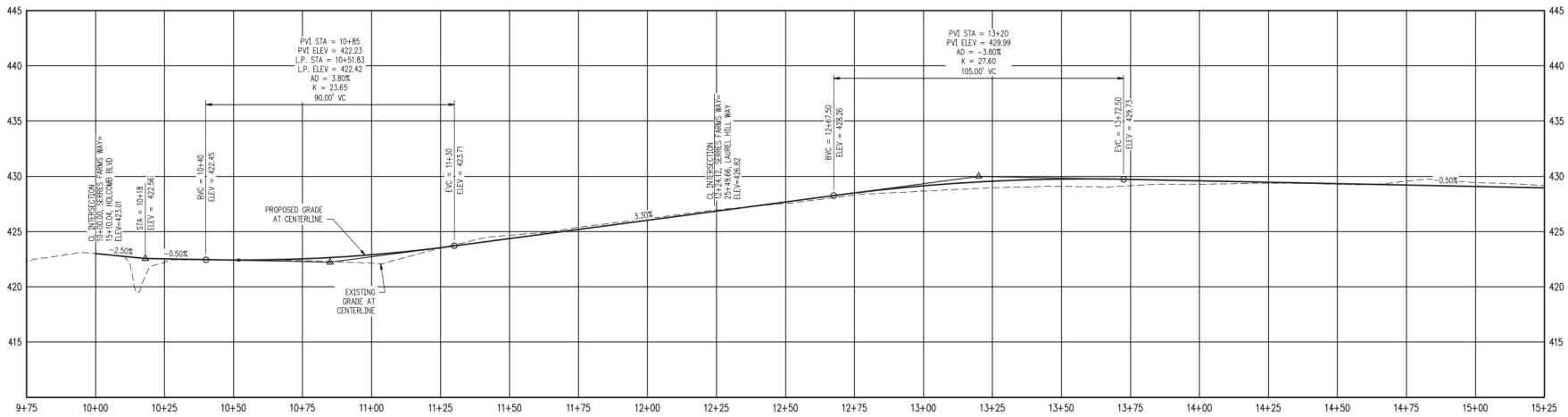
SHEET
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SERRES FARMS WAY STA: 9+75 TO 15+25 - PLAN

SCALE: 1"=20'



SERRES FARMS WAY STA: 9+75 TO 15+25 - PROFILE

SCALE: H:1"=20' V:1"=5'

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SERRES FARMS WAY STA
9+75-15+25 PLAN &
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FILE:P:\0262-005 Serres Farms\dwg\plan\0262-005_29st17, Layout: 29 SERRES FARMS WAY STA 9+75-15+25 PLAN & PROFILE, Plot Date: 9/20/2021 4:14 PM, by: Tyler Korb

SERRES FARMS WAY STA: 15+25 TO 19+25 - PLAN

SCALE: 1"=20'

SERRES FARMS WAY STA: 15+25 TO 19+25 - PROFILE

SCALE: H:1"=20' V:1"=5'

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FILE:P:\0082-005 Serres Farms\dwg\plan\0082-005_30st18, Layout: 30 SERRES FARMS WAY STA 15+25-19+25 PLAN & PROFILE, Plot Date: 9/20/2021 4:14 PM, by: Tyler Korb

SERRES FARMS STA: 19+25 TO 22+75 - PLAN

SCALE: 1"=20'

SERRES FARMS STA: 19+25 TO 22+75 - PROFILE

SCALE: H:1"=20' V:1"=5'

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SERRES FARMS WAY STA 19+25-22+75 PLAN & PROFILE

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FILE:P:\0082-005 Serres Farms\dwg\plan\0082-005_31st19, Layout: 31 SERRES FARMS WAY STA 19+25-22+75 PLAN & PROFILE, Plot Date: 9/20/2021 4:14 PM, by: Tyler Korb

lancaster mobley

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Memorandum

To: Harlan Borow
ICON Construction & Development, LLC

From: Daniel Stumpf, PE
Todd Mobley, PE

Date: July 28, 2021

Subject: Serres Farms Master Plan
Connectivity Analysis



Introduction

This memorandum presents a connectivity analysis related to the proposed Serres Farms Master Plan, located north of S Holcomb Boulevard, east of Holcomb School Road, and west of S Winston Drive in Oregon City, Oregon. The project will include the construction of 123 single-family detached houses over two phases of development. Public access to the site will be provided via a proposed street along S Holcomb Boulevard and S Barlow Drive at S Holcomb Boulevard, while a temporary emergency access will be available along S Holcomb Boulevard near the west edge of the site. Following completion of Phase 2, the temporary emergency access will be removed, and additional public access provided by way of Trail Drive and S Barlow Drive.

The purpose of this memorandum is to address the following item in an incompleteness letter from Oregon City staff:

1. *16.08.025A & B: A connectivity analysis prepared by a transportation engineer licensed by the state of Oregon that describes the existing and future vehicular, bicycle and pedestrian connections between the proposed subdivision and existing or planned land uses on adjacent properties.*

Per Oregon City municipal code section 16.08.025.A:

> *...If required by staff at the pre-application conference, a connectivity analysis shall be prepared by a transportation engineer licensed by the state of Oregon that describes the existing and future vehicular, bicycle and pedestrian connections between the proposed subdivision and existing or planned land uses on adjacent properties. The connectivity analysis shall include shadow plats of adjacent properties demonstrating how lot and street patterns within the proposed land division will extend to and/or from such adjacent properties and can be developed meeting the existing OCMC design standards and adopted transportation system plan, street design standards, and adopted concept plans, corridor and access management studies, engineering standards and infrastructure analyses.*

Location Description

The project site is located north of S Holcomb Boulevard, east of Holcomb School Road, and west of S Winston Drive in Oregon City, Oregon. The site consists of six tax lots which encompass an approximate total of 34.78± acres and is currently undeveloped. Public access to the site will be provided via a proposed street along S Holcomb Boulevard and S Barlow Drive at S Holcomb Boulevard. Alternative access is available by way of S Winston Drive, Jada Way, and Kitty Hawk Avenue; however, these routes provide less direct access to S Holcomb Boulevard relative to S Barlow Drive and subsequently are not expected to serve significant volumes of site trips. A temporary emergency access will be available along S Holcomb Boulevard near the west edge of the site but will be removed following completion of Phase 2.

Figure 1 presents an aerial image of the nearby vicinity with the project site outlined in yellow.



Figure 1: Aerial Photo of Site Vicinity (Image from Google Earth)

Connectivity Analysis

Planned Roadway Connections

As described in the *Location Description* and referencing the site circulation plan (attached to this memorandum), following full buildout of the Serres Farm Master Plan project, access to the site will be available via two existing transportation facilities: S Holcomb Boulevard by way of a single proposed public roadway (Serres Farms Way) and Kaylyn Drive to the east of the site. However, internal street connections which terminate along the edges of the project site will be constructed to allow future access to other properties at the following locations:

- Godon Way: Located near the southwest section of the site, where a future connection to the existing Godon Way roadway alignment can be constructed following redevelopment of adjacent properties to the west of the site.
- Greenhouse Way: Located near the northwest section of the site, will connect to the future north/south Gerkman Road alignment (located between tax lots 1900 and 2000) as well as provide a future east/west connection through tax lot 1900 between the site and Ames Street.
- Kaylyn Drive (north/south alignment): Located near the northeast section of the site, will allow future access for potential development of tax lot 2000.
- Plamer Place: Located near the northeast section of the site, will allow future access for potential redevelopment of tax lot 2401.

The aforementioned roadways and connections will serve motor vehicle traffic, pedestrians, and bicyclists, which may be generated by the site as well as by other surrounding land uses, both existing and future. With respect to pedestrian traffic, all internal public roadways within the site will allow two-way travel for motor vehicles and will be constructed to Oregon City standards with sidewalks and appropriate crossing measures (e.g. ADA ramps). Additionally, internal roadways are expected to be low volume and low speed residential streets whereby bicyclists can safely and comfortably travel along/share these internal roadways with motor vehicle traffic.

S Holcomb Boulevard Improvements

As part of the Serres Farms Master Plan project, sidewalks and bicycle lanes will be constructed/striped along the site frontage with S Holcomb Boulevard, where currently neither are available along the north side of the roadway. Subsequently, these frontage improvements will increase overall pedestrian and bicycle connectivity and safety along S Holcomb Boulevard for both future residents of Serres Farms as well existing users of the roadway.

Pedestrian Path and Crossing

As part of the Serres Farms Master Plan project, the installation of a north/south pedestrian path and mid-block crossing is proposed along the west edge of the project site and across S Holcomb Boulevard. Installation of this pedestrian path and crossing are in accordance with projects C5 (upgraded pedestrian crossing) and S11 (shared-use path) that are identified in the City of Oregon City's Transportation System Plan (TSP). For future residents of the Serres Farm Master Plan project, access to this pedestrian path will be available via Godon Way, Greenhouse Way, and a dedicated pedestrian path located between these two roadways.

The TSP shows the trail and the crossing on the west leg of the intersection of Oak Tree Terrace at S Holcomb Boulevard. However, due to topography along S Holcomb Boulevard at that location sight distance is limited. To find a safer location for the mid-block crossing, sight distance was evaluated on the north and south sides of the roadway at the western edge of the project site. Based on a posted speed of 35 mph along S Holcomb Boulevard, the minimum recommended intersection sight distance standard along the roadway is 390 feet.

At a location near the west edge of the site, sight distance was measured to be in excess of 450 feet to the east and in excess of 450 feet to the west, provided roadway foliage just west of the south end of the pedestrian crossing is removed/properly maintained. Therefore, the proposed location of the mid-block crossing is expected to operate safely with respect to available sight distances, following removal/proper maintenance of the obstructing foliage.

Access Spacing

According to Oregon City's TSP, the following block length standards are applicable to both internal streets and adjacent roadways to the site (measured centerline to centerline):

- Maximum Block Size (Street to Street): 530 feet;
- Minimum Block Size (Street to Street): 150 feet; and
- Minimum Driveway Spacing (between other streets and driveways): 175 feet along Arterials and 25 feet along Local Streets. Note that single and two-family dwellings are exempt from the driveway to driveway spacing standard.

Regarding the maximum block length standard, there is a provision to allow a longer block length given that a mid-block pedestrian/bicycle accessway is provided intermittently at a spacing no greater than 330 feet (unless the connection is impractical due to existing development, topography, or environmental constraints).

Specific to the proposed Serres Farms Way intersection with S Holcomb Boulevard, the proposed connection is located approximately 355 feet west of S Winston Drive and approximately 620 feet east of S Oak Tree Terrace (measured near-edge to near-edge). Although spacing between the access and S Oak Tree Terrace is greater than the maximum block length standard, a mid-block pedestrian/bicycle crossing and accessway is planned near the east edge of the site. Additionally, no private driveways that serve land uses other than one to two-family dwellings are located within 175 feet of the proposed public access location. Therefore, spacing standards will be met for the proposed Serres Farms Way intersection.

Within the site, generally all block length standards will be met; however, due to limitations related to existing development adjacent to the site, meeting the maximum block length standard will be impractical at the following locations:

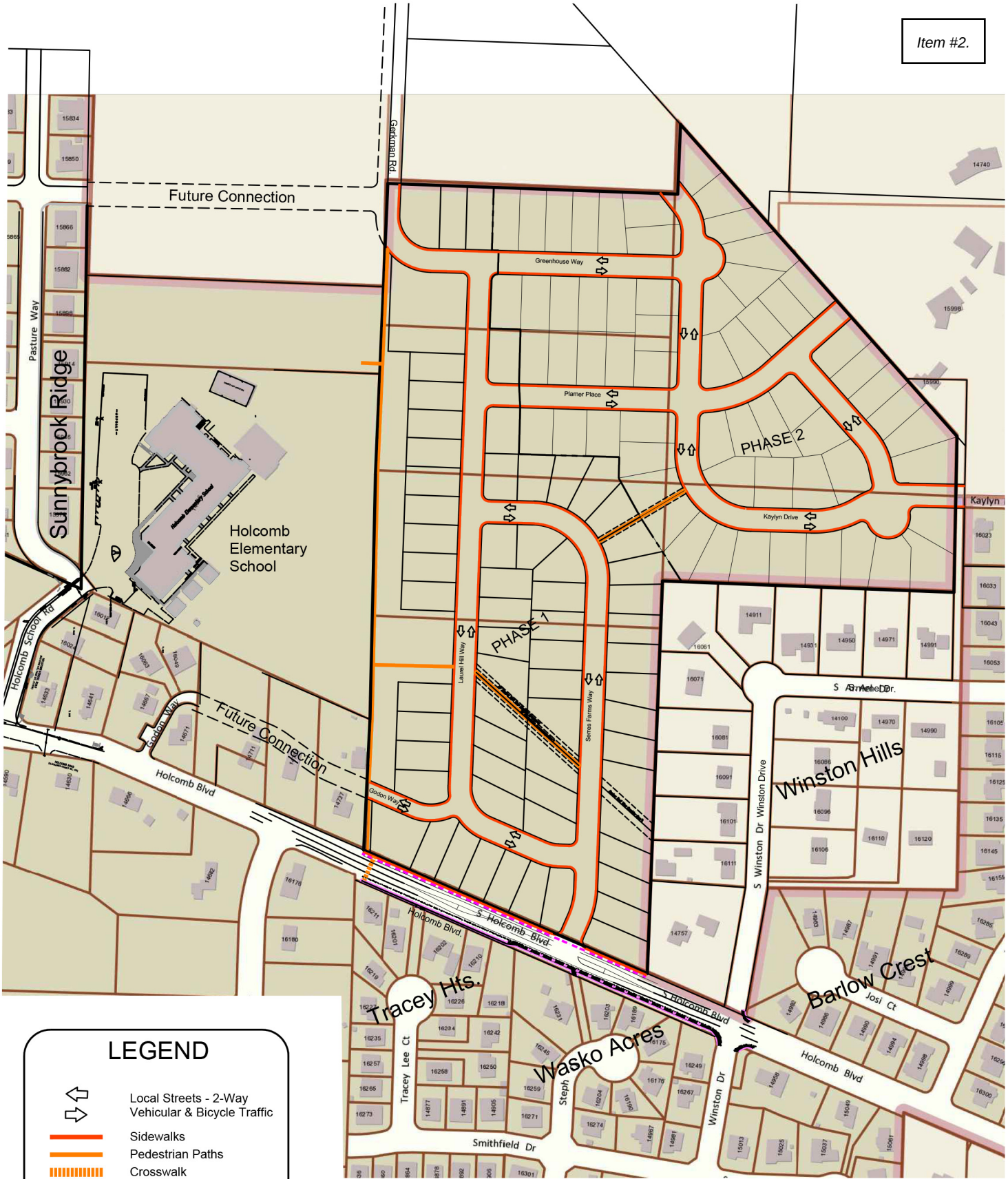
- Along the west side of the site, between Greenhouse Way and the pedestrian connection between Laurel Hill Way and the north/south pedestrian path.
- Along the east and south sides of the site, along Serres Farm Way, Kaylyn Drive, and the connecting pedestrian path between the two roadways.

Note that internal pedestrian paths between Serres Farms Way and Laurel Hill Way, and Kaylyn Drive and Serres Farms Way were considered when evaluating block lengths.

Conclusions

Based on a review of the site circulation plan, the proposed internal street system will provide multiple redundant routes to/from the site via motor vehicle and other modes of travel. In addition, future access will be available to adjacent properties in the event these properties redevelop. Therefore, sufficient connectivity to and from the site will be available.

If you have any questions regarding this analysis during your review, please don't hesitate to contact us.

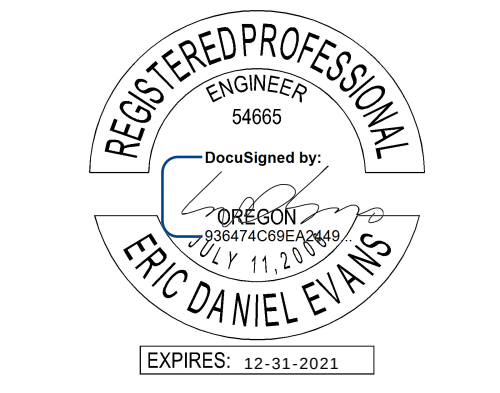


SITE CIRCULATION PLAN

EMERIO
ENGINEERING ▪ SURVEYING ▪ DESIGN

Preliminary Stormwater Report for Serres Farms Subdivision Phase I & II 123 Lots City of Oregon City, Oregon (TL 500, 2200 & 2300, Tax Map 2N2E-28A; TL 2100, 2200, & 2300, Tax Map 2N2E-21D)

Emerio Project Number:	0082-005
Oregon City Permit Number:	TBD
Date:	7-30-2021



Prepared For:
Harlan Borow
ICON Construction & Development, LLC
1969 Willamette Falls Drive, Suite 260
West Linn, OR 97068
503.657.0406 x160

Prepared By:
Eric Evans, PE
Emerio Design, LLC
6445 SW Fallbrook Place, Suite 100
Beaverton, Oregon 97008
(503) 853-1910
eric@emeriodesign.com

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APPENDIX D
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(2) Post-Developed Basin Map

Project Overview and Description:

The purpose of this report is to address the stormwater management for the proposed development. The site is currently made up of six large residential tax lots covering approximately 35 acres of land, each of which are vacant and currently being used as farmland. The lot line between the two existing land parcels will be adjusted as part of the development. These two parcels will be developed into a 123-lot subdivision with associated public streets, walkways, and open space tracts. Frontage improvements along S Holcomb Blvd, a connection to Kaylyn Drive to the east, and modifications to the downstream storm system will also be constructed. See Appendix A(1) for a vicinity map of the site.

Soil Classification:

The NRCS soil survey of Clackamas County, Oregon classifies the development site soil as Helvetia silt loam, Quatama loam, Saum silt loam, Huberly silt loam all with an associated hydrologic group of C or C/D. However, in coordination with city staff and the project geotechnical engineer, it was determined that due to the nearly complete lack of onsite infiltration capacity, onsite soils could be reclassified as 80% type D soil and 20% type C soil. See Appendix B(4) as verification from the project geotechnical engineer. Soils along the S Holcomb Blvd frontage will remain HSG C.

A curve number of 98 will be used for all impervious areas, see Appendix B(2). See Appendix B(1) for a site soil classification map (from NRCS).

Basin Delineation:

Onsite and offsite basins were created after determining post-developed runoff paths. All developed areas are encompassed in these basins. Additionally, offsite areas from Holcomb Boulevard are also included in tabulated basin areas. Each proposed lot was assumed to contain 3,000 SF of impervious area. See Appendix C(1) for tabulated basin areas and Appendix D(2) for an onsite basin map.

Infiltration:

Onsite infiltration tests were conducted by GeoPacific Engineering in September of 2020. These tests yielded infiltration rates of 0.2 in/hr and 0.0 in/hr, see Appendix B(3). Due to the low infiltration rates, the proposed stormwater management facilities were designed as lined facilities.

Stormwater Management Methodology:

A proposed onsite detention pond will manage water quality and detention standards for most of the proposed development, including the frontage improvements along S Holcomb Blvd. This pond will have 2 ft of open storage (excluding freeboard), and have all sides sloped at a 4:1 ratio. The pond was sized using simple geometry sizing in the BMP Sizing Tool, see Appendix C(2).

The proposed flow control structure consists of two horizontal orifices per Figure C-12 shown in the 2019 Oregon City Stormwater and Grading Standards. An overflow will be set at the elevation of the peak 10-year design storm elevation. The geometry of the two orifices can be seen in Appendix C(3) and are shown below.

Low Orifice: 7.9” Diameter, 336.00’ Elevation
High Orifice: 19.0” Diameter, 339.40’ Elevation

Due to onsite grading restrictions, lots 60 and 61, and the northwest corner of Gerkman Road will not flow to the proposed onsite pond. A lined stormwater planter located at the northwest corner of the site will manage runoff from these areas. See Appendix C(2) for the BMP planter sizing calculations.

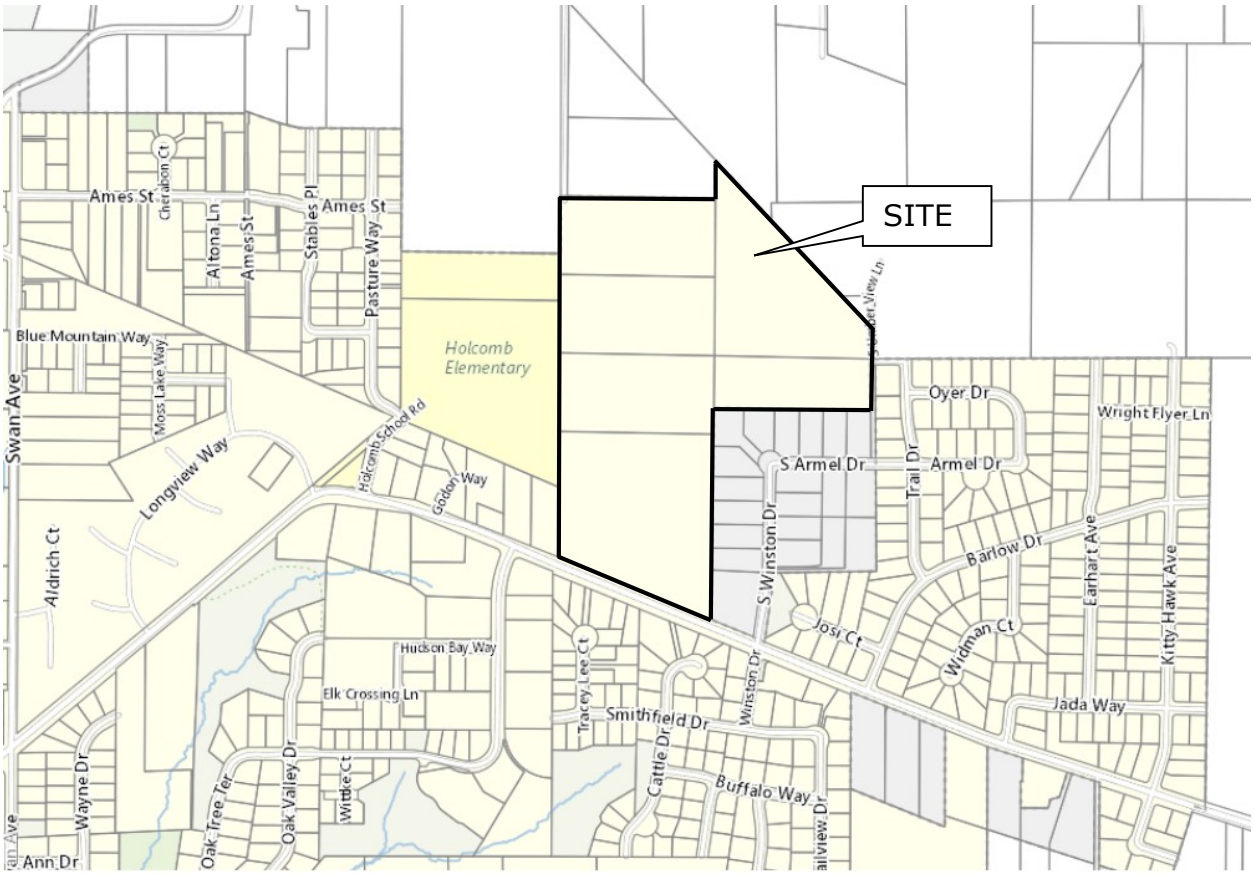
To the west and north of the development parcel is an existing farming operation with several drainage ditches that currently convey onsite, upstream, and downstream drainage to discharge points north of Forsythe Road. The farming operation is also owned and operated by the owner of the subject development parcel. The farmer has advised that he will be modifying the existing storm system, either by widening ditch segments or continuing to convert segments to piping in order increase workable area for crops and other farm activities. At the time of the final engineering submittal, a downstream analysis of this modified system extending to 1500 ft downstream of the site will be submitted to the city.

Conclusion:

The design of the proposed site satisfies the water quality and detention standards set by the 2019 Oregon City Stormwater and Grading Standards.

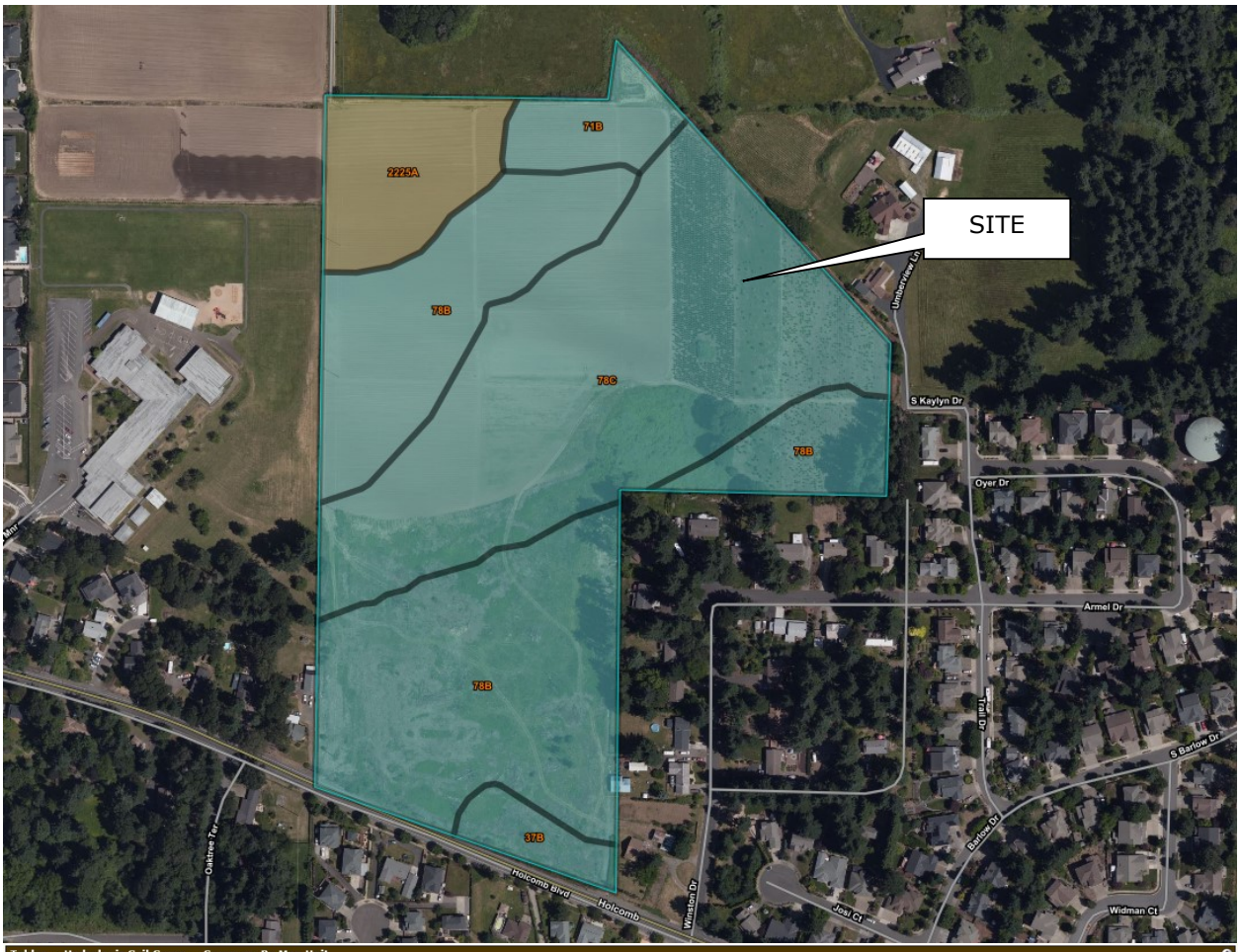
Appendix A:

Appendix A(1)
Vicinity Map



Appendix B:

Appendix B(1)
Soil Classification Map



Tables — Hydrologic Soil Group — Summary By Map Unit

Summary by Map Unit — Clackamas County Area, Oregon (OR610)

Summary by Map Unit — Clackamas County Area, Oregon (OR610)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
37B	Helvetia silt loam, 3 to 8 percent slopes	C	1.0	2.7%
71B	Quatama loam, 3 to 8 percent slopes	C	1.6	4.4%
78B	Saum silt loam, 3 to 8 percent slopes	C	15.9	44.7%
78C	Saum silt loam, 8 to 15 percent slopes	C	14.1	39.5%
2225A	Huberly silt loam, 0 to 3 percent slopes	C/D	3.1	8.6%
Totals for Area of Interest			**35.6**	**100.0%**

Appendix B(2)
Curve Number Table

RUNOFF CURVE NUMBERS (TR55)

Table 2-2a: Runoff curve numbers for urban areas [1]

Cover description		CN for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area[2]	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
Paved; open ditches (including right-of-way)			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

Use CN = 98 for Impervious Areas

Real-World Geotechnical Solutions
Investigation • Design • Construction Support

September 16, 2020
Project No. 20-5545

The Holt Group, Inc.
PO Box 61426
Vancouver, Washington 98666

CC: Nathan McCarty, AKS Engineering & Forestry, LLC via email: mccartyn@aks-eng.com

SUBJECT: PRELIMINARY GEOTECHNICAL ENGINEERING REPORT
SERRES FARMS - S HOLCOMB BOULEVARD
2 2E 21D LOTS 2100, 2200, & 2300 AND 2 2E 28A LOTS 500, 2200, & 2300
OREGON CITY, 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-7357, dated June 1, 2020, and your subsequent authorization of our proposal and *General Conditions for Geotechnical Services*. This report is considered Preliminary since a grading plan has not been developed.

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The subject site located on the north side of S. Holcomb Road in the City of Oregon City, Clackamas County, Oregon (Figure 1). The property is composed of six tax lots that total approximately 35 acres in size. Topography is primarily gently to moderately sloping to the northwest with grades up to 20 percent with an area of steeper topography (exceeding 25 percent grade) in the central portion of the site (Figures 2 and 3). Vegetation consists primarily of short grasses, agricultural crops, and nursery stock. No structures currently exist on the property.

It is our understanding that the proposed development will consist of a ±106 lot subdivision for single family homes, new streets, stormwater facility, and associated underground utilities. A grading plan has not been provided for our review; however, we anticipate maximum cuts and fills will be on the order of about 10 feet due to the sloping topography. It is our understanding that utilities may be installed to depths of 30 feet.

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.

Portions of the subject site are underlain by Quaternary age (last 1.6 million years) loess, a windblown silt deposit that mantles uplands in the Tualatin Basin (Madin, 1990). The loess, included as a member of the Willamette Formation, generally consists of massive silt with localized buried paleosols indicating numerous depositional episodes which most likely followed catastrophic flooding events in the Willamette Valley, the last of which occurred about 10,000 years ago.

The northern portion of the site below an elevation of approximately 390 feet mean sea level (msl) is underlain by the Pleistocene Terrace Deposits Formation (Schlicker and Finlayson, 1979). The Pleistocene Terrace Deposits Formation are approximately 0.01 to 1 million years old and consist of gravel with cobbles and boulders interlayered with silt and clay and can contain mudflow deposits (Schlicker and Finlayson, 1979). The Pleistocene Terrace Deposits Formation is equivalent to the Gresham and Estacada Formations of Trimble (1963).

Portions of the site above 390 feet msl are underlain by the Boring Lava lithologic unit which consists of basaltic and basaltic andesite lava flows erupted from a series of local volcanic vents during Plio-Pleistocene time (about 600,000 thousand to 2.6 million years ago) (Schlicker and Finlayson, 1979; Madin, 2009). The total thickness of the Boring Lava unit ranges from greater than 600 feet near vents to less than 50 feet on the outer margins.

Underlying the Boring Lava Formation is the Tertiary-aged (2-65 million years ago) Troutdale formation - a partially cemented conglomerate, sandstone, and mudstone deposited by an ancestral Columbia River (Trimble, 1963; Madin, 2009). Regionally, the Troutdale Formation is informally divided into an upper and a lower member (Phillips, 1987). Lithologies in the upper member include lenticular layers of volcaniclastic (vitric) sand, quartzite-bearing gravel, fine-grained sand, silt and clay, micaceous quartz-rich sand, and conglomerate with a cumulative average thickness of 100 to 150 feet. The lower member consists primarily of laminated silty clay and sand with reported thicknesses in water well logs of up to 880 feet and is the equivalent of the Sandy River Mudstone.

REGIONAL SEISMIC SETTING

At least four potential source zones capable of generating damaging earthquakes are thought to exist in the region. These include the Portland Hills Fault Zone, the Grant Butte and Damascus-Tickle Creek Fault Zones, 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 0.6 miles northeast of the site. The East Bank Fault occurs along the eastern margin of the Willamette River, and is located approximately 10.3 miles north of the site. The Oatfield Fault occurs along the western side of the Portland Hills, and is approximately 0.8 miles southwest 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).

Grant Butte and Damascus-Tickle Creek Fault Zones

The Grant Butte fault zone was mapped along the north side of Mt. Scott and Powell Butte by Madin (1990). It was also extended eastward to Grant Butte on the basis of mapping by CH2M Hill and others (1991) and informally named the Grant Butte fault (Cornforth and Geomatrix, 1992). The Damascus-Tickle Creek fault zone displaces Pliocene and possibly Pleistocene sediments in the vicinity of Boring, Oregon (Madin, 1992; Lite, 1992). Relatively short faults define a 17-km-long fault zone that is apparently linked to the Grant Butte fault on the basis of stratigraphic relationships showing middle and late Pleistocene activity. Geomatrix (1995) assigns a probability of 0.5 for activity on structures within these fault zones. The nearest portion of the Grant Butte and Damascus-Tickle Creek Fault Zone is approximately 2.1 miles east of the subject site.

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 20.2 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 explorations for this report were conducted on July 22 and 23 and August 27, 2020. Eighteen exploratory test pits were excavated with a medium or large sized trackhoe to depths of 12 to 25 feet at the approximate locations indicated on Figure 3. 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 test pits. Soils observed in the explorations 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 test pits 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 not encountered in our explorations; however, it is likely that areas of undocumented fill may exist in the vicinity existing access driveways.

Topsoil Horizon: The ground surface in test pits TP-1 through TP-18 was directly underlain by a low to moderately organic topsoil horizon. The brown topsoil horizon consisted of silt (OL-ML), was loose, and contained trace fine roots throughout. The topsoil horizon typically extended to a depth of 6 to 14 inches and up to 18 inches in areas that had previously been tilled.

Willamette Formation (Loess): Underlying the topsoil horizon in test pits TP-1 through TP-3, TP-7, TP-8, TP-15, and TP-16 was windblown loess belonging to the Willamette Formation. The light brown, clayey silt (ML) was generally characterized by a stiff to very stiff consistency. Field pocket penetrometer measurements from test pits indicate an approximate unconfined compressive strength of 1.5 to 4.5 tons/ft^2. The loess extended to a depth of approximately 1.5 to 2.5 feet in test pits TP-1 through TP-3, TP-7, TP-8, TP-15, and TP-16.

Pleistocene Terrace Deposits Formation: Underlying the topsoil horizon in test pits TP-4, TP-10, and TP-14 and the loess in test pits TP-2, TP-3, and TP-15 was material belonging to the Pleistocene Terrace Deposits Formation. This material generally consisted of stiff to very stiff, light brown to gray silty clay (CL) to clayey silt (ML) that extended to a depth of 6 to 11 feet. In test pits TP-2 through TP-4, TP-10, TP-14, and TP-15, the silty clay to clayey silt was underlain by dense, silty gravel (GM) with sand or stiff silty clay to clayey silt with gravel. The gravel was subrounded and weakly cemented at times. In test pits TP-10 and TP-14, the Pleistocene Terrace Deposits Formation extended to a depth of approximately 9.5 to 14.5 feet and beyond the maximum depth of exploration in test pits TP-2 through TP-4 and TP-15 (16 to 25 feet).

> ***Fat Clay:*** Fat clay (CH) was encountered within and underlying the Pleistocene Terrace Deposits in test pits TP-4, TP-10, and TP-14. The fat clay was stiff to very stiff, gray in color, and extended to depths of 12 to 15 feet in test pit TP-4 and beyond the depth of exploration in test pits TP-10 (12 feet) and TP-14 (16.5 feet). Laboratory testing of a sample of the fat clay from test pit TP-4 at a depth of 13 feet indicates the clay is moderately expansive with an expansion index of 56. Results of laboratory testing are attached at the end of this report.

Residual Soil of Boring Lava Formation: Underlying the topsoil horizon in test pits TP-5, TP-6, TP-9, TP-11 through TP-13, TP-17 and TP-18 and the loess in test pits TP-1,TP-7, TP-8, and TP-16 was residual soil derived from in place weathering of the Boring Lava Formation. These soils generally consisted of light reddish brown to gray clayey silt (ML) to silty clay (CL) with sand and varying quantities of gray basalt. The residual soil of the Boring Lava Formation typically had a stiff to very stiff consistency and extended to depths of 2.5 to 12 feet in test pits TP-6 through TP-9, TP-11 through TP-13, and TP-16 through TP-18, and beyond the maximum depth of exploration in test pits TP-1 and TP-5 (12 to 17 feet).

Boring Lava Formation: The residual soil of the Boring Lava in test pits TP-6 through TP-9, TP-11 through TP-13, and TP-16 through TP-18 was underlain by highly weathered basalt belonging to the Boring Lava Formation. In test pits TP-6 through TP-9, TP-11 through TP-13, and TP-16 through TP-18, the gray to brown rock contained trace silty clay to clayey silt matrix and was weathered to extremely soft (R0) to soft (R2) according to the ODOT Rock Hardness Chart (Table 1). Occasionally, less weathered boulders that were medium hard (R3) to hard (R4) were encountered. Practical refusal was encountered with a medium sized trackhoe on these boulders in test pits TP-12 and TP-13 at depths of 15 and 14.5 feet, respectively. The larger trackhoe utilized to excavate test pits TP-16 through TP-18 was able to achieve depths of 23.5 to 25 feet in Boring Lava material. Basalt belonging to the Boring Lava Formation extended beyond the maximum depth of exploration in test pits TP-6 through TP-9, TP-11 through TP-13, and TP-16 through TP-18 (12 to 25 feet). The depth at which rock belonging to the Boring Lava Formation was first encountered and the depth at which practical refusal was achieved is presented in Table 2.

Table 2. Depth of Basalt Bedrock Encountered in Explorations

Test Pit	Depth Rock First Encountered (feet)	Depth of Practical Refusal on Medium Hard (R3) to Hard (R4) Basalt (feet)
TP-6	6.5	>17
TP-7	6.5	>17
TP-8	3.5	>14.5
TP-9	3.5	>17
TP-11	2.5	>12
TP-12	3.5	15 (R3 Boulder)
TP-13	4	14.5 (R3 to R4 Boulder)
TP-16	12	>23.5
TP-17	6	>25
TP-18	3	>25

Weathered Troutdale Formation: Weathered Troutdale Formation soils were encountered beneath the Boring Lava Formation in test pit TP-6. These soils generally consisted of light reddish brown to gray, clayey silt (ML) to silty clay (CL). The silty clay to clayey silt extended to a depth of 14 feet in test pit TP-6 and was underlain by highly plastic, fat clay (CH). The fat clay extended beyond the maximum depth of exploration in test pit TP-6 (17 feet).

Soil Moisture and Groundwater

Soils encountered in test pits were damp to moist on July 22 and 23, 2020. On August 27, 2020, perched groundwater seepage was encountered in test pit TP-14 at a depth of 9.5 feet. Discharge was visually estimated at approximately 1/4 gallon per minute. Regional groundwater mapping indicates static groundwater is present at a depth of 210 to 270 feet below the existing ground surface (Snyder, 2008). 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.

The 1979 Geology and Geologic Hazards Study by Schlicker and Finlayson identifies the northern portion of the site as having wet soils and/or a high water table; this is the study that primarily helped modify Oregon City's development code to require that groundwater concerns be addressed. This regionally mapped wet soils condition is predominantly created by storm runoff during the wet season due to the impermeable clay soils derived from the Boring Lava Formation and slow draining topography of the Oregon City plain. Such shallow, perched groundwater is a lesser geotechnical issue than seeps or springs created from groundwater emanating from below due to geologic structural control of groundwater flow. The effects of shallow perched groundwater are most pronounced in low-lying areas which are currently mapped as wetlands and stay wet for longer periods, perhaps year round. At the time of the 1979 report, areas of severe concern such

as low-lying wetlands and drainages could still be developed. This report served as a warning for those attempting to develop in low-lying areas that localized development sites may have more severe problems than the average site in the region and that specific types of constructed systems may experience water related difficulties. The report specifically addresses concerns relating to hydrostatic pressures on basement walls, underground storage tanks, and poor performance of septic systems. We do not believe that any of these constructed systems are currently proposed for the project.

INFILTRATION TESTING

Soil infiltration testing was performed using the open hole infiltration method in test pits TP-1 through TP-3, TP-10, and TP-11 at a depth of 12 feet. The soil was pre-saturated for a period of over 3 hours. The water level was measured to the nearest tenth of an inch every fifteen minutes to half hour with reference to the ground surface. Table 3 presents the results of our falling head infiltration testing.

Table 3. Summary of Infiltration Test Results

Test Pit	Depth (feet)	Soil Type	Infiltration Rate (in/hr)	Hydraulic Head Range (inches)
TP-1	12	Silty CLAY (CL) to clayey SILT (ML) with gravel	0.2	30-32
TP-2	12	Silty Gravel (GM) with sand, trace clay	0	40-41
TP-3	12	Silty Gravel (GM) with sand, trace clay	0	32-33
TP-10	12	FAT CLAY (CH)	0	33-34
TP-11	12	Weathered BASALT, trace silt to clay matrix	0	28-29

The results of our infiltration testing indicate the soils exhibit low permeability with a high probability of silting up over time.

Slope Stability

For the purpose of evaluating slope stability, we reviewed 1:24,000 scale topographic mapping by the U.S. Geological Survey (Figure 1), Lidar based high resolution digital elevation maps (Figure 2), and 1:1,200 scale topographic mapping (Figure 3), reviewed published geologic mapping and the statewide Landslide Database (Figure 2), performed a field reconnaissance, and explored subsurface conditions at the site with eighteen exploratory test pits, the locations of which are presented on Figure 3.

Landslide inventory mapping of the Oregon City and Gladstone Quadrangles and the statewide landslide database indicate no mapped landslides are present at the site (Schlicker and Finlayson, 1979; Madin, 1990; Burns and Madin, 2009; Madin, 2009; Burns and Mickelson, 2010; Burns et al., 2012; Dogami Slido, 2020). A prehistoric (greater than 150 years old) landslide is mapped along a tributary drainage of Tour Creek approximately 1,000 feet to the southwest of the site, as presented on Figure 2 (Madin, 2009; Burns and Mickelson, 2010; Dogami Slido, 2020). Our reconnaissance and review of Lidar based high resolution digital elevation maps (Dogami, 2020)

indicate slope geomorphology on the site is smooth and uniform. No evidence of recent movement (ground cracks, scarps, or hummocky topography) was observed during our reconnaissance.

The Troutdale Formation, which underlies the site at depth, includes a thick sequence of weak sedimentary strata that are prone to instability on moderate to steep slopes. Regionally, many large landslides are mapped within the Troutdale Formation primarily on the side slopes of drainages where stream erosion has deeply incised the formation and created oversteepened slopes (Schlicker and Finlayson, 1979; Madin, 1994; Madin and Burns, 2006). In areas where the Troutdale Formation is capped by Boring Lava, these landslides are known to propagate upslope by undermining large blocks of Boring Lava Formation.

Subsurface exploration indicates that the ground surface in the steeply sloping portions of the site are underlain by residual soil and basalt rock of the Boring Lava Formation. Pocket penetrometer measurements of the residual soil of the Boring Lava Formation indicate an approximate unconfined compressive strength of 3.5 to 4.5 tons/ft^2 which correlates to a very stiff consistency. The residual soil of the Boring Lava extended beyond the maximum depth of exploration in test pits TP-1 and TP-5 and was underlain by highly weathered, basalt bedrock in test pits TP-6 through TP-9, TP-11 through TP-13, and TP-16 through TP-18 to the maximum depth of exploration (12 to 25 feet). Stiff to very stiff, weathered Troutdale Formation soils were encountered beneath the Boring Lava formation in test pit TP-6, which was located in an area of gently sloping topography. No weak zones such as volcanic ash layers were observed in explorations and contacts between the layers appeared to be gradational. Our explorations indicate that native soils underlying the slope are characterized by moderate to high shear strength and a moderate to high resistance to slope instability.

In our opinion, the slope instability hazard at the subject site is low. Existing Boring Lava and Troutdale Formation materials are stiff to hard and no evidence of recent landslide movement was observed.

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. The primary geotechnical constraints to development include:

1) The depth of the bedrock beneath the site. Weathered basalt bedrock was encountered throughout the site at elevations above 390 feet msl. Basalt was first encountered at depths of 2.5 to 12 feet and practical refusal was encountered on medium hard (R3) to hard (R4) basalt boulders at depths of 14.5 to 15 feet in test pits TP-12 and TP-13. The larger excavator utilized to excavate test pits TP-16 through TP-18 was able to achieve depths of 23.5 to 25 feet. Difficult excavating conditions should be expected at depth.

2) Low permeability soils. The results of our infiltration testing indicate on site soils exhibit low permeability with a high probability of silting up over time.

3) The potential to encounter highly expansive, fat clay soils. Fat clay soils were encountered in test pits TP-4, TP-6, TP-10, and TP-14. Laboratory testing of the fat clay from test pit TP-4 indicates the soil has a medium expansion potential; however, areas of highly expansive soils may be encountered in other areas of the site.

Site Preparation

Areas of proposed buildings, streets, and areas to receive fill should be cleared of vegetation and any organic and inorganic debris. Encountered undocumented fills and any subsurface structures (dry wells, drainage tiles, old utility lines, septic leach fields, etc.) should be removed and the excavations backfilled with engineered fill. Undocumented fill was not encountered in our test pit explorations; however, areas of fill may be present outside our explorations, especially in the vicinity of the existing access driveways.

Organic-rich topsoil should then be stripped from native soil areas of the site. The estimated depth range necessary for removal of topsoil in cut and fill areas is approximately 6 to 9 inches, respectively. Greater stripping depths may be necessary in the southern portion of the site, which was formerly densely treed. 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 and undocumented fill soils are 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

In general, we anticipate that soils from planned cuts and utility trench excavations will be suitable for use as engineered fill provided they are adequately moisture conditioned prior to compacting. 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 yd^3, 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 scrapers and trackhoes. The Boring Lava Formation is known for large, hard boulders that may hamper deep excavations such as utility trenching. Highly weathered basalt bedrock was encountered in test pits above an elevation of 390 feet msl at depths of 2.5 to 12 feet. Practical refusal was encountered on medium hard (R3) to hard (R4) basalt boulders at depths of 14.5 to 15 feet in test pits TP-2 and TP-13 with a medium sized excavator. The larger excavator utilized for test pits TP-16 through TP-18 was able to achieve depths of 23.5 to 25 feet; however, difficult excavating conditions should be expected.

All temporary cuts in excess of 4 feet in height should be sloped in accordance with U.S. Occupational Safety and Heath Administration (OSHA) regulations (29 CFR Part 1926), or be shored. The existing native, near surface soils are classified as Type B Soils and temporary excavation side slope inclinations as steep as 1.5H:1V may be assumed for planning purposes. This cut slope inclination is applicable to excavations above groundwater seepage zones 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.

Soft, 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. Trench bottom stabilization, such as one to two feet of compacted crushed aggregate base, may be necessary in deeper trenches.

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 determined by ASTM D1557 (Modified Proctor) 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
- Straw wattles and/or geotextile silt fences 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.

Spread Foundations

The proposed residential structures may likely be supported on shallow foundations bearing on competent undisturbed, native low expansivity soils and/or engineered fill, appropriately designed and constructed as recommended in this report. Foundation design, construction, and setback requirements should conform to the applicable building code at the time of construction. For maximization of bearing strength and protection against frost heave, spread footings should be embedded at a minimum depth of 12 inches below exterior grade. The recommended minimum widths for continuous footings supporting wood-framed walls without masonry are 12 inches for single-story, 15 inches for two-story, and 18 inches for three-story structures. Minimum foundation reinforcement should consist of a No. 4 bar at the top of the stem walls, and a No. 4 bar at the bottom of the footings. Concrete slab-on-grade reinforcement should consist of No. 4 bars placed on 24-inch centers in a grid pattern.

The anticipated allowable soil bearing pressure is 1,500 lbs/ft^2 for footings bearing on competent, nonexpansive native soil and/or engineered fill. A maximum chimney and column load of 40 kips is recommended for the site. The recommended maximum allowable bearing pressure may be increased by 1/3 for short-term transient conditions such as wind and seismic loading. For heavier loads, the geotechnical engineer should be consulted. The coefficient of friction between on-site soil and poured-in-place concrete may be taken as 0.42, which includes no factor of safety. The maximum anticipated total and differential footing movements (generally from soil expansion and/or settlement) are 1 inch and ¾ 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.

Footing excavations should penetrate through topsoil and any loose soil to competent subgrade that is suitable for bearing support. All footing excavations should be trimmed neat, and all loose or softened soil should be removed from the excavation bottom prior to placing reinforcing steel bars. Due to the moisture sensitivity of on-site native soils, foundations constructed during the wet weather season may require overexcavation of footings and backfill with compacted, crushed aggregate.

Our recommendations are for house construction incorporating raised wood floors and conventional spread footing foundations. If living space of the structures will incorporate basements, a geotechnical engineer should be consulted to make additional recommendations for retaining walls, water-proofing, underslab drainage and wall subdrains. After site development, a Final Soil Engineer's Report should either confirm or modify the above recommendations.

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 or expansive soil 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 9,000 for compacted native soil. Table 4 presents our recommended minimum pavement section for dry weather construction.

Table 4. 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.	95% of Standard Proctor AASHTO T-99 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.

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* 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 2018 International Building Code (IBC) with applicable Oregon Structural Specialty Code (OSSC) revisions (current 2019). 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) *ASCE7-16 Hazards by Location online Tool* website are summarized in Table 5.

Table 5. Recommended Earthquake Ground Motion Parameters (ATC 2020)

Parameter	Value
Location (Lat, Long), degrees	45.374, -122.561
Mapped Spectral Acceleration Values (MCE):	
Peak Ground Acceleration PGA_M	0.456 g
Short Period, S_s	0.824 g
1.0 Sec Period, S_1	0.368 g
Soil Factors for Site Class D:	
F_a	1.17
F_v	1.932*
$SD_s = 2/3 \times F_a \times S_s$	0.643 g
$SD_1 = 2/3 \times F_v \times S_1$	0.4735 g*
Seismic Design Category	D

* The F_v value reported in the above table is a straight-line interpolation of mapped spectral response acceleration at 1-second period, S_1 per Table 1613.2.3(2) of OSSC 2019 with the assumption that Exception 2 of ASCE 7-16 Chapter 11.4.8 is met. SD_1 is based on the F_v value. The structural engineer should evaluate exception 2 and determine whether or not the exception is met. If Exception 2 is not met, and the long-period site coefficient (F_v) is required for design, GeoPacific Engineering can be consulted to provide a site-specific procedure as per ASCE 7-16, Chapter 21.

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 site is considered to not have a risk for soil liquefaction. Our explorations indicate that the soils underlying the site are not 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.

Footing and Roof Drains

Construction should include typical measures for controlling subsurface water beneath the homes, including positive crawlspace drainage to an adequate low-point drain exiting the foundation, visqueen covering the expose ground in the crawlspace, and crawlspace ventilation (foundation vents). The homebuyers should be informed and educated that some slow flowing water in the crawlspaces is considered normal and not necessarily detrimental to the home given these other design elements incorporated into its construction. Appropriate design professionals should be

consulting regarding crawlspace ventilation, building material selection and mold prevention issues, which are outside GeoPacific's area of expertise.

Down spouts and roof drains should collect roof water in a system separate from the footing drains to reduce the potential for clogging. Roof drain water should be directed to an appropriate discharge point and storm system well away from structural foundations. Grades should be sloped downward and away from buildings to reduce the potential for ponded water near structures.

If the proposed structures will have a raised floor, and no concrete slab-on-grade floors in living spaces are used, perimeter footing drains would not be required based on soil conditions encountered at the site and experience with standard local construction practices. Where it is desired to reduce the potential for moist crawl spaces, footing drains may be installed. If concrete slab-on-grade floors are used, perimeter footing drains should be installed as recommended below.

Where necessary, perimeter footing drains should consist of 3 or 4-inch diameter, perforated plastic pipe embedded in a minimum of 1 ft^3 per lineal foot of clean, free-draining 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. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. In our opinion, footing drains may outlet at the curb, or on the back sides of lots where sufficient fall is not available to allow drainage to meet the street.

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.

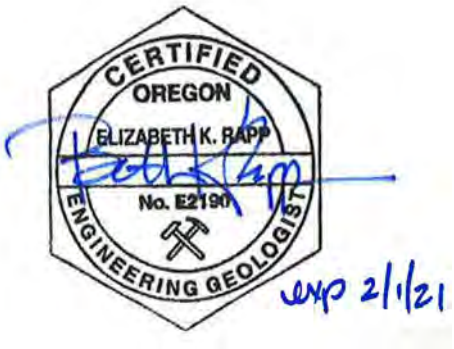
Sufficient geotechnical monitoring, testing and consultation should be provided during construction to confirm that the conditions encountered are consistent with those indicated by explorations. The checklist attached to this report outlines recommended geotechnical observations and testing for the 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

James D. Imbrie, G.E., C.E.G.
Principal Geotechnical Engineer

Attachments: References
Figure 1 – Vicinity Map
Figure 2 – Lidar Based Vicinity Map – With Mapped Landslides
Figure 3 – Site Plan and Exploration Locations
Test Pit Logs (TP-1 through TP-18)
Laboratory Test Results – Expansion Index of Soils

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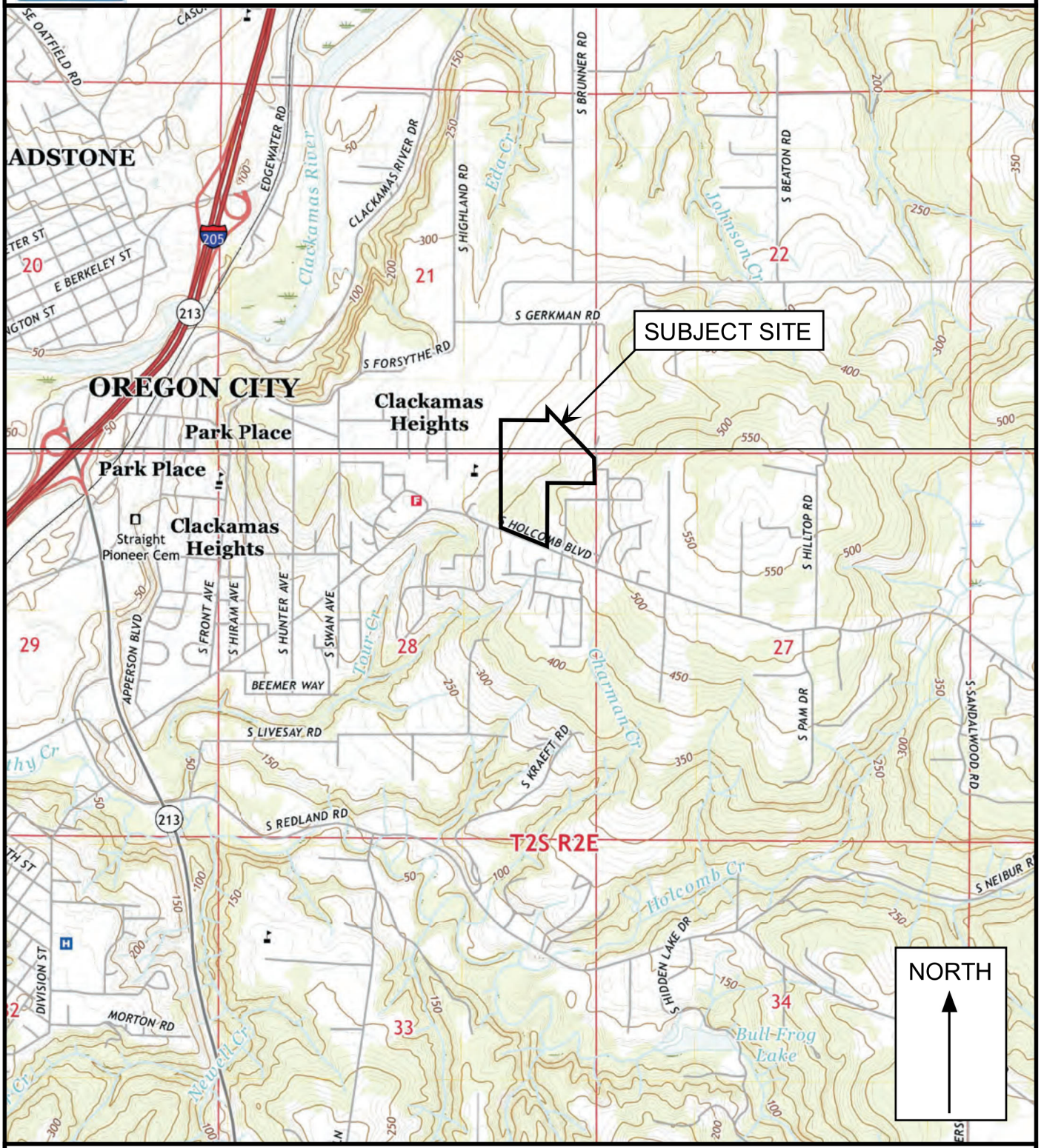
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GEOPACIFIC
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VICINITY MAP



Legend

Approximate Scale 1 in = 2,000 feet

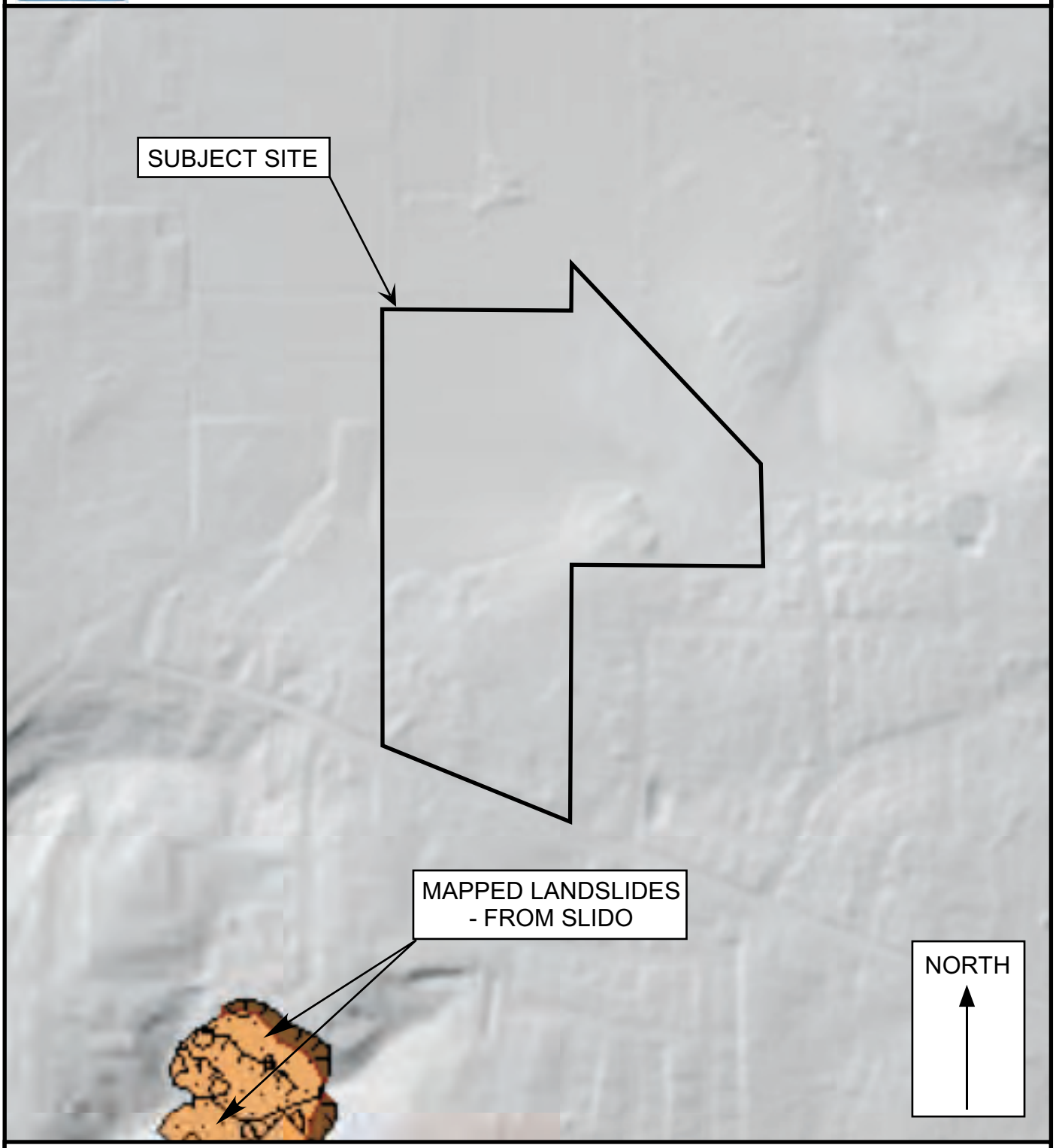
Date: 9/16/2020
Drawn by: EKR

Base map: U.S. Geological Survey 7.5 minute Topographic Map Series, Gladstone, Oregon Quadrangle, 2020 and Oregon City, Oregon Quadrangle, 2020.

Project: Serres Farms Oregon City, Oregon	Project No. 20-5545	FIGURE 1

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LIDAR BASED VICINITY MAP - WITH MAPPED LANDSLIDES



Legend

Approximate Scale 1 in = 500 ft

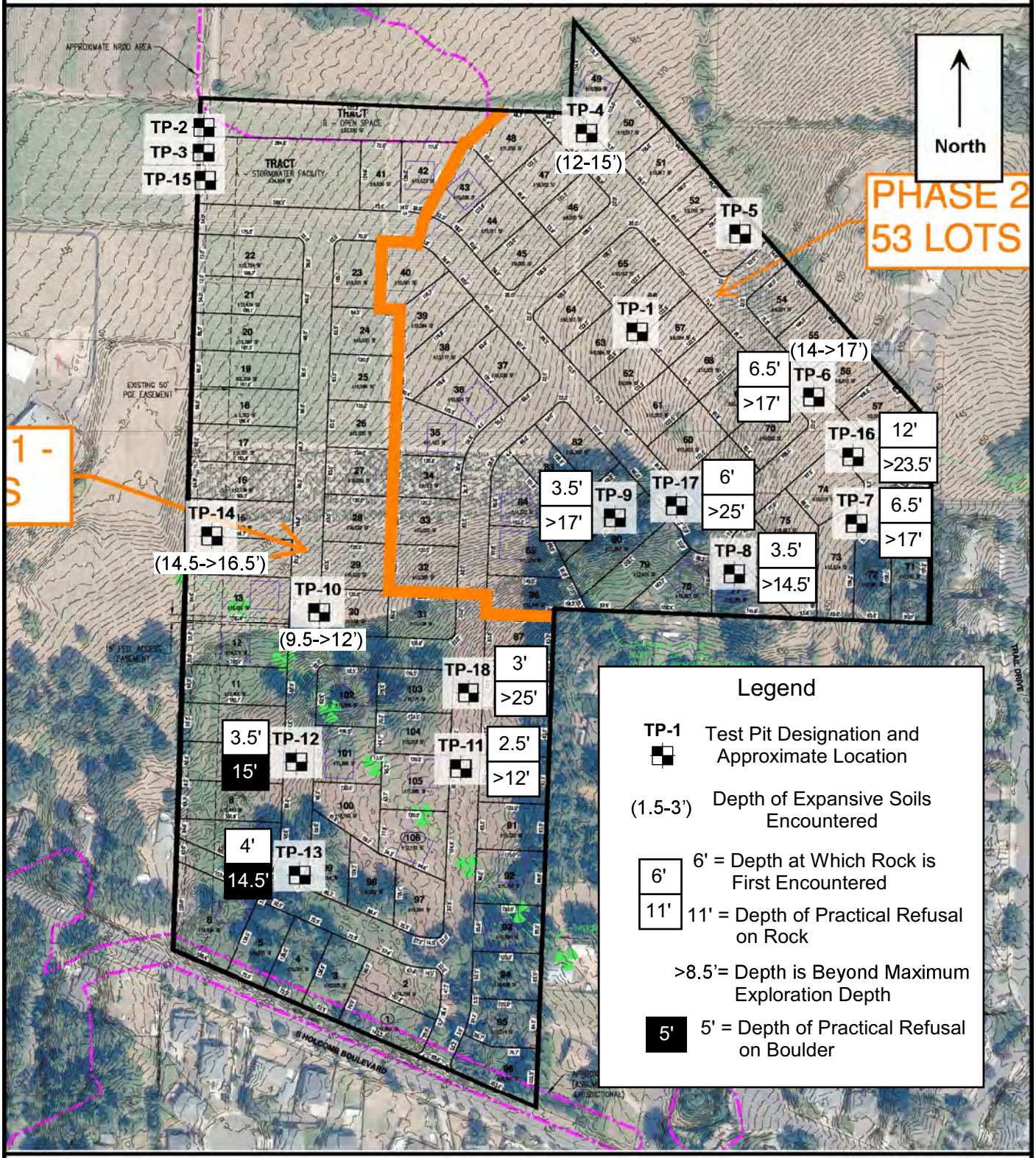
Date: 9/16/2020
Drawn by: EKR

Base map: Oregon Department of Geology and Mineral Industries, 2020, Statewide Landslide Information Database for Oregon (SLIDO): https://gis.dogami.oregon.gov/maps/slido/

Project: Serres Farms Oregon City, Oregon	Project No. 20-5545	FIGURE 2

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SITE PLAN AND EXPLORATION LOCATIONS



Legend

TP-1	Test Pit Designation and Approximate Location
(1.5-3')	Depth of Expansive Soils Encountered
6'	6' = Depth at Which Rock is First Encountered
11'	11' = Depth of Practical Refusal on Rock
	>8.5'= Depth is Beyond Maximum Exploration Depth
5'	5' = Depth of Practical Refusal on Boulder

0 250'

APPROXIMATE SCALE 1"=250'

Date: 9/16/2020
Drawn by: EKR

Project: Serres Farms Oregon City, Oregon	Project No. 20-5545	FIGURE 3

GeoPacific Engineering, Inc.
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TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-1**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	1.5					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, tilled, moist (Topsoil Horizon)
2	3.5					Stiff, clayey SILT (ML), light brown, micaceous, strong mottling, moist (Loess)
3	4.5					
4	4.5					
5						
6						Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, trace roots to 3 feet, trace black staining, moist (Residual Soil of Boring Lava Formation)
7						
8						
9						
10						
11						
12						Test Pit Terminated at 12 Feet.
13						
14						Note: No seepage or groundwater encountered.
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

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TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-2**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Low organic, SILT (OL-ML), brown, trace roots loose, damp (Topsoil Horizon)
2	4.5					Stiff, clayey SILT (ML), light brown, micaceous, strong mottling, moist (Loess)
3	4.0					
4	4.0					
5						Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with sand, light brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
6						
7						
8						
9						
10						Dense, silty GRAVEL (GM), with sand, trace clay, light brown to yellow orange, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
11						
12						Test Pit Terminated at 12 Feet.
13						Note: No seepage or groundwater encountered.
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

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TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-3**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Low organic, SILT (OL-ML), brown, trace roots loose, damp (Topsoil Horizon)
2	4.5					Stiff, clayey SILT (ML), light brown, micaceous, strong mottling, moist (Loess)
3	4.0					
4	4.0					
5						Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with sand, light brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
6						
7						
8						
9						
10						
11						Dense, silty GRAVEL (GM), with sand, trace clay, light brown to yellow orange, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
12						
13						Test Pit Terminated at 12 Feet.
14						Note: No seepage or groundwater encountered.
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

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TEST PIT LOG

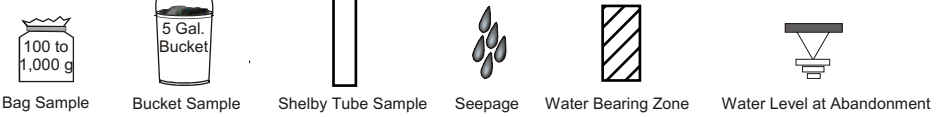
Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-4**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	3.5					Low to moderately organic, SILT (OL-ML), brown, loose, tilled, damp (Topsoil Horizon)
2	2.5					
3	3.5					Stiff to very stiff, clayey SILT (ML), with sand, light orange brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
4	3.5					
5						
6						
7						Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with sand, light grayish brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
8						
9						
10						Stiff to very stiff, silty CLAY (CL), with subrounded gravel, light grayish brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
11						
12						Stiff to very stiff, FAT CLAY (CH), light brown to gray, sticky, strong orange and gray mottling, trace black staining, damp to moist (Pleistocene Terrace Deposits-Moderately Expansive)
13						
14						
15						Stiff, silty CLAY (CL) to clayey SILT (ML), with gravel, light grayish brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
16						Test Pit Terminated at 16 Feet.
17						Note: No seepage or groundwater encountered.
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

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TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-5**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, tilled, moist (Topsoil Horizon)
2	4.5					
3	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel below 6 feet, light reddish brown to gray, trace roots to 3 feet, black staining, moist (Residual Soil of Boring Lava Formation)
4	4.5					
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						Medium stiff, clayey SILT (ML), with sand, gray, trace roots to 3 feet, orange and gray mottling, with white phenocrysts, very moist (Residual Soil of Boring Lava Formation)
16						
17						Test Pit Terminated at 17 Feet.
18						
19						Note: No seepage or groundwater encountered.
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

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TEST PIT LOG

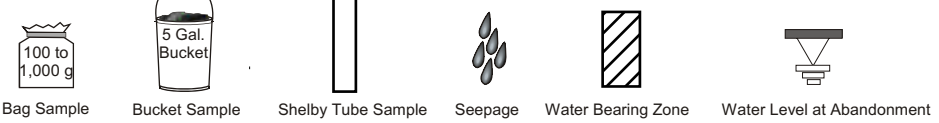
Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-6**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Low to moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					
3	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel up to 3 feet diameter, light reddish brown, trace roots to 3 feet, black staining, moist (Residual Soil of Boring Lava Formation)
4	4.5					
5						
6						
7						
8						Extremely soft (R0) to very soft (R1), weathered BASALT, trace reddish brown silty clay to clayey silt matrix, gray, trace black staining, moist (Boring Lava Formation)
9						
10						
11						Stiff, silty CLAY (CL) to clayey SILT (ML), light reddish brown to gray, trace black staining, moist (Weathered Troutdale Formation)
12						
13						
14						
15						Stiff, FAT CLAY (CH), light brown to gray, very sticky, strong orange and gray mottling, trace black staining, moist (Troutdale Formation)
16						
17						
18						Test Pit Terminated at 17 Feet.
19						Note: No seepage or groundwater encountered.
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Date Excavated: 7/22-23/2020

Logged By: B. Rapp

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TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-7**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					Stiff to very stiff, clayey SILT (ML), light brown, micaceous, strong mottling, damp to moist (Loess)
3	4.5					
4	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, black staining, moist (Residual Soil of Boring Lava Formation)
5						
6						
7						
8						
9						
10						Extremely soft (R0), weathered BASALT, trace reddish brown silty clay to clayey silt matrix, gray, trace soft (R2) fragments, trace black staining, moist (Boring Lava Formation)
11						
12						
13						
14						
15						
16						
17						Test Pit Terminated at 17 Feet.
18						
19						Note: No seepage or groundwater encountered.
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

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TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-8**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	2.5					Moderately organic, SILT (OL-ML), trace gravel, brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	3.5					Very stiff, clayey SILT (ML), light brown, micaceous, damp to moist (Loess)
3	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, moist (Residual Soil of Boring Lava Formation)
4	4.5					
5						
6						
7						Extremely soft (R0), weathered BASALT, trace reddish brown silty clay to clayey silt matrix, gray, trace soft (R2) fragments up to 12 inches, trace black staining, mottled, moist (Boring Lava Formation)
8						
9						
10						
11						
12						
13						
14						
15						Test Pit Terminated at 14.5 Feet.
16						
17						Note: No seepage or groundwater encountered.
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

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TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-9**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.0					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.0					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel up to 18 inches diameter, light reddish brown, trace roots, black staining, moist (Residual Soil of Boring Lava Formation)
3	4.5					
4	4.5					
5						
6						Extremely soft (R0), weathered BASALT, trace reddish brown silty clay to clayey silt matrix, gray, trace soft (R2) fragments up to 18 inches below 6 feet, trace black staining, moist (Boring Lava Formation)
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						Test Pit Terminated at 17 Feet.
18						
19						Note: No seepage or groundwater encountered.
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

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TEST PIT LOG

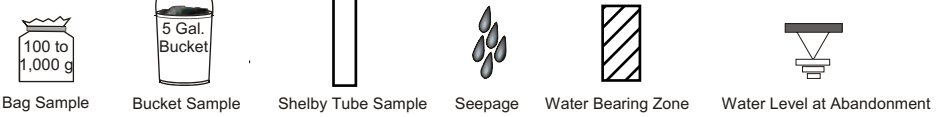
Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-10**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	3.0					Low to moderately organic, SILT (OL-ML), brown, loose, tilled, damp (Topsoil Horizon)
2	4.5					
3	4.0					Stiff to very stiff, clayey SILT (ML), light brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
4	4.5					
5						
6						
7						Dense, silty GRAVEL (GM), with sand and clay, light grayish brown, strong orange and gray mottling, partially cemented, trace black staining, moist (Pleistocene Terrace Deposits)
8						
9						
10						Stiff to very stiff, FAT CLAY (CH), light brown to gray, sticky, strong orange and gray mottling, trace black staining, plastic, moist (Pleistocene Terrace Deposits-Likely Moderately Expansive)
11						
12						Test Pit Terminated at 12 Feet.
13						Note: No seepage or groundwater encountered.
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample | Bucket Sample | Shelby Tube Sample | Seepage | Water Bearing Zone | Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

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TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-11**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with basalt gravel, light reddish brown, black staining, moist (Residual Soil of Boring Lava Formation)
3	4.5					
4	4.5					
5						
6						Extremely soft (R0), weathered BASALT, trace reddish brown silty clay to clayey silt matrix, light brown to gray, trace soft (R2) fragments up to 2.5 feet below 5.5 feet, trace black staining, moist (Boring Lava Formation)
7						
8						
9						
10						
11						Becomes very soft (R1) at 11 feet
12						
13						Test Pit Terminated at 12 Feet.
14						Note: No seepage or groundwater encountered.
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-12**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	3.0					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, black staining, trace roots, moist (Residual Soil of Boring Lava Formation)
3	4.5					
4	4.5					
5						
6						Extremely soft (R0) to very soft (R1), weathered BASALT, trace reddish brown silty clay to clayey silt matrix, light brown to gray, trace soft (R2) fragments, trace black staining, moist (Boring Lava Formation)
7						
8						
9						
10						Becomes very moist at 10 feet.
11						
12						
13						
14						
15						Practical Refusal on Large Medium Hard (R3) Boulder at 15 Feet.
16						
17						Note: No seepage or groundwater encountered.
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-13**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Moderately organic, SILT (OL-ML), with gravel, brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, black staining, trace roots, moist (Residual Soil of Boring Lava Formation)
3	4.5					
4	4.5					
5						
6						Extremely soft (R0), weathered BASALT, trace reddish brown silty clay to clayey silt matrix, light brown to gray, trace soft (R2) to medium hard (R3) gravel up to 2 feet diameter, trace black staining, moist (Boring Lava Formation)
7						
8						
9						
10						
11						Boulders up to 3 feet diameter below 12 feet.
12						
13						
14						
15						Practical Refusal on Large Medium Hard (R3) to Hard (R4) Boulder at 14.5 Feet.
16						
17						Note: No seepage or groundwater encountered.
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-14**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	3.5					Moderately organic, SILT (OL-ML), brown, trace roots loose, damp (Topsoil Horizon)
2	4.0					
3	4.5					
4	4.5					Stiff to very stiff, clayey SILT (ML), trace sand, light brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
5						
6						
7						
8						
9						
10						
11						Dense, sandy GRAVEL (GW), with clayey silt, light brown to yellow orange, strong orange and gray mottling, trace black staining, weakly cemented, moist (Pleistocene Terrace Deposits)
12						
13						
14						
15						Stiff to very stiff, FAT CLAY (CH), light brown to gray, sticky, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
16						
17						Test Pit Terminated at 16.5 Feet.
18						
19						Note: Groundwater seepage encountered at 9.5 feet.
20						Discharge visually estimated at approximately 1/4 gallon per minute.
21						
22						
23						
24						
25						
26						
27						

LEGEND

100 to 1,000 g Bag Sample | 5 Gal. Bucket Bucket Sample | Shelby Tube Sample | Seepage | Water Bearing Zone | Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

TEST PIT LOG

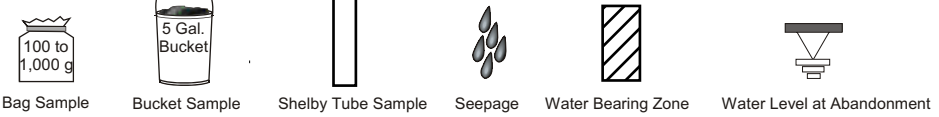
Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-15**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Low organic, SILT (OL-ML), brown, trace roots loose, damp (Topsoil Horizon)
2	4.5					Stiff, clayey SILT (ML), light brown, micaceous, strong mottling, moist (Loess)
3	4.0					
4	4.0					
5						Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with sand, light brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
6						
7						
8						
9						
10						
11						
12						
13						
14						Medium dense to dense, silty GRAVEL (GM), with sand, trace clay, light brown to yellow orange, with zones of silty SAND (SM) with gravel below 18 feet, subrounded, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						Test Pit Terminated at 25 Feet.
26						Note: No seepage or groundwater encountered.
27						

LEGEND



Date Excavated: 8/27/2020

Logged By: B. Rapp

Surface Elevation:

GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

TEST PIT LOG

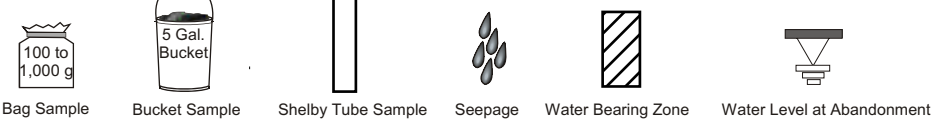
Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-16**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					Very stiff, clayey SILT (ML), light brown, micaceous, strong mottling, damp (Loess)
3	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, black staining, damp to moist (Residual Soil of Boring Lava Formation)
4	4.5					
5–11						
12						Extremely soft (R0), weathered BASALT, with sand, abundant reddish brown silty clay to clayey silt matrix, gray, trace soft (R2) boulders up to 2 feet diameter, trace black staining, moist (Boring Lava Formation)
13–23						
24						Test Pit Terminated at 23.5 Feet.
25						Note: No seepage or groundwater encountered.
26–27						

LEGEND



Date Excavated: 8/27/2020

Logged By: B. Rapp

Surface Elevation:

GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

TEST PIT LOG

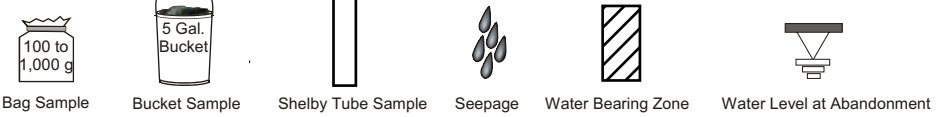
Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-17**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, black staining, damp to moist (Residual Soil of Boring Lava Formation)
3	4.5					
4	4.5					
5						
6						
7						Very soft (R1) to soft (R2), weathered BASALT, with sand, trace reddish brown silty clay to clayey silt matrix, gray, trace medium hard (R3) boulders up to 2 feet diameter, trace black staining, moist (Boring Lava Formation)
8						
9						
10						
11						With zones of extremely soft (R0), weathered BASALT below 12 feet
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						Very soft (R1) to soft (R2), weathered BASALT with abundant medium hard (R3) boulders up to 4 feet diameter, trace black staining, more difficult excavating conditions, moist (Boring Lava Formation)
22						
23						
24						
25						Test Pit Terminated at 25 Feet.
26						Note: No seepage or groundwater encountered.
27						

LEGEND



Date Excavated: 8/27/2020

Logged By: B. Rapp

Surface Elevation:

GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-18**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, black staining, damp to moist (Residual Soil of Boring Lava Formation)
3	4.5					
4	4.5					
5						Very soft (R1) to soft (R2), weathered BASALT, with sand, trace reddish brown silty clay to clayey silt matrix, gray to brown, trace , trace black staining, moist to very moist (Boring Lava Formation)
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						With soft (R2) to medium hard (R3) boulders up to 2 feet diameter below 16 feet
17						
18						
19						
20						
21						Very soft (R1) to soft (R2), weathered BASALT with abundant medium hard (R3) boulders up to 2.5 feet diameter, trace black staining, more difficult excavating conditions, moist (Boring Lava Formation)
22						
23						
24						
25						Test Pit Terminated at 25 Feet.
26						Note: No seepage or groundwater encountered.
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 8/27/2020

Logged By: B. Rapp

Surface Elevation:

Project Name:		Serres Farm			
Project #:	20-5545	Sample ID:	S20-201	Depth:	13'
Material Type:		Fat Clay			
Material Source:		TP-4			

EXPANSION INDEX ASTM D4829

Initial Height (0.001 in.)	1.000
Initial Moisture Content (0.1%)	18.9
Initial Dry Unit Weight (0.1 lbf/cu.ft.)	84.8
Initial Degree of Saturation (50.0+/-2%)	51.8
Initial Dial Reading (0.001 in.)	0.2514
Final Dial Reading (0.001 in.)	0.1952
Final Moisture Content (0.1%)	31.8
Expansion Index	**56**

Sampled By:	EKR	Tested By:	SJC
Sample Date:	7/22/2020	Tested Date:	8/5/2020

Expansion Index, EI	Potential Expansion
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
>130	Very High

Real-World Geotechnical Solutions
Investigation • Design • Construction Support

April 2, 2021
Project No. 20-5545

Icon Construction LLC
darren@iconconstruction.net
1969 Willamette Falls Drive Suite 260
West Linn, OR 97068

CC: Eric Evans, Emerio Design via email: eric@emeriodesign.com

SUBJECT: USDA HYDROLOGIC SOIL GROUP ASSUMPTIONS
SERRES FARMS - S HOLCOMB BOULEVARD
OREGON CITY, OREGON

Reference: GeoPacific Engineering, Inc., Preliminary Geotechnical Engineering Report, Serres Farms – S Holcomb Boulevard, 2 2E 21D LOTS 2100, 2200, & 2300 AND 2 2E 28A LOTS 500, 2200, & 2300, Oregon City, Oregon September 16, 2020.

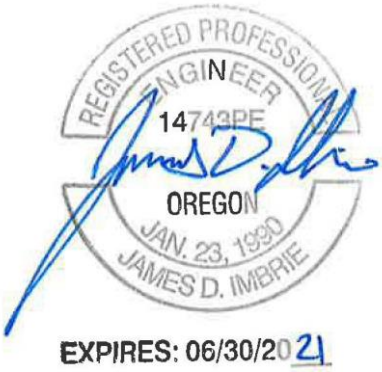
Based on our infiltration testing performed and presented in the geotechnical investigation, referenced above, we conclude that at least 80 percent of the site can be assumed as USDA Hydrologic Soil Group D and the remaining portion can be assumed as Soil Group C.

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.



James D. Imbrie, G.E., C.E.G.
Principal Geotechnical Engineer

Appendix C:

Basin Area Tabulated Data

Appendix: C(1)

Basin #	Name	Total Area	Total Area	Qty of Lots	Lot Impervious	ROW/Tract Imp	Total Impervious	Total Pervious (Calc'd)
		SF	Acres		SF	SF	SF	SF
101	Pre-Developed	1,554,006	35.68	1	0	0	0	1,554,006
201	Onsite to Detention Pond	1,497,130	34.37	121	363,000	287,032	650,032	847,098
202	Onsite to Planter	35,711	0.82	2	6,000	12,184	18,184	17,527
203	Frontage Improvements	21,165	0.49	0	0	18,185	18,185	2,980

WES BMP Sizing Software Version 1.6.0.2, May 2018

WES BMP Sizing Report

Project Information

Project Name	Serres Farm Subdivision
Project Type	Subdivision
Location	
Stormwater Management Area	1553006
Project Applicant	
Jurisdiction	OutofDistrict

Drainage Management Area

Name	Area (sq-ft)	Pre-Project Cover	Post-Project Cover	DMA Soil Type	BMP
Impervious to Pond - C	151,828	Forested	ConventionalConcrete	C	Detention Pond
Pervious to Pond - C	175,905	Forested	Grass	C	Detention Pond
Impervious to Pond - D	516,389	Forested	ConventionalConcrete	D	Detention Pond
Pervious to Pond - D	674,173	Forested	Grass	D	Detention Pond
Impervious to Planter	18,184	Forested	ConventionalConcrete	D	NW Planter
Pervious to Planter	17,527	Forested	Grass	D	NW Planter

LID Facility Sizing Details

LID ID	Design Criteria	BMP Type	Facility Soil Type	Minimum Area (sq-ft)	Planned Areas (sq-ft)	Orifice Diameter (in)
NW Planter	FlowControlAndTreatment	Stormwater Planter - Filtration	Lined	698.0	699.0	2.1

Pond Sizing Details

Pond ID	Design Criteria(1)	Facility Soil Type	Max Depth (ft)(2)	Top Area (sq-ft)	Side Slope (1:H)	Facility Vol. (cu-ft)(3)	Water Storage Vol. (cu-ft)(4)	Adequate Size?
Detention Pond	FCWQT	Lined	5.00	23,317.0	4	88,711.6	60,635.6	Yes

1. FCWQT = Flow control and water quality treatment, WQT = Water quality treatment only

2. Depth is measured from the bottom of the facility and includes the three feet of media (drain rock, separation layer and growing media).

3. Maximum volume of the facility. Includes the volume occupied by the media at the bottom of the facility.

4. Maximum water storage volume of the facility. Includes water storage in the three feet of soil media assuming a 40 percent porosity.

Simple Pond Geometry Configuration

Pond ID: Detention Pond
Design: FlowControlAndTreatment

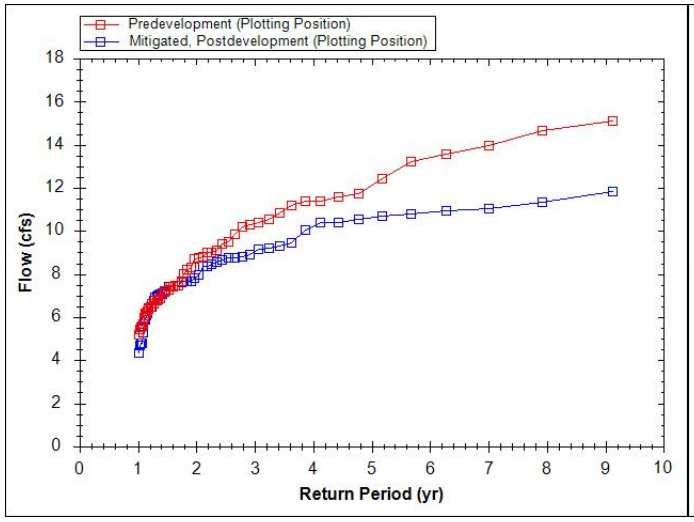
Shape Curve

Depth (ft)	Area (sq ft)
5.0	23,317.0

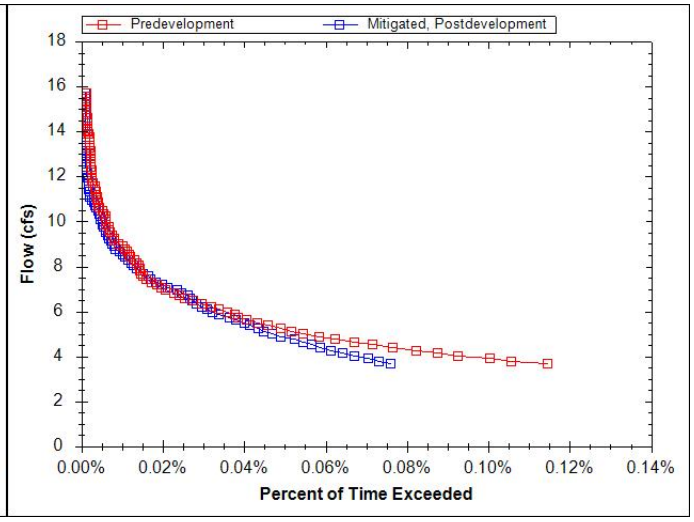
Outlet Structure Details

Lower Orifice Invert (ft)	0.0
Lower Orifice Dia (in)	7.9
Upper Orifice Invert(ft)	3.4
Upper Orifice Dia (in)	19.0
Overflow Weir Invert(ft)	4.0
Overflow Weir Length (ft)	6.3

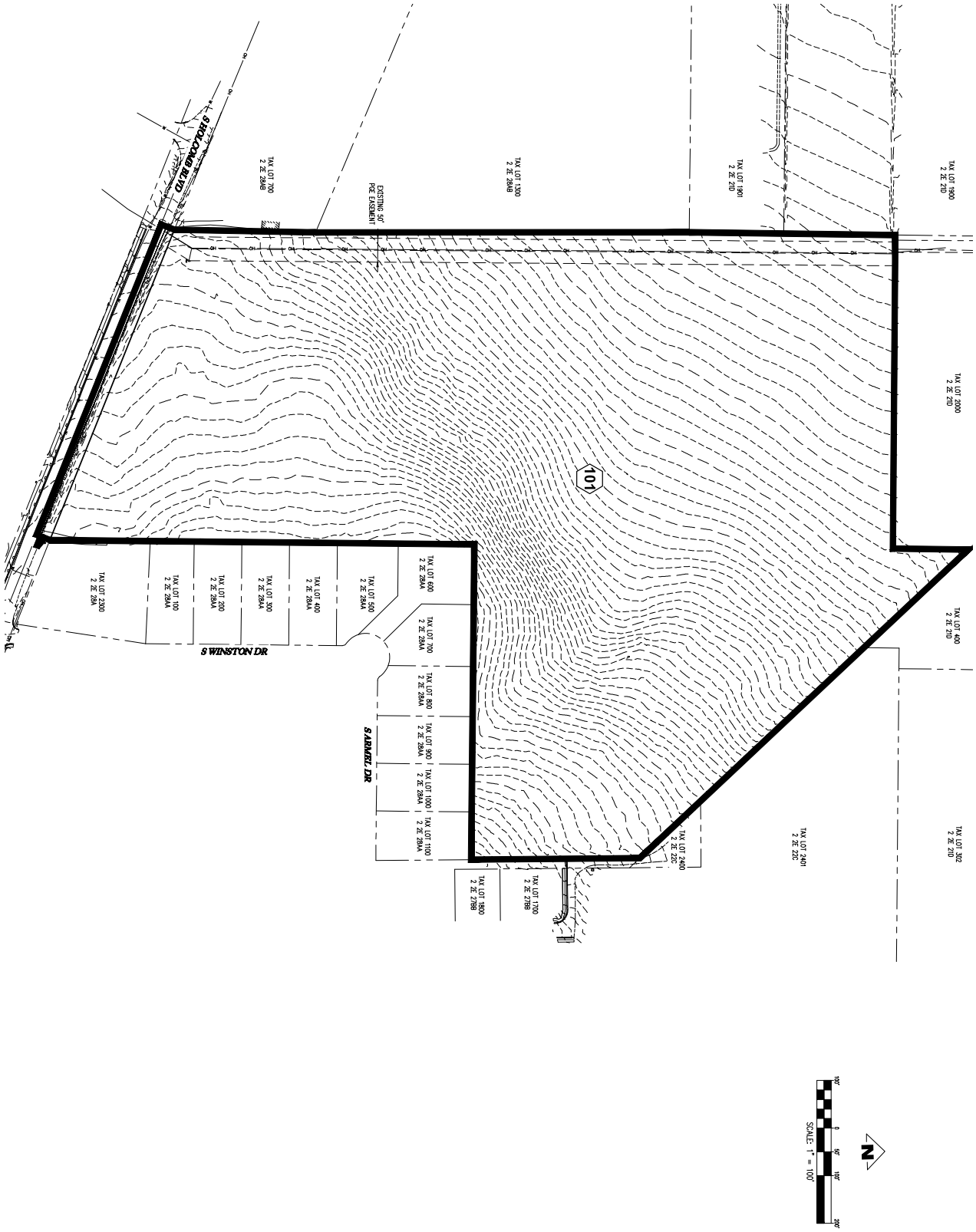
Flow Frequency Chart



Flow Duration Chart

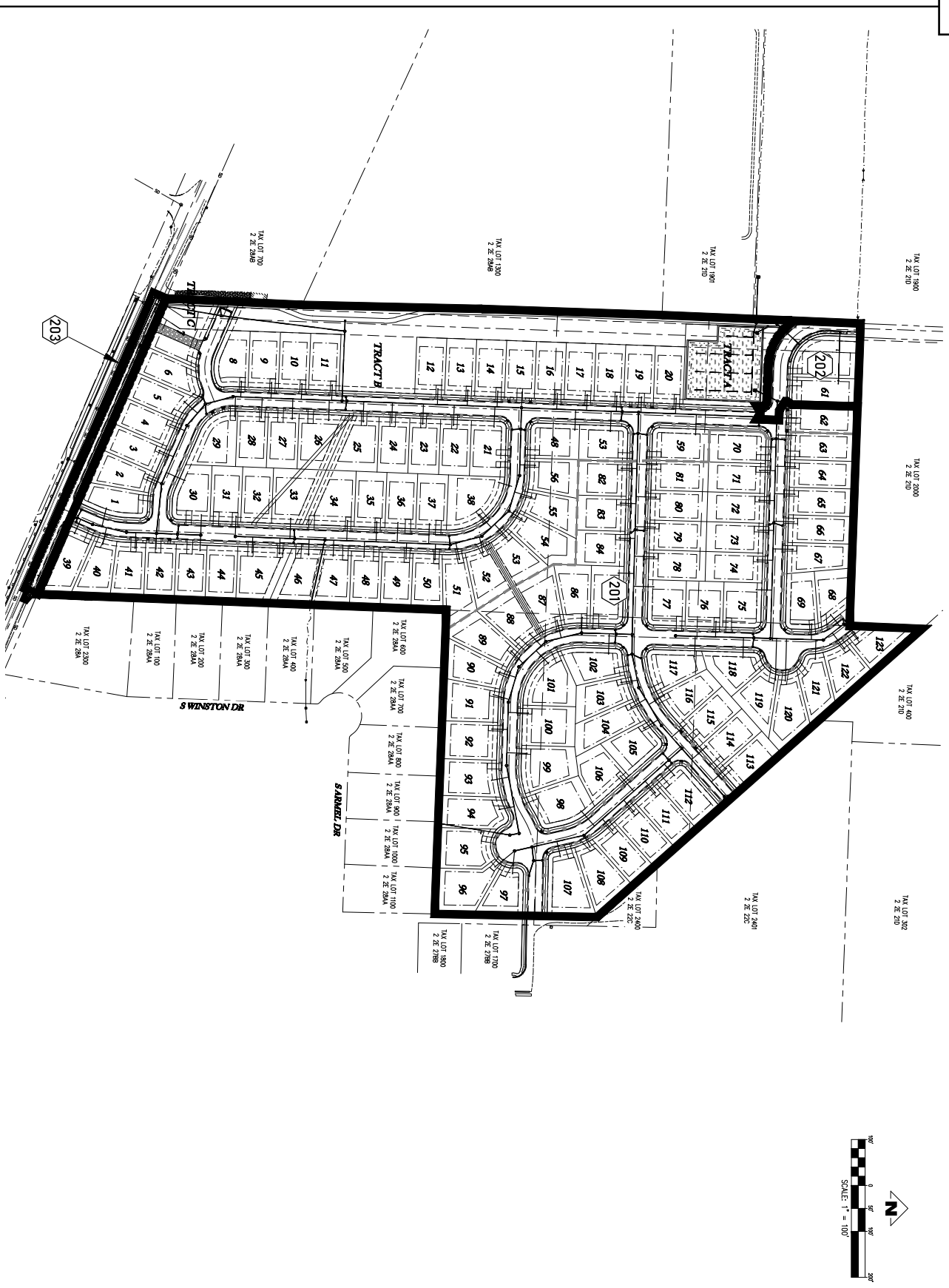


Appendix D:



SHEET 1 OF 2		EMERIO ENGINEERING • SURVEYING • DESIGN 6445 SW FALLBROOK PLACE, SUITE 100 BEAVERTON, OREGON 97008 TEL: (503) 746-8812 FAX: (503) 639-9552 www.emeriodesign.com	REVISIONS NO. DATE DESCRIPTION 1 XX/XXXX 1ST SUBMITTAL	**PRE-DEVELOPED BASIN MAP**	**SERRES FARMS SUBDIVISION** **123 LOT SUBDIVISION** **OREGON CITY, OREGON**

FILE:P: \0082-005 Serres Farms\docs\civ\Storm\CAD\Pre-Dev, Layout: 02 EXISTING CONDITIONS TREE REMOVAL & DEMOLITION PLAN, Plot Date: 5/12/2021 1:20 PM, by: Josh Meyer



SHEET 2 OF 2	PRELIMINARY	EMERIO ENGINEERING • SURVEYING • DESIGN 6445 SW FALLBROOK PLACE, SUITE 100 BEAVERTON, OREGON 97008 TEL: (503) 746-8812 FAX: (503) 639-9552 www.emeriodesign.com	REVISIONS NO. DATE DESCRIPTION 1 05/2021 1ST LAND USE SUBMITTAL 2 07/2021 2ND LAND USE SUBMITTAL

POST-DEVELOPED BASIN MAP

SERRES FARMS SUBDIVISION
124 LOT SUBDIVISION
TAX LOTS 500, 2200, 2300
2100, 2200, & 2300
OREGON CITY, OREGON

FILE:P:\0082-005 Serres Farms\docs\civ\Storm\CAD\Pond Sizing, Layout: Basin Map, Plot Date: 7/30/2021 3:08 PM, by: Josh Meyer

Real-World Geotechnical Solutions
Investigation • Design • Construction Support

May 17, 2021
Project No. 20-5545

Harlan Borow
Hidden Falls Development, LLC.
1980 Willamette Falls Drive, Suite 200
West Linn, Oregon 97068
Via email: harlan@iconconstruction.net

SUBJECT: GEOTECHNICAL ENGINEERING REPORT
SERRES FARMS - S HOLCOMB BOULEVARD
2 2E 21D LOTS 2100, 2200, & 2300 AND 2 2E 28A LOTS 500, 2200, & 2300
OREGON CITY, 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-77477, dated May 11, 2021, and your subsequent authorization of our proposal and *General Conditions for Geotechnical Services*.

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The subject site located on the north side of S. Holcomb Road in the City of Oregon City, Clackamas County, Oregon (Figure 1). The property is composed of six tax lots that total approximately 35 acres in size. Topography is primarily gently to moderately sloping to the northwest with grades up to 20 percent with an area of steeper topography (exceeding 25 percent grade) in the central portion of the site (Figures 2 and 3). Vegetation consists primarily of short grasses, agricultural crops, and nursery stock. No structures currently exist on the property.

It is our understanding that the proposed development will consist of a ±123 lot subdivision for single family homes, new streets, stormwater facility, and associated underground utilities. The grading plan provided for our review indicates cuts up to 13 feet and fills up to 6 feet are planned. The stormwater facility will incorporate retaining walls.

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.

Portions of the subject site are underlain by Quaternary age (last 1.6 million years) loess, a windblown silt deposit that mantles uplands in the Tualatin Basin (Madin, 1990). The loess, included as a member of the Willamette Formation, generally consists of massive silt with localized buried paleosols indicating numerous depositional episodes which most likely followed catastrophic flooding events in the Willamette Valley, the last of which occurred about 10,000 years ago.

The northern portion of the site below an elevation of approximately 390 feet mean sea level (msl) is underlain by the Pleistocene Terrace Deposits Formation (Schlicker and Finlayson, 1979). The Pleistocene Terrace Deposits Formation are approximately 0.01 to 1 million years old and consist of gravel with cobbles and boulders interlayered with silt and clay and can contain mudflow deposits (Schlicker and Finlayson, 1979). The Pleistocene Terrace Deposits Formation is equivalent to the Gresham and Estacada Formations of Trimble (1963).

Portions of the site above 390 feet msl are underlain by the Boring Lava lithologic unit which consists of basaltic and basaltic andesite lava flows erupted from a series of local volcanic vents during Plio-Pleistocene time (about 600,000 thousand to 2.6 million years ago) (Schlicker and Finlayson, 1979; Madin, 2009). The total thickness of the Boring Lava unit ranges from greater than 600 feet near vents to less than 50 feet on the outer margins.

Underlying the Boring Lava Formation is the Tertiary-aged (2-65 million years ago) Troutdale formation - a partially cemented conglomerate, sandstone, and mudstone deposited by an ancestral Columbia River (Trimble, 1963; Madin, 2009). Regionally, the Troutdale Formation is informally divided into an upper and a lower member (Phillips, 1987). Lithologies in the upper member include lenticular layers of volcaniclastic (vitric) sand, quartzite-bearing gravel, fine-grained sand, silt and clay, micaceous quartz-rich sand, and conglomerate with a cumulative average thickness of 100 to 150 feet. The lower member consists primarily of laminated silty clay and sand with reported thicknesses in water well logs of up to 880 feet and is the equivalent of the Sandy River Mudstone.

REGIONAL SEISMIC SETTING

At least four potential source zones capable of generating damaging earthquakes are thought to exist in the region. These include the Portland Hills Fault Zone, the Grant Butte and Damascus-Tickle Creek Fault Zones, 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 0.6 miles northeast of the site. The East Bank Fault occurs along the eastern margin of the Willamette River, and is located approximately 10.3 miles north of the site. The Oatfield Fault occurs along the western side of the Portland Hills, and is approximately 0.8 miles southwest 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).

Grant Butte and Damascus-Tickle Creek Fault Zones

The Grant Butte fault zone was mapped along the north side of Mt. Scott and Powell Butte by Madin (1990). It was also extended eastward to Grant Butte on the basis of mapping by CH2M Hill and others (1991) and informally named the Grant Butte fault (Cornforth and Geomatrix, 1992). The Damascus-Tickle Creek fault zone displaces Pliocene and possibly Pleistocene sediments in the vicinity of Boring, Oregon (Madin, 1992; Lite, 1992). Relatively short faults define a 17-km-long fault zone that is apparently linked to the Grant Butte fault on the basis of stratigraphic relationships showing middle and late Pleistocene activity. Geomatrix (1995) assigns a probability of 0.5 for activity on structures within these fault zones. The nearest portion of the Grant Butte and Damascus-Tickle Creek Fault Zone is approximately 2.1 miles east of the subject site.

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 20.2 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 explorations for this report were conducted on July 22 and 23 and August 27, 2020. Eighteen exploratory test pits were excavated with a medium or large sized trackhoe to depths of 12 to 25 feet at the approximate locations presented on Figure 3. 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 test pits. Soils observed in the explorations 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 test pits 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 not encountered in our explorations; however, it is likely that areas of undocumented fill may exist in the vicinity existing access driveways.

Topsoil Horizon: The ground surface in test pits TP-1 through TP-18 was directly underlain by a low to moderately organic topsoil horizon. The brown topsoil horizon consisted of silt (OL-ML), was loose, and contained trace fine roots throughout. The topsoil horizon typically extended to a depth of 6 to 14 inches and up to 18 inches in areas that had previously been tilled.

Willamette Formation (Loess): Underlying the topsoil horizon in test pits TP-1 through TP-3, TP-7, TP-8, TP-15, and TP-16 was windblown loess belonging to the Willamette Formation. The light brown, clayey silt (ML) was generally characterized by a stiff to very stiff consistency. Field pocket penetrometer measurements from test pits indicate an approximate unconfined compressive strength of 1.5 to 4.5 tons/ft^2. The loess extended to a depth of approximately 1.5 to 2.5 feet in test pits TP-1 through TP-3, TP-7, TP-8, TP-15, and TP-16.

Pleistocene Terrace Deposits Formation: Underlying the topsoil horizon in test pits TP-4, TP-10, and TP-14 and the loess in test pits TP-2, TP-3, and TP-15 was material belonging to the Pleistocene Terrace Deposits Formation. This material generally consisted of stiff to very stiff, light brown to gray silty clay (CL) to clayey silt (ML) that extended to a depth of 6 to 11 feet. In test pits TP-2 through TP-4, TP-10, TP-14, and TP-15, the silty clay to clayey silt was underlain by dense, silty gravel (GM) with sand or stiff silty clay to clayey silt with gravel. The gravel was subrounded and weakly cemented at times. In test pits TP-10 and TP-14, the Pleistocene Terrace Deposits Formation extended to a depth of approximately 9.5 to 14.5 feet and beyond the maximum depth of exploration in test pits TP-2 through TP-4 and TP-15 (16 to 25 feet).

> ***Fat Clay:*** Fat clay (CH) was encountered within and underlying the Pleistocene Terrace Deposits in test pits TP-4, TP-10, and TP-14. The fat clay was stiff to very stiff, gray in color, and extended to depths of 12 to 15 feet in test pit TP-4 and beyond the depth of exploration in test pits TP-10 (12 feet) and TP-14 (16.5 feet). Laboratory testing of a sample of the fat clay from test pit TP-4 at a depth of 13 feet indicates the clay is moderately expansive with an expansion index of 56. Results of laboratory testing are attached at the end of this report.

Residual Soil of Boring Lava Formation: Underlying the topsoil horizon in test pits TP-5, TP-6, TP-9, TP-11 through TP-13, TP-17 and TP-18 and the loess in test pits TP-1, TP-7, TP-8, and TP-16 was residual soil derived from in place weathering of the Boring Lava Formation. These soils generally consisted of light reddish brown to gray clayey silt (ML) to silty clay (CL) with sand and varying quantities of gray basalt. The residual soil of the Boring Lava Formation typically had a stiff to very stiff consistency and extended to depths of 2.5 to 12 feet in test pits TP-6 through TP-9, TP-11 through TP-13, and TP-16 through TP-18, and beyond the maximum depth of exploration in test pits TP-1 and TP-5 (12 to 17 feet).

Boring Lava Formation: The residual soil of the Boring Lava in test pits TP-6 through TP-9, TP-11 through TP-13, and TP-16 through TP-18 was underlain by highly weathered basalt belonging to the Boring Lava Formation. In test pits TP-6 through TP-9, TP-11 through TP-13, and TP-16 through TP-18, the gray to brown basalt contained trace silty clay to clayey silt matrix and was weathered to extremely soft (R0) to soft (R2) according to the ODOT Rock Hardness Chart (Table 1). Occasionally, less weathered boulders that were medium hard (R3) to hard (R4) were encountered. Practical refusal was encountered with a medium sized trackhoe on these boulders in test pits TP-12 and TP-13 at depths of 15 and 14.5 feet, respectively. The larger trackhoe utilized to excavate test pits TP-16 through TP-18 was able to achieve depths of 23.5 to 25 feet in Boring Lava material. Basalt belonging to the Boring Lava Formation extended beyond the maximum depth of exploration in test pits TP-6 through TP-9, TP-11 through TP-13, and TP-16 through TP-18 (12 to 25 feet). The depth at which rock belonging to the Boring Lava Formation was first encountered and the depth at which practical refusal was achieved is presented in Table 2.

Table 2. Depth of Basalt Bedrock Encountered in Explorations

Test Pit	Depth Rock First Encountered (feet)	Depth of Practical Refusal on Medium Hard (R3) to Hard (R4) Basalt (feet)
TP-6	6.5	>17
TP-7	6.5	>17
TP-8	3.5	>14.5
TP-9	3.5	>17
TP-11	2.5	>12
TP-12	3.5	15 (R3 Boulder)
TP-13	4	14.5 (R3 to R4 Boulder)
TP-16	12	>23.5
TP-17	6	>25
TP-18	3	>25

Weathered Troutdale Formation: Weathered Troutdale Formation soils were encountered beneath the Boring Lava Formation in test pit TP-6. These soils generally consisted of light reddish brown to gray, clayey silt (ML) to silty clay (CL). The silty clay to clayey silt extended to a depth of 14 feet in test pit TP-6 and was underlain by highly plastic, fat clay (CH). The fat clay extended beyond the maximum depth of exploration in test pit TP-6 (17 feet).

Soil Moisture and Groundwater

Soils encountered in test pits were damp to moist on July 22 and 23, 2020. On August 27, 2020, perched groundwater seepage was encountered in test pit TP-14 at a depth of 9.5 feet. Discharge was visually estimated at approximately 1/4 gallon per minute. Regional groundwater mapping indicates static groundwater is present at a depth of 210 to 270 feet below the existing ground surface (Snyder, 2008). 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.

The 1979 Geology and Geologic Hazards Study by Schlicker and Finlayson identifies the northern portion of the site as having wet soils and/or a high water table; this is the study that primarily helped modify Oregon City's development code to require that groundwater concerns be addressed. This regionally mapped wet soils condition is predominantly created by storm runoff during the wet season due to the impermeable clay soils derived from the Boring Lava Formation and slow draining topography of the Oregon City plain. Such shallow, perched groundwater is a lesser geotechnical issue than seeps or springs created from groundwater emanating from below due to geologic structural control of groundwater flow. The effects of shallow perched groundwater are most pronounced in low-lying areas which are currently mapped as wetlands and stay wet for longer periods, perhaps year round. At the time of the 1979 report, areas of severe concern such

as low-lying wetlands and drainages could still be developed. This report served as a warning for those attempting to develop in low-lying areas that localized development sites may have more severe problems than the average site in the region and that specific types of constructed systems may experience water related difficulties. The report specifically addresses concerns relating to hydrostatic pressures on basement walls, underground storage tanks, and poor performance of septic systems. We do not believe that any of these constructed systems are currently proposed for the project.

INFILTRATION TESTING

Soil infiltration testing was performed using the open hole infiltration method in test pits TP-1 through TP-3, TP-10, and TP-11 at a depth of 12 feet. The soil was pre-saturated for a period of over 3 hours. The water level was measured to the nearest tenth of an inch every fifteen minutes to half hour with reference to the ground surface. Table 3 presents the results of our falling head infiltration testing.

Table 3. Summary of Infiltration Test Results

Test Pit	Depth (feet)	Soil Type	Infiltration Rate (in/hr)	Hydraulic Head Range (inches)
TP-1	12	Silty CLAY (CL) to clayey SILT (ML) with gravel	0.2	30-32
TP-2	12	Silty Gravel (GM) with sand, trace clay	0	40-41
TP-3	12	Silty Gravel (GM) with sand, trace clay	0	32-33
TP-10	12	FAT CLAY (CH)	0	33-34
TP-11	12	Weathered BASALT, trace silt to clay matrix	0	28-29

The results of our infiltration testing indicate the soils exhibit low permeability with a high probability of silting up over time.

Slope Stability

For the purpose of evaluating slope stability, we reviewed 1:24,000 scale topographic mapping by the U.S. Geological Survey (Figure 1), Lidar based high resolution digital elevation maps (Figure 2), and 1:600 scale topographic mapping (Figure 3), reviewed published geologic mapping and the statewide Landslide Database (Figure 2), performed a field reconnaissance, and explored subsurface conditions at the site with eighteen exploratory test pits, the locations of which are presented on Figure 3.

Landslide inventory mapping of the Oregon City and Gladstone Quadrangles and the statewide landslide database indicate no mapped landslides are present at the site (Schlicker and Finlayson, 1979; Madin, 1990; Burns and Madin, 2009; Madin, 2009; Burns and Mickelson, 2010; Burns et al., 2012; DOGAMI Slido, 2021). A prehistoric (greater than 150 years old) landslide is mapped along a tributary drainage of Tour Creek approximately 1,000 feet to the southwest of the site, as presented on Figure 2 (Madin, 2009; Burns and Mickelson, 2010; DOGAMI Slido, 2021). Our reconnaissance and review of Lidar based high resolution digital elevation maps (DOGAMI, 2021)

indicate slope geomorphology on the site is smooth and uniform. No evidence of recent movement (ground cracks, scarps, or hummocky topography) was observed during our reconnaissance.

The Troutdale Formation, which underlies the site at depth, includes a thick sequence of weak sedimentary strata that are prone to instability on moderate to steep slopes. Regionally, many large landslides are mapped within the Troutdale Formation primarily on the side slopes of drainages where stream erosion has deeply incised the formation and created oversteepened slopes (Schlicker and Finlayson, 1979; Madin, 1994; Madin and Burns, 2006). In areas where the Troutdale Formation is capped by Boring Lava, these landslides are known to propagate upslope by undermining large blocks of Boring Lava Formation.

Subsurface exploration indicates that the ground surface in the steeply sloping portions of the site is underlain by residual soil and basalt rock of the Boring Lava Formation. Pocket penetrometer measurements of the residual soil of the Boring Lava Formation indicate an approximate unconfined compressive strength of 3.5 to 4.5 tons/ft^2 which correlates to a very stiff consistency. The residual soil of the Boring Lava extended beyond the maximum depth of exploration in test pits TP-1 and TP-5 and was underlain by highly weathered, basalt bedrock in test pits TP-6 through TP-9, TP-11 through TP-13, and TP-16 through TP-18 to the maximum depth of exploration (12 to 25 feet). Stiff to very stiff, weathered Troutdale Formation soils were encountered beneath the Boring Lava formation in test pit TP-6, which was located in an area of gently sloping topography. No weak zones such as volcanic ash layers were observed in explorations and contacts between the layers appeared to be gradational. Our explorations indicate that native soils underlying the slope are characterized by moderate to high shear strength and a moderate to high resistance to slope instability.

In our opinion, the slope instability hazard at the subject site is low. Existing Boring Lava and Troutdale Formation materials are stiff to hard and no evidence of recent landslide movement was observed.

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. The primary geotechnical constraints to development include:

1) The depth of the bedrock beneath the site. Weathered basalt bedrock was encountered throughout the site at elevations above 390 feet msl. Basalt was first encountered at depths of 2.5 to 12 feet and practical refusal was encountered on medium hard (R3) to hard (R4) basalt boulders at depths of 14.5 to 15 feet in test pits TP-12 and TP-13. The larger excavator utilized to excavate test pits TP-16 through TP-18 was able to achieve depths of 23.5 to 25 feet. Difficult excavating conditions should be expected at depth.

2) Low permeability soils. The results of our infiltration testing indicate on site soils exhibit low permeability with a high probability of silting up over time.

3) The potential to encounter highly expansive, fat clay soils. Fat clay soils were encountered in test pits TP-4, TP-6, TP-10, and TP-14. Laboratory testing of the fat clay from test pit TP-4 indicates the soil has a medium expansion potential; however, areas of highly expansive soils may be encountered in other areas of the site. If encountered, the recommendations for fat clay soils determined to be highly expansive in structural areas are as follows: (1) remove the material and replace it with low to

medium expansivity soil/engineered fill, (2) separate footings from the expansive soils by ensuring there is at least 5 feet of engineered fill and/or native, low to medium expansivity soil overlying the highly expansive clay, (3) chemically stabilize the soils with hydrated lime or alternate chemical additives such as Condor SS, or (4) blend with low expansivity soils. Expansive soils can remain beneath flexible pavement areas and backyards where expansion will have a minor impact on improvements.

Site Preparation

Areas of proposed buildings, streets, and areas to receive fill should be cleared of vegetation and any organic and inorganic debris. Encountered undocumented fills and any subsurface structures (dry wells, drainage tiles, old utility lines, septic leach fields, etc.) should be removed and the excavations backfilled with engineered fill. Undocumented fill was not encountered in our test pit explorations; however, areas of fill may be present outside our explorations, especially in the vicinity of the existing access driveways.

Organic-rich topsoil should then be stripped from native soil areas of the site. The estimated depth range necessary for removal of topsoil in cut and fill areas is approximately 6 to 9 inches, respectively. Greater stripping depths may be necessary in the southern portion of the site, which was formerly densely treed. 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 and undocumented fill soils are 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

In general, we anticipate that soils from planned cuts and utility trench excavations will be suitable for use as engineered fill provided they are adequately moisture conditioned prior to compacting. 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 yd^3, 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 scrapers and trackhoes. The Boring Lava Formation is known for large, hard boulders that may hamper deep excavations such as utility trenching. Highly weathered basalt bedrock was encountered in test pits above an elevation of 390 feet msl at depths of 2.5 to 12 feet. Practical refusal was encountered on medium hard (R3) to hard (R4) basalt boulders at depths of 14.5 to 15 feet in test pits TP-2 and TP-13 with a medium sized excavator. The larger excavator utilized for test pits TP-16 through TP-18 was able to achieve depths of 23.5 to 25 feet; however, difficult excavating conditions should be expected.

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 native, near surface soils are classified as Type B Soils and temporary excavation side slope inclinations as steep as 1.5H:1V may be assumed for planning purposes. This cut slope inclination is applicable to excavations above groundwater seepage zones 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.

Soft, 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. Trench bottom stabilization, such as one to two feet of compacted crushed aggregate base, may be necessary in deeper trenches.

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 determined by ASTM D1557 (Modified Proctor) 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 except in areas of moderately sloping topography. 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
- Straw wattles and/or geotextile silt fences 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.

Spread Foundations

The proposed residential structures may likely be supported on shallow foundations bearing on competent undisturbed, native low expansivity soils and/or engineered fill, appropriately designed and constructed as recommended in this report. Moderately expansive soils were encountered at depths below 9.5 to 14.5 feet in test pits TP-4, TP-6, TP-10, and TP-14. If encountered, the recommendations for fat clay soils determined to be highly expansive in structural areas are as follows: (1) remove the material and replace it with low to medium expansivity soil/engineered fill, (2) separate footings from the expansive soils by ensuring there is at least 5 feet of engineered fill and/or native, low to medium expansivity soil overlying the highly expansive clay, (3) chemically stabilize the soils with hydrated lime or alternate chemical additives such as Condor SS, or (4) blend with low expansivity soils. Expansive soils can remain beneath flexible pavement areas and backyards where expansion will have a minor impact on improvements.

Foundation design, construction, and setback requirements should conform to the applicable building code at the time of construction. For maximization of bearing strength and protection against frost heave, spread footings should be embedded at a minimum depth of 12 inches below exterior grade. The recommended minimum widths for continuous footings supporting wood-framed walls without masonry are 12 inches for single-story, 15 inches for two-story, and 18 inches for three-story structures. Minimum foundation reinforcement should consist of a No. 4 bar at the top of the stem walls, and a No. 4 bar at the bottom of the footings. Concrete slab-on-grade reinforcement should consist of No. 4 bars placed on 24-inch centers in a grid pattern.

The anticipated allowable soil bearing pressure is 1,500 lbs/ft^2 for footings bearing on competent, nonexpansive native soil and/or engineered fill. A maximum chimney and column load of 40 kips is recommended for the site. The recommended maximum allowable bearing pressure may be increased by 1/3 for short-term transient conditions such as wind and seismic loading. For heavier loads, the geotechnical engineer should be consulted. The coefficient of friction between on-site soil and poured-in-place concrete may be taken as 0.42, which includes no factor of safety. The maximum anticipated total and differential footing movements (generally from soil expansion and/or settlement) are 1 inch and ¾ 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.

Footing excavations should penetrate through topsoil and any loose soil to competent subgrade that is suitable for bearing support. All footing excavations should be trimmed neat, and all loose or softened soil should be removed from the excavation bottom prior to placing reinforcing steel bars. Due to the moisture sensitivity of on-site native soils, foundations constructed during the wet weather season may require overexcavation of footings and backfill with compacted, crushed aggregate.

Our recommendations are for house construction incorporating raised wood floors and conventional spread footing foundations. If living space of the structures will incorporate basements, a geotechnical engineer should be consulted to make additional recommendations for retaining walls, water-proofing, underslab drainage and wall subdrains. After site development, a Final Soil Engineer's Report should either confirm or modify the above recommendations.

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 or expansive soil 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 9,000 for compacted native soil. Table 4 presents our recommended minimum pavement section for dry weather construction.

Table 4. 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.	95% of Standard Proctor AASHTO T-99 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.

Seismic Design

The Oregon Department of Geology and Mineral Industries (DOGAMI), Oregon HazVu: 2021 Statewide GeoHazards Viewer indicates that the site is in an area where *very strong* ground shaking is anticipated during an earthquake. Structures should be designed to resist earthquake loading in accordance with the methodology described in the 2018 International Building Code (IBC) with applicable Oregon Structural Specialty Code (OSSC) revisions (current 2019). 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) *ASCE7-16 Hazards by Location online Tool* website are summarized in Table 5.

Table 5. Recommended Earthquake Ground Motion Parameters (ATC 2021)

Parameter	Value
Location (Lat, Long), degrees	45.374, -122.561
Mapped Spectral Acceleration Values (MCE):	
Peak Ground Acceleration PGA_M	0.456 g
Short Period, S_s	0.824 g
1.0 Sec Period, S_1	0.368 g
Soil Factors for Site Class D:	
F_a	1.17
F_v	1.932*
$SD_s = 2/3 \times F_a \times S_s$	0.643 g
$SD_1 = 2/3 \times F_v \times S_1$	0.4735 g*
Seismic Design Category	D

* The F_v value reported in the above table is a straight-line interpolation of mapped spectral response acceleration at 1-second period, S_1 per Table 1613.2.3(2) of OSSC 2019 with the assumption that Exception 2 of ASCE 7-16 Chapter 11.4.8 is met. SD_1 is based on the F_v value. The structural engineer should evaluate exception 2 and determine whether or not the exception is met. If Exception 2 is not met, and the long-period site coefficient (F_v) is required for design, GeoPacific Engineering can be consulted to provide a site-specific procedure as per ASCE 7-16, Chapter 21.

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: 2021 Statewide GeoHazards Viewer indicates that the site is considered to not have a risk for soil liquefaction. Our explorations indicate that the soils underlying the site are not 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.

Footing and Roof Drains

Construction should include typical measures for controlling subsurface water beneath the homes, including positive crawlspace drainage to an adequate low-point drain exiting the foundation, visqueen covering the expose ground in the crawlspace, and crawlspace ventilation (foundation vents). The homebuyers should be informed and educated that some slow flowing water in the crawlspaces is considered normal and not necessarily detrimental to the home given these other design elements incorporated into its construction. Appropriate design professionals should be

consulting regarding crawlspace ventilation, building material selection and mold prevention issues, which are outside GeoPacific's area of expertise.

Down spouts and roof drains should collect roof water in a system separate from the footing drains to reduce the potential for clogging. Roof drain water should be directed to an appropriate discharge point and storm system well away from structural foundations. Grades should be sloped downward and away from buildings to reduce the potential for ponded water near structures.

If the proposed structures will have a raised floor, and no concrete slab-on-grade floors in living spaces are used, perimeter footing drains would not be required based on soil conditions encountered at the site and experience with standard local construction practices. Where it is desired to reduce the potential for moist crawl spaces, footing drains may be installed. If concrete slab-on-grade floors are used, perimeter footing drains should be installed as recommended below.

Where necessary, perimeter footing drains should consist of 3 or 4-inch diameter, perforated plastic pipe embedded in a minimum of 1 ft^3 per lineal foot of clean, free-draining 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. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. In our opinion, footing drains may outlet at the curb, or on the back sides of lots where sufficient fall is not available to allow drainage to meet the street.

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

Reviewed by: James D. Imbrie, G.E., C.E.G.
Principal Geotechnical Engineer

Attachments: References
Figure 1 – Vicinity Map
Figure 2 – Lidar Based Vicinity Map – With Mapped Landslides
Figure 3 – Site Plan and Exploration Locations
Test Pit Logs (TP-1 through TP-18)
Laboratory Test Results – Expansion Index of Soils

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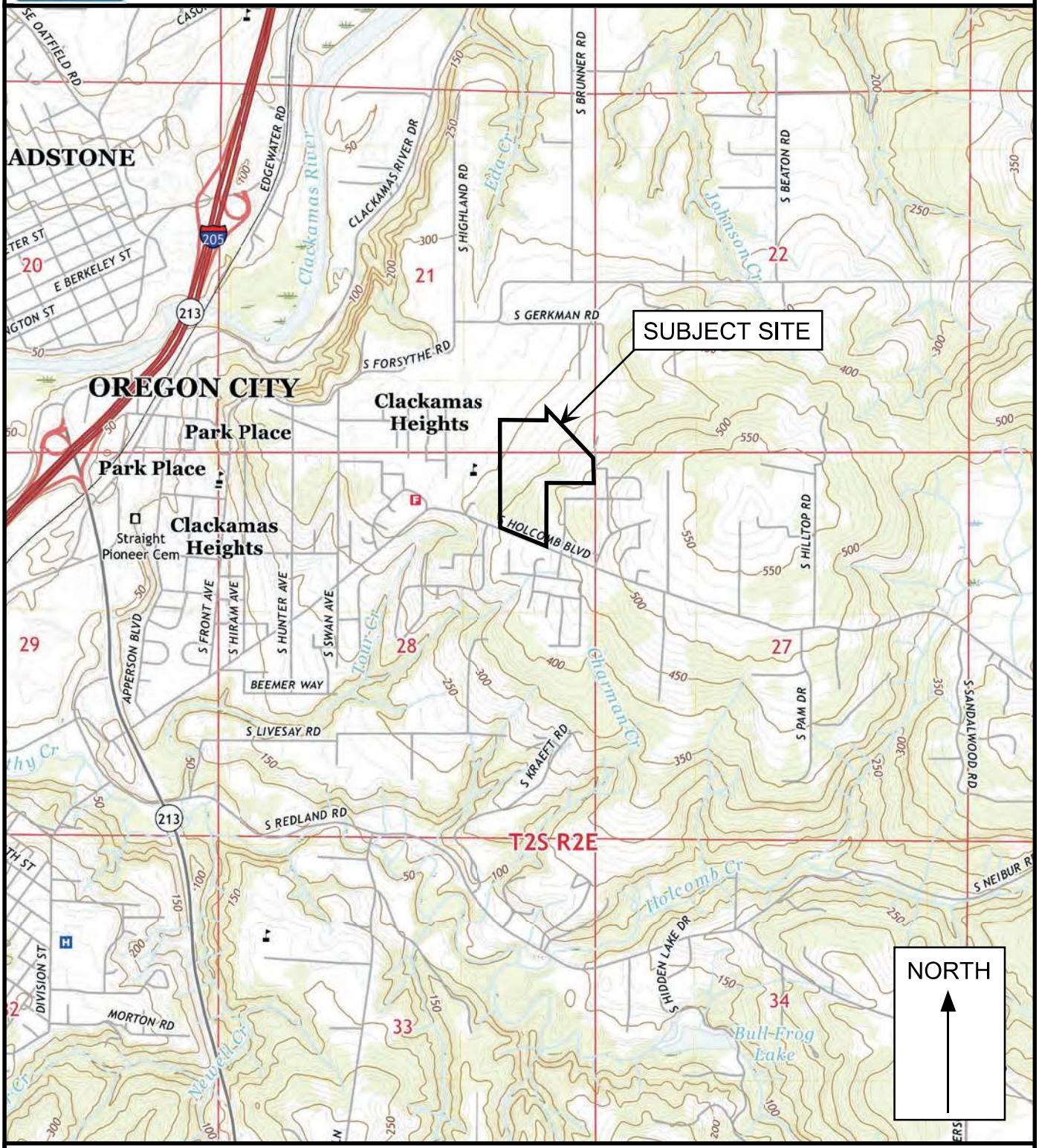
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VICINITY MAP



Legend

Approximate Scale 1 in = 2,000 feet

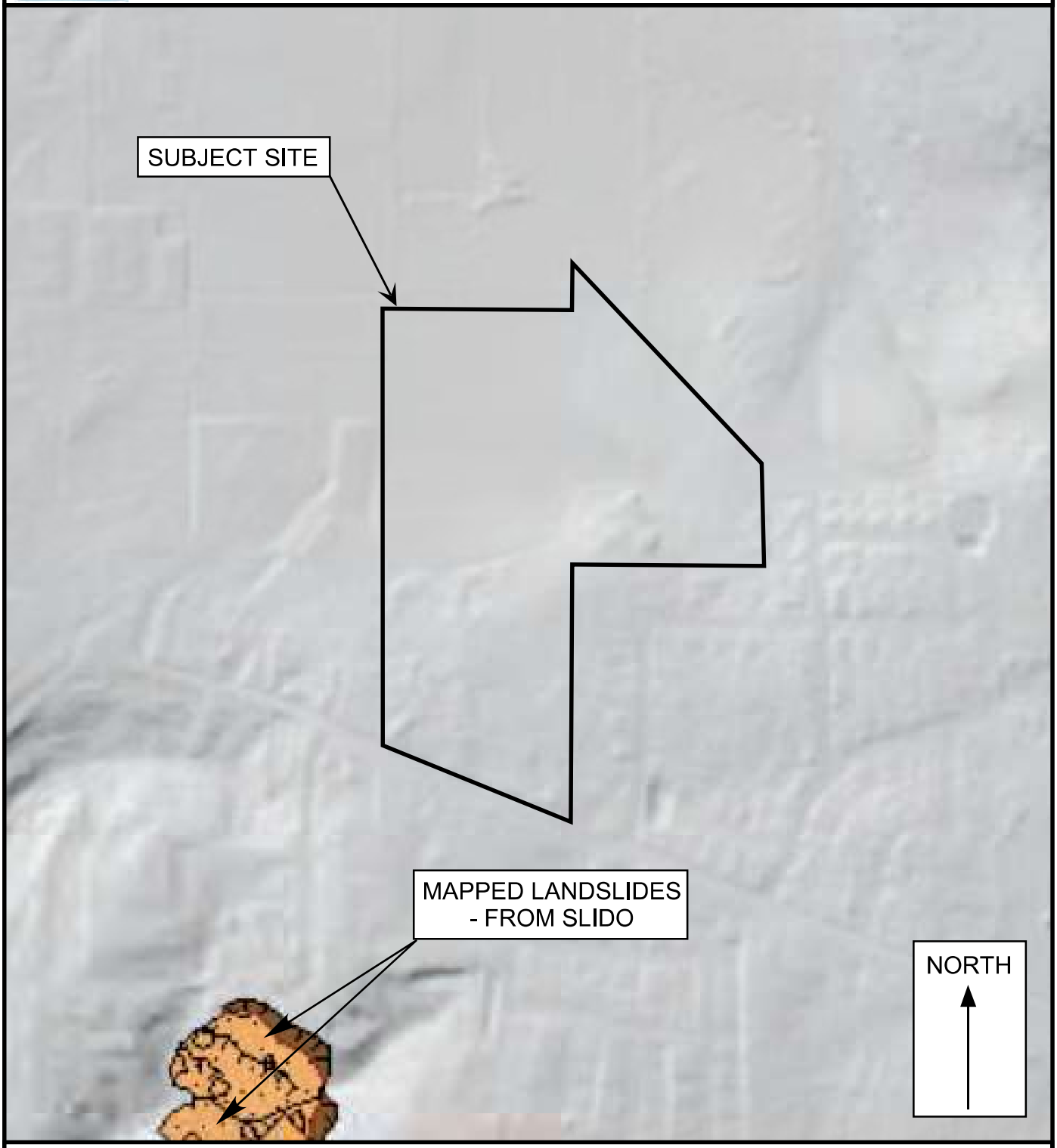
Date: 5/17/2021
Drawn by: EKR

Base map: U.S. Geological Survey 7.5 minute Topographic Map Series, Gladstone, Oregon Quadrangle, 2020 and Oregon City, Oregon Quadrangle, 2020.

Project: Serres Farms Oregon City, Oregon	Project No. 20-5545	FIGURE 1

14835 SW 72nd Avenue
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LIDAR BASED VICINITY MAP - WITH MAPPED LANDSLIDES



Legend

Approximate Scale 1 in = 500 ft

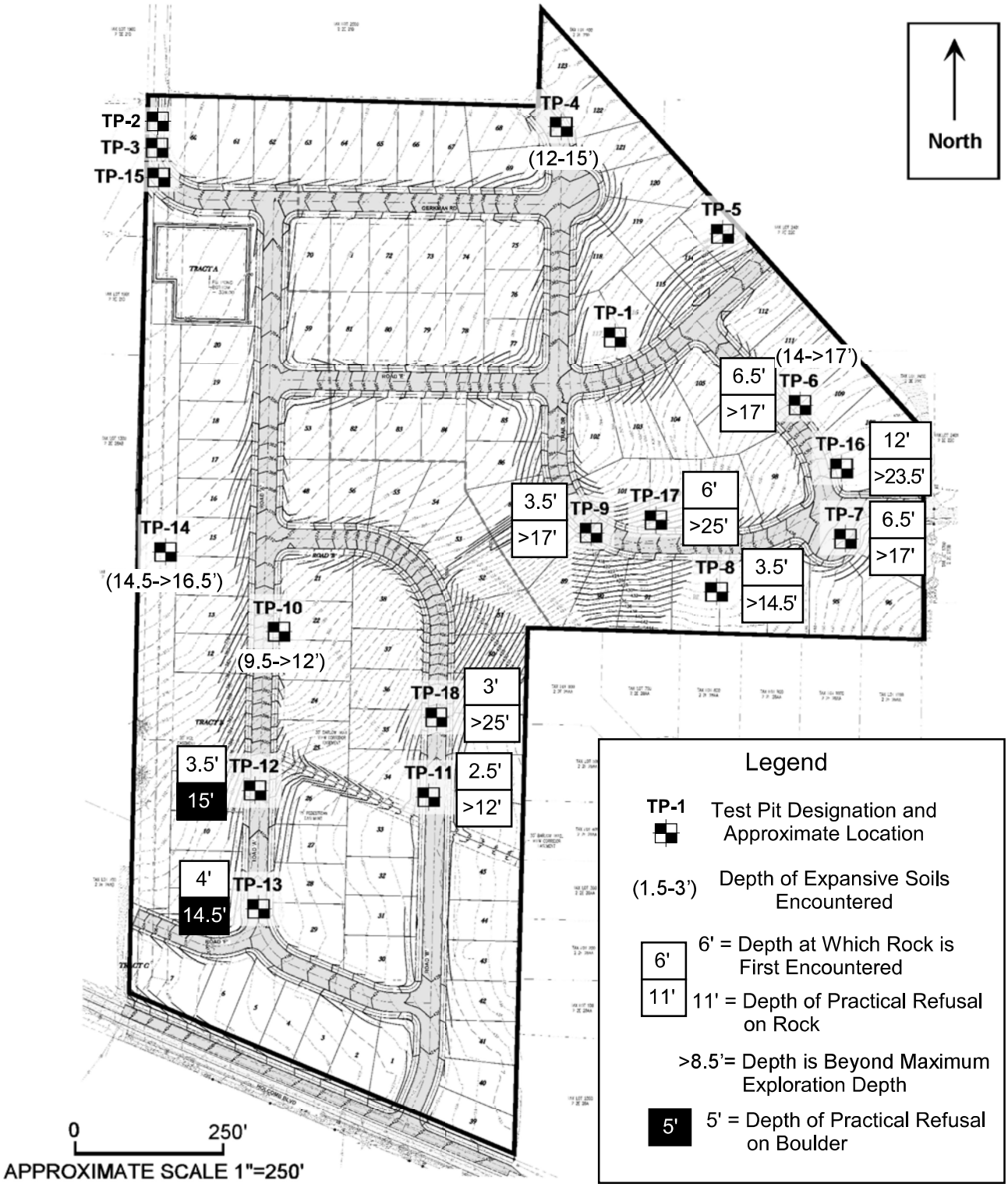
Date: 5/17/2021
Drawn by: EKR

Base map: Oregon Department of Geology and Mineral Industries, 2021, Statewide Landslide Information Database for Oregon (SLIDO): https://gis.dogami.oregon.gov/maps/slido/

Project: Serres Farms Oregon City, Oregon	Project No. 20-5545	FIGURE 2

14835 SW 72nd Avenue
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SITE GRADING PLAN AND EXPLORATION LOCATIONS



Site Grading Plan Provided by Emerio Design dated 5/11/2021

Date: 5/17/2021
Drawn by: EKR

Project: Serres Farms Oregon City, Oregon	Project No. 20-5545	FIGURE 3

14835 SW 72nd Avenue
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TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-1**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	1.5					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, tilled, moist (Topsoil Horizon)
2	3.5					Stiff, clayey SILT (ML), light brown, micaceous, strong mottling, moist (Loess)
3	4.5					
4	4.5					
5						
6						Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, trace roots to 3 feet, trace black staining, moist (Residual Soil of Boring Lava Formation)
7						
8						
9						
10						
11						
12						Test Pit Terminated at 12 Feet.
13						
14						Note: No seepage or groundwater encountered.
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-2**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Low organic, SILT (OL-ML), brown, trace roots loose, damp (Topsoil Horizon)
2	4.5					Stiff, clayey SILT (ML), light brown, micaceous, strong mottling, moist (Loess)
3	4.0					
4	4.0					
5						Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with sand, light brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
6						
7						
8						
9						
10						Dense, silty GRAVEL (GM), with sand, trace clay, light brown to yellow orange, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
11						
12						Test Pit Terminated at 12 Feet.
13						Note: No seepage or groundwater encountered.
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms Oregon City, Oregon	Project No. 20-5545	Test Pit No. **TP-3**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Low organic, SILT (OL-ML), brown, trace roots loose, damp (Topsoil Horizon)
2	4.5					Stiff, clayey SILT (ML), light brown, micaceous, strong mottling, moist (Loess)
3	4.0					
4	4.0					
5						Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with sand, light brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
6						
7						
8						
9						
10						
11						Dense, silty GRAVEL (GM), with sand, trace clay, light brown to yellow orange, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
12						
13						Test Pit Terminated at 12 Feet.
14						Note: No seepage or groundwater encountered.
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-4**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	3.5					Low to moderately organic, SILT (OL-ML), brown, loose, tilled, damp (Topsoil Horizon)
2	2.5					
3	3.5					Stiff to very stiff, clayey SILT (ML), with sand, light orange brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
4	3.5					
5						
6						
7						Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with sand, light grayish brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
8						
9						
10						Stiff to very stiff, silty CLAY (CL), with subrounded gravel, light grayish brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
11						
12						Stiff to very stiff, FAT CLAY (CH), light brown to gray, sticky, strong orange and gray mottling, trace black staining, damp to moist (Pleistocene Terrace Deposits-Moderately Expansive)
13						
14						
15						Stiff, silty CLAY (CL) to clayey SILT (ML), with gravel, light grayish brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
16						Test Pit Terminated at 16 Feet.
17						Note: No seepage or groundwater encountered.
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-5**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, tilled, moist (Topsoil Horizon)
2	4.5					
3	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel below 6 feet, light reddish brown to gray, trace roots to 3 feet, black staining, moist (Residual Soil of Boring Lava Formation)
4	4.5					
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						Medium stiff, clayey SILT (ML), with sand, gray, trace roots to 3 feet, orange and gray mottling, with white phenocrysts, very moist (Residual Soil of Boring Lava Formation)
16						
17						Test Pit Terminated at 17 Feet.
18						
19						Note: No seepage or groundwater encountered.
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-6**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Low to moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					
3	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel up to 3 feet diameter, light reddish brown, trace roots to 3 feet, black staining, moist (Residual Soil of Boring Lava Formation)
4	4.5					
5						
6						
7						
8						Extremely soft (R0) to very soft (R1), weathered BASALT, trace reddish brown silty clay to clayey silt matrix, gray, trace black staining, moist (Boring Lava Formation)
9						
10						
11						Stiff, silty CLAY (CL) to clayey SILT (ML), light reddish brown to gray, trace black staining, moist (Weathered Troutdale Formation)
12						
13						
14						Stiff, FAT CLAY (CH), light brown to gray, very sticky, strong orange and gray mottling, trace black staining, moist (Troutdale Formation)
15						
16						
17						Test Pit Terminated at 17 Feet.
18						
19						Note: No seepage or groundwater encountered.
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-7**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					Stiff to very stiff, clayey SILT (ML), light brown, micaceous, strong mottling, damp to moist (Loess)
3	4.5					
4	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, black staining, moist (Residual Soil of Boring Lava Formation)
5						
6						
7						
8						
9						
10						Extremely soft (R0), weathered BASALT, trace reddish brown silty clay to clayey silt matrix, gray, trace soft (R2) fragments, trace black staining, moist (Boring Lava Formation)
11						
12						
13						
14						
15						
16						
17						Test Pit Terminated at 17 Feet.
18						
19						Note: No seepage or groundwater encountered.
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms Oregon City, Oregon	Project No. 20-5545	Test Pit No. **TP-8**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	2.5					Moderately organic, SILT (OL-ML), trace gravel, brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	3.5					Very stiff, clayey SILT (ML), light brown, micaceous, damp to moist (Loess)
3	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, moist (Residual Soil of Boring Lava Formation)
4	4.5					
5–14						Extremely soft (R0), weathered BASALT, trace reddish brown silty clay to clayey silt matrix, gray, trace soft (R2) fragments up to 12 inches, trace black staining, mottled, moist (Boring Lava Formation)
15						Test Pit Terminated at 14.5 Feet.
16–27						Note: No seepage or groundwater encountered.

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-9**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.0					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.0					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel up to 18 inches diameter, light reddish brown, trace roots, black staining, moist (Residual Soil of Boring Lava Formation)
3	4.5					
4	4.5					
5						
6						Extremely soft (R0), weathered BASALT, trace reddish brown silty clay to clayey silt matrix, gray, trace soft (R2) fragments up to 18 inches below 6 feet, trace black staining, moist (Boring Lava Formation)
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						Test Pit Terminated at 17 Feet.
18						
19						Note: No seepage or groundwater encountered.
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-10**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	3.0					Low to moderately organic, SILT (OL-ML), brown, loose, tilled, damp (Topsoil Horizon)
2	4.5					
3	4.0					Stiff to very stiff, clayey SILT (ML), light brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
4	4.5					
5						
6						
7						Dense, silty GRAVEL (GM), with sand and clay, light grayish brown, strong orange and gray mottling, partially cemented, trace black staining, moist (Pleistocene Terrace Deposits)
8						
9						
10						Stiff to very stiff, FAT CLAY (CH), light brown to gray, sticky, strong orange and gray mottling, trace black staining, plastic, moist (Pleistocene Terrace Deposits-Likely Moderately Expansive)
11						
12						
13						Test Pit Terminated at 12 Feet.
14						Note: No seepage or groundwater encountered.
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-11**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with basalt gravel, light reddish brown, black staining, moist (Residual Soil of Boring Lava Formation)
3	4.5					
4	4.5					
5						
6						Extremely soft (R0), weathered BASALT, trace reddish brown silty clay to clayey silt matrix, light brown to gray, trace soft (R2) fragments up to 2.5 feet below 5.5 feet, trace black staining, moist (Boring Lava Formation)
7						
8						
9						
10						
11						Becomes very soft (R1) at 11 feet
12						
13						Test Pit Terminated at 12 Feet.
14						Note: No seepage or groundwater encountered.
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms Oregon City, Oregon	Project No. 20-5545	Test Pit No. **TP-12**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	3.0					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, black staining, trace roots, moist (Residual Soil of Boring Lava Formation)
3	4.5					
4	4.5					
5						
6						Extremely soft (R0) to very soft (R1), weathered BASALT, trace reddish brown silty clay to clayey silt matrix, light brown to gray, trace soft (R2) fragments, trace black staining, moist (Boring Lava Formation)
7						
8						
9						
10						Becomes very moist at 10 feet.
11						
12						
13						
14						
15						Practical Refusal on Large Medium Hard (R3) Boulder at 15 Feet.
16						
17						Note: No seepage or groundwater encountered.
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-13**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Moderately organic, SILT (OL-ML), with gravel, brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, black staining, trace roots, moist (Residual Soil of Boring Lava Formation)
3	4.5					
4	4.5					
5						
6						Extremely soft (R0), weathered BASALT, trace reddish brown silty clay to clayey silt matrix, light brown to gray, trace soft (R2) to medium hard (R3) gravel up to 2 feet diameter, trace black staining, moist (Boring Lava Formation)
7						
8						
9						
10						
11						Boulders up to 3 feet diameter below 12 feet.
12						
13						
14						
15						Practical Refusal on Large Medium Hard (R3) to Hard (R4) Boulder at 14.5 Feet.
16						
17						Note: No seepage or groundwater encountered.
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-14**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	3.5					Moderately organic, SILT (OL-ML), brown, trace roots loose, damp (Topsoil Horizon)
2	4.0					
3	4.5					
4	4.5					Stiff to very stiff, clayey SILT (ML), trace sand, light brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
5						
6						
7						
8						
9						
10						
11						Dense, sandy GRAVEL (GW), with clayey silt, light brown to yellow orange, strong orange and gray mottling, trace black staining, weakly cemented, moist (Pleistocene Terrace Deposits)
12						
13						
14						
15						Stiff to very stiff, FAT CLAY (CH), light brown to gray, sticky, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
16						
17						Test Pit Terminated at 16.5 Feet.
18						
19						Note: Groundwater seepage encountered at 9.5 feet.
20						Discharge visually estimated at approximately 1/4 gallon per minute.
21						
22						
23						
24						
25						
26						
27						

LEGEND

100 to 1,000 g — Bag Sample
5 Gal. Bucket — Bucket Sample
Shelby Tube Sample
Seepage
Water Bearing Zone
Water Level at Abandonment

Date Excavated: 7/22-23/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-15**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Low organic, SILT (OL-ML), brown, trace roots loose, damp (Topsoil Horizon)
2	4.5					Stiff, clayey SILT (ML), light brown, micaceous, strong mottling, moist (Loess)
3	4.0					
4	4.0					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with sand, light brown, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
5						
6						
7						
8						
9						
10						
11						
12						
13						Medium dense to dense, silty GRAVEL (GM), with sand, trace clay, light brown to yellow orange, with zones of silty SAND (SM) with gravel below 18 feet, subrounded, strong orange and gray mottling, trace black staining, moist (Pleistocene Terrace Deposits)
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						Test Pit Terminated at 25 Feet.
26						Note: No seepage or groundwater encountered.
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 8/27/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-16**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					Very stiff, clayey SILT (ML), light brown, micaceous, strong mottling, damp (Loess)
3	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, black staining, damp to moist (Residual Soil of Boring Lava Formation)
4	4.5					
5–11						
12						Extremely soft (R0), weathered BASALT, with sand, abundant reddish brown silty clay to clayey silt matrix, gray, trace soft (R2) boulders up to 2 feet diameter, trace black staining, moist (Boring Lava Formation)
13–23						
24						Test Pit Terminated at 23.5 Feet.
25						Note: No seepage or groundwater encountered.
26–27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 8/27/2020

Logged By: B. Rapp

Surface Elevation:

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-17**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, black staining, damp to moist (Residual Soil of Boring Lava Formation)
3	4.5					
4	4.5					
5						
6						
7						
8						Very soft (R1) to soft (R2), weathered BASALT, with sand, trace reddish brown silty clay to clayey silt matrix, gray, trace medium hard (R3) boulders up to 2 feet diameter, trace black staining, moist (Boring Lava Formation)
9						
10						
11						
12						With zones of extremely soft (R0), weathered BASALT below 12 feet
13						
14						
15						
16						
17						
18						
19						
20						
21						Very soft (R1) to soft (R2), weathered BASALT with abundant medium hard (R3) boulders up to 4 feet diameter, trace black staining, more difficult excavating conditions, moist (Boring Lava Formation)
22						
23						
24						
25						Test Pit Terminated at 25 Feet.
26						Note: No seepage or groundwater encountered.
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 8/27/2020

Logged By: B. Rapp

Surface Elevation:

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

TEST PIT LOG

Project: Serres Farms
Oregon City, Oregon

Project No. 20-5545

Test Pit No. **TP-18**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	4.5					Moderately organic, SILT (OL-ML), brown, trace roots throughout, loose, damp (Topsoil Horizon)
2	4.5					Stiff to very stiff, silty CLAY (CL) to clayey SILT (ML), with gray basalt gravel, light reddish brown, black staining, damp to moist (Residual Soil of Boring Lava Formation)
3	4.5					
4	4.5					
5						Very soft (R1) to soft (R2), weathered BASALT, with sand, trace reddish brown silty clay to clayey silt matrix, gray to brown, trace , trace black staining, moist to very moist (Boring Lava Formation)
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						With soft (R2) to medium hard (R3) boulders up to 2 feet diameter below 16 feet
17						
18						
19						
20						
21						Very soft (R1) to soft (R2), weathered BASALT with abundant medium hard (R3) boulders up to 2.5 feet diameter, trace black staining, more difficult excavating conditions, moist (Boring Lava Formation)
22						
23						
24						
25						Test Pit Terminated at 25 Feet.
26						Note: No seepage or groundwater encountered.
27						

LEGEND



Bag Sample



Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 8/27/2020

Logged By: B. Rapp

Surface Elevation:

Project Name:	Serres Farm				
Project #:	20-5545	Sample ID:	S20-201	Depth:	13'
Material Type:	Fat Clay				
Material Source:	TP-4				

EXPANSION INDEX ASTM D4829

Initial Height (0.001 in.)	1.000
Initial Moisture Content (0.1%)	18.9
Initial Dry Unit Weight (0.1 lbf/cu.ft.)	84.8
Initial Degree of Saturation (50.0+/-2%)	51.8
Initial Dial Reading (0.001 in.)	0.2514
Final Dial Reading (0.001 in.)	0.1952
Final Moisture Content (0.1%)	31.8
Expansion Index	**56**

Sampled By:	EKR	Tested By:	SJC
Sample Date:	7/22/2020	Tested Date:	8/5/2020

Expansion Index, EI	Potential Expansion
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
>130	Very High

Real-World Geotechnical Solutions
Investigation • Design • Construction Support

September 20, 2021
Project No. 20-5545

Harlan Borow
Hidden Falls Development, LLC.
1980 Willamette Falls Drive, Suite 200
West Linn, Oregon 97068
Via email: harlan@iconconstruction.net

SUBJECT: ADDENDUM ON SLOPES
SERRES FARMS - S HOLCOMB BOULEVARD
2 2E 21D LOTS 2100, 2200, & 2300 AND 2 2E 28A LOTS 500, 2200, & 2300
OREGON CITY, OREGON

Reference: GeoPacific Engineering, Inc., Geotechnical Engineering Report, Serres Farms – S Holcomb Boulevard, 2 2E 21 D Lots 2100, 2200, & 2300 And 2 2E 28A Lots 500, 2200, & 2300, Oregon City, Oregon, Revised May 17, 2021.

This letter presents an addendum on slopes for the proposed Serres Farms Subdivision on S Holcomb Boulevard in Oregon City, Oregon (Figure 1). Site specific topographic mapping performed by Centerline Concepts Land Surveying, Inc indicate topography is primarily gently to moderately sloping to the northwest with grades up to 20 percent with an area of topography exceeding 25 percent grade located in the central portion of the site, as indicated by the gray shading on Figure 2.

Based on our review of 1:480 topographic mapping by Centerline Concepts Land Surveying, Inc. (Figures 1 and 2) and our review of Lidar based high resolution digital elevation maps (Figure 3) slope geomorphology on the site is smooth and uniform. Landslide inventory mapping of the Oregon City and Gladstone Quadrangles and the statewide landslide database indicate no mapped landslides are present at the site (Schlicker and Finlayson, 1979; Madin, 1990; Madin and Burns, 2006; Burns and Madin, 2009; Madin, 2009; Burns and Mickelson, 2010; Burns et al., 2012; DOGAMI Slido, 2021). During our reconnaissance, we did not observe evidence of recent movement (ground cracks, scarps, or hummocky topography).

The Troutdale Formation, which underlies the site at depth, includes a thick sequence of weak sedimentary strata that are prone to instability on moderate to steep slopes. Regionally, many large landslides are mapped within the Troutdale Formation primarily on the side slopes of drainages where stream erosion has deeply incised the formation and created oversteepened slopes (Schlicker and Finlayson, 1979; Madin, 1994; Madin and Burns, 2006). In areas where the Troutdale Formation is capped by Boring Lava, these landslides are known to propagate upslope where stream erosion undermines large blocks of Boring Lava Formation.

Our explorations indicate the portion of the site with slopes exceeding 25% grade are underlain by stiff, residual soil and weathered basalt belonging to the Boring Lava Formation. No weak zones such as volcanic ash layers were observed in explorations and contacts between the layers appeared to be gradational. Our explorations indicate that native soils underlying the moderate slope areas are characterized by moderate to high shear strength and a moderate to high resistance to slope instability. In our opinion, the slope instability hazard at the subject site is low. Existing Boring Lava and Troutdale Formation materials in the vicinity of the moderate slope areas are stiff to hard and no evidence of recent landslide movement was observed. No streams with the potential to undercut Boring Lava Formation materials are present.

The grading plan indicates cuts on the order of 10 feet are fills up to 4 feet are proposed in slope areas exceeding 25 percent. Based on our explorations, we conclude the proposed cuts and fills are geotechnically practicable and should not adversely affect slope stability. Fill slopes constructed of on-site materials comprised of native silt may be built to 2H:1V to the maximum proposed height. At these gradients, constructed of the appropriate materials, keyed, benched, and with proper drainage measures installed, cut and fill slopes should remain grossly and surficially stable. No further geotechnical studies are considered necessary; but earthwork observation should be performed during development and home construction over slopes.

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. 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.

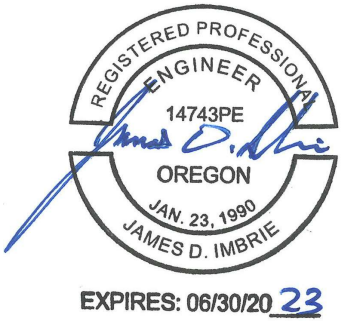
Serres Farms
Project No. 20-5545

We appreciate this opportunity to be of service.

Sincerely,

GEOPACIFIC ENGINEERING, INC.





Beth K. Rapp, C.E.G.
Senior Engineering Geologist

James D. Imbrie, G.E., C.E.G.
Principal Geotechnical Engineer

Attachments: References
Figure 1 – Site Grading Plan and Exploration Locations
Figure 2 – Site Topographic Mapping and Exploration Locations
Figure 3 – Lidar Based Vicinity Map – With Mapped Landslides

REFERENCES

Burns, W.J. and Madin, I.P., 2009, Landslide Inventory Map of the Northwest Quarter of the Oregon City Quadrangle, Clackamas County, Oregon: Oregon Department of Geology and Mineral Industries, IMS-26, scale 1:8,000, 1 plate.

Burns, W.J. and Mickelson, K.A., 2010, Landslide Inventory Maps of the Oregon City Quadrangle, Clackamas County, Oregon: Oregon Department of Geology and Mineral Industries, IMS-30, scale 1:8,000, 4 plates.

Burns, W.J., Mickelson, K.A., Duplantis, S., and Madin, I.P., 2012, Landslide Inventory Maps of the Gladstone Quadrangle, Clackamas and Multnomah Counties, Oregon: Oregon Department of Geology and Mineral Industries, IMS-48, 4 plates, 1:8,000 scale.

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.

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Madin, I.P. and Burns, W.J., 2006, Map of the landslide geomorphology of Oregon City, Oregon, and vicinity interpreted from lidar imagery and aerial photographs: Oregon Department of Geology and Mineral Industries Open File Report O-06-27.

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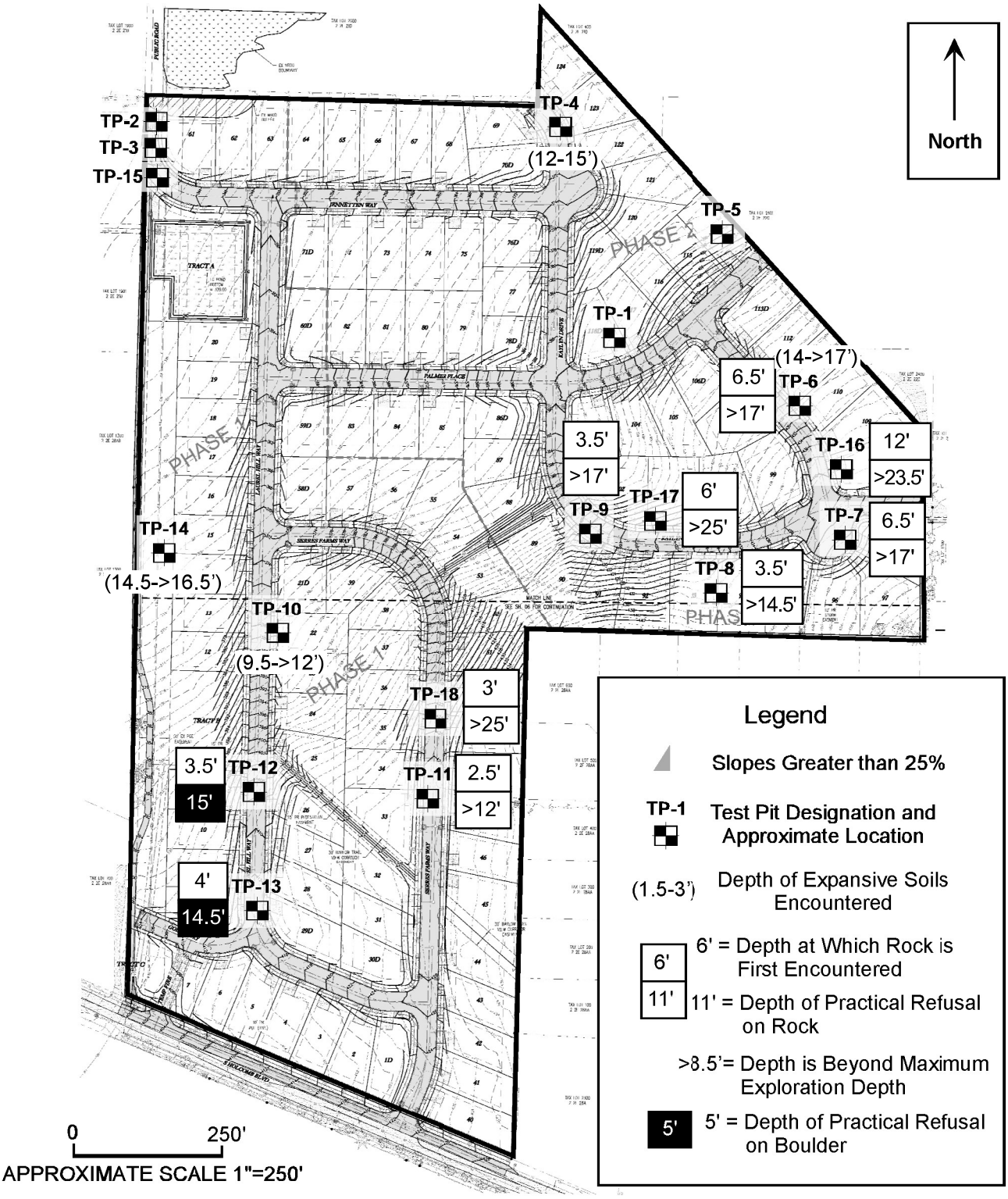
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Schlicker, H.G. and Finlayson, C.T., 1979, Geology and Geologic Hazards of northwestern Clackamas County, Oregon: Oregon Department of Geology and Mineral Industries, Bulletin No. 99, 79 p., scale 1:24,000.

GEOPACIFIC
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

SITE GRADING PLAN & EXPLORATION LOCATIONS



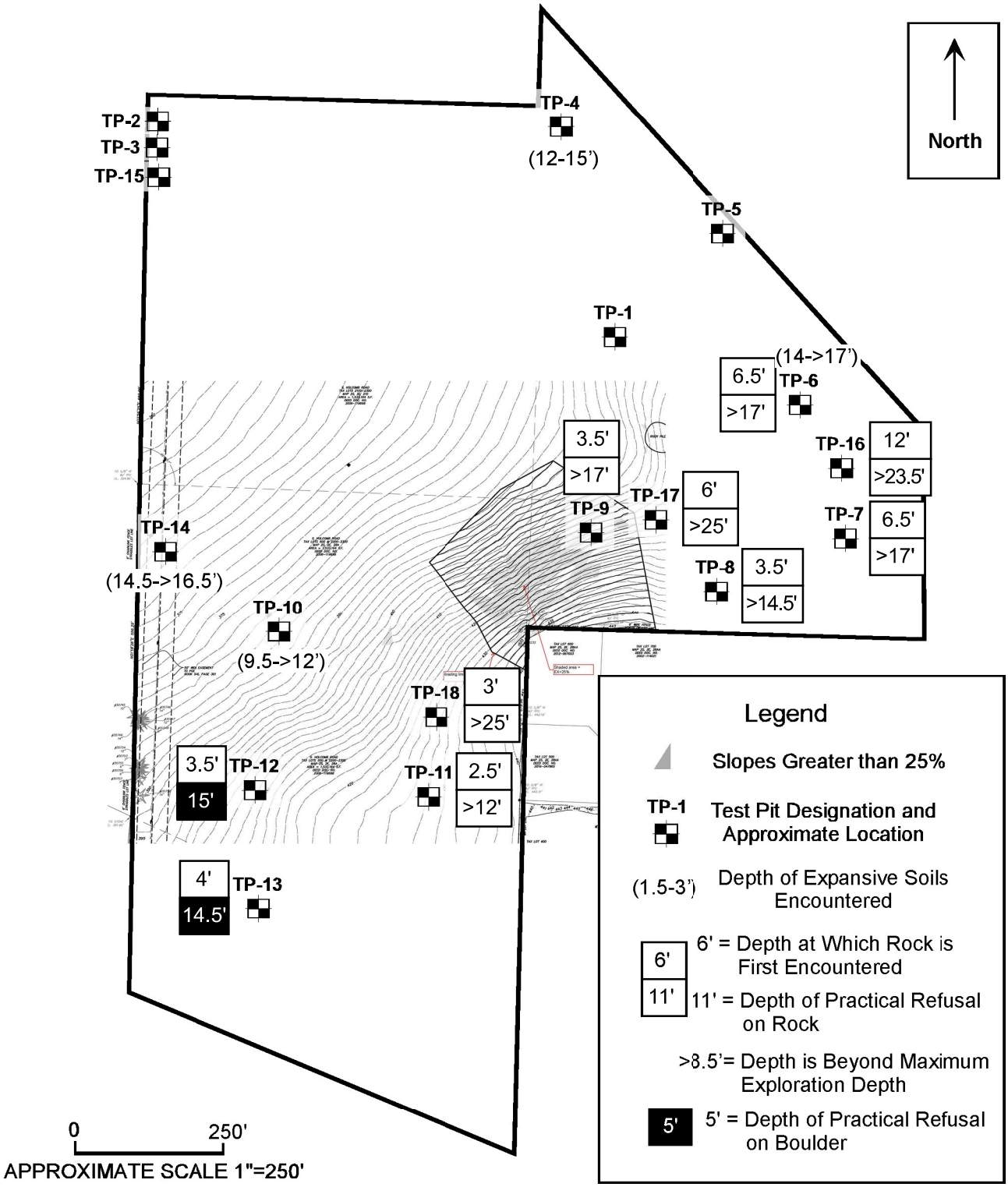
Grading Plan Provided by Emerio Design dated 9/2021

Date: 9/20/2021
Drawn by: EKR

Project: Serres Farms Oregon City, Oregon	Project No. 20-5545	FIGURE 1

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

SITE TOPOGRAPHIC MAPPING & EXPLORATION LOCATIONS



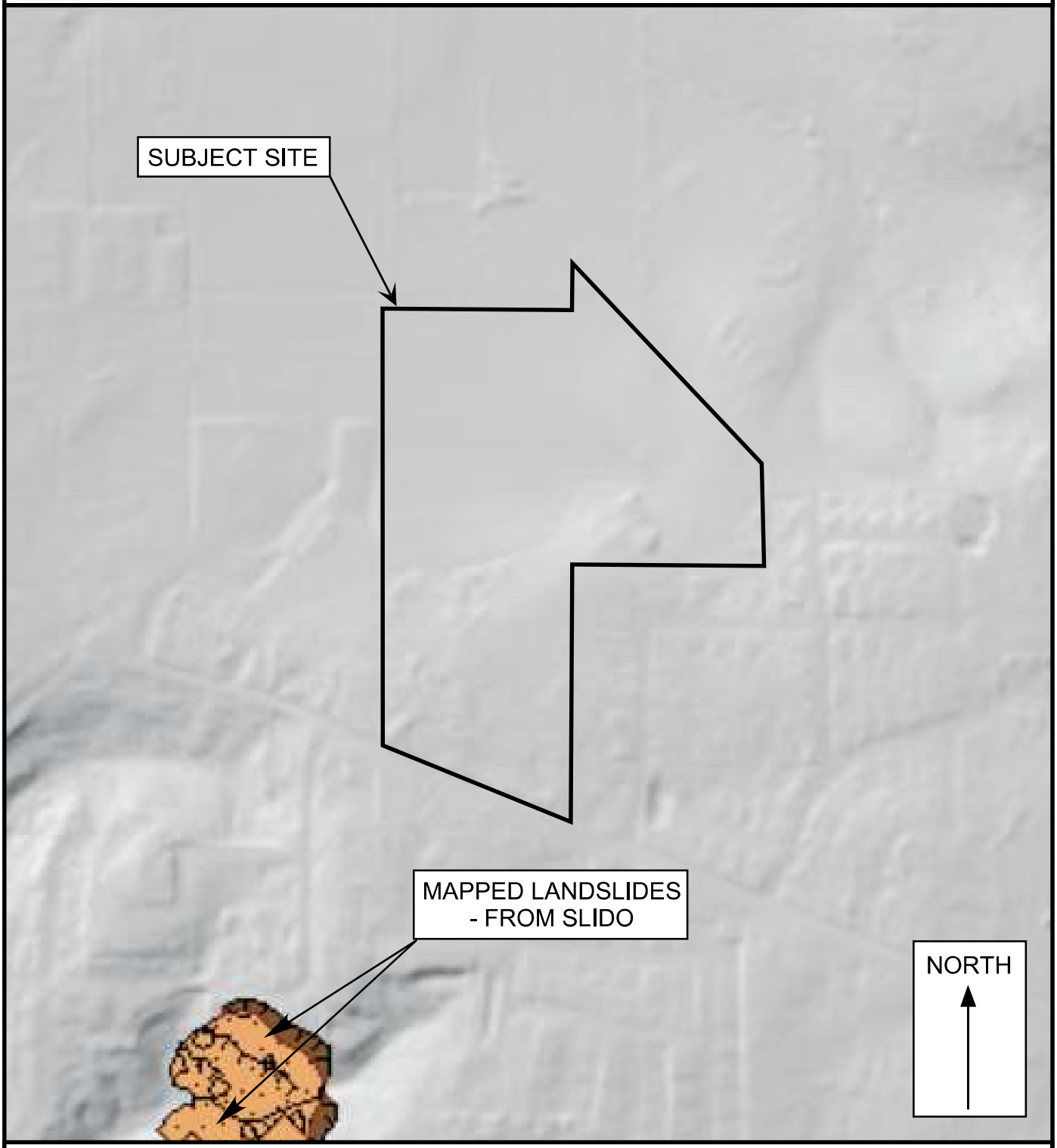
Topographic Mapping Provided by Centerline Concepts Land Surveying, Inc. dated 9/15/2021

Date: 9/20/2021
Drawn by: EKR

Project: Serres Farms Oregon City, Oregon	Project No. 20-5545	FIGURE 2

14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445

LIDAR BASED VICINITY MAP - WITH MAPPED LANDSLIDES



Legend

Approximate Scale 1 in = 500 ft

Date: 9/20/2021
Drawn by: EKR

Base map: Oregon Department of Geology and Mineral Industries, 2021, Statewide Landslide Information Database for Oregon (SLIDO): https://gis.dogami.oregon.gov/maps/slido/

Project: Serres Farms Oregon City, Oregon	Project No. 20-5545	FIGURE 3

503.523.6411

ISA Certified Arborist
PN-6732A

MARY GIERSCH CONSULTING ARBORIST

PO Box 621, Tualatin, OR 97062

ASSIGNMENT

To conduct a Limited Visual Tree Assessment for several trees on a development site identified as Serres Farms in Oregon City, Oregon, and to provide tree preservation recommendations.

FIELD OBSERVATIONS

I visited the property on July 24th, 2021. I was provided an Existing Conditions Survey Map which included tree identification numbers and approximate diameter measurements. My observations were limited to what was visible to me from the ground and the condition of the trees and site on the dates and times of my assessment. Trees were measured for Diameter-at-Breast-Height (DBH) and assessed for health and condition. An Arborist Tree Inventory Table is included as Attachment B.

There are sixty-nine (69) trees over 6 inches DBH on or directly adjacent to this property. Eight (8) of the trees have a condition rating of dying/dead. Nine (9) trees are located within the adjacent property. The following species are represented:

- Douglas-fir (*Pseudotsuga menziesii*)
- Oregon White Oak (*Quercus garryana*).

The subject trees of this report are all grouped tightly together in a tree grove. Generally speaking, the trees along the western edge of the grove are in fair condition, and the trees deep inside the grove and along the eastern edge are in poor condition. The best candidates for preservation on this site are several trees near the southeast corner of Lot 98, and along the eastern property line of Lot 108.

Trees 30471-30477 are Oregon White Oak with DBH measurements ranging from 21 to 33 inches. They are all located several feet over the eastern property line and are in poor condition. Root Protection Zone (RPZ) fencing is recommended within 20 feet of each of these trees.

RPZ recommendations are included in the attached Arborist Tree Inventory Table and are subject to change based on development plans. Please contact me with any questions at 503-523-6411, or *mkgiersch@gmail.com*.

Sincerely,

Mary Kay Giersch
ISA Certified Arborist PN-6732A
Tree Risk Assessment Qualified (TRAQ)
Member, American Society of Consulting Arborists

503.523.6411

ISA Certified Arborist
PN-6732A

MARY GIERSCH CONSULTING ARBORIST

PO Box 621, Tualatin, OR 97062

ATTACHMENT A – CERTIFICATION OF PERFORMANCE

I, Mary Kay Giersch, certify:

- That I have personally inspected the trees and property referred to in this report, and have stated my findings accordingly. The extent of the evaluation is stated in the attached report and the terms of Assignment;
- That I have no current or prospective interest in the vegetation or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved;
- That the analysis, opinions and conclusions stated herein are my own and are based on current scientific procedures and facts;
- That my analysis, opinions and conclusions were developed and this report has been prepared according to commonly accepted arboriculture practices;
- That no one provided significant professional assistance to me, except as indicated within the report;
- That my compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party nor upon the results if the assignment, the attainment of stipulated results, or the occurrence of any subsequent events;
- Any legal description provided to me is assumed to be correct. Titles and ownerships to property are assumed to be good and marketable;
- Sketches, drawings and photographs in this report are intended as visual aids and are probably not to scale;
- Unless expressed otherwise, information in this report covers only items that were examined and reflects the condition of those items at the time of inspection. The inspection is limited to visual examination of accessible items without laboratory analysis, dissection, excavation, probing or coring, unless otherwise stated;
- There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property may not arise in the future;
- Loss or alteration of any part of the report invalidates the entire report. Ownership of the report passes to the client only when all fees have been paid.

I further certify that I am an International Society of Arboriculture Certified Arborist (*PN-6732A*)

ISA Certified Arborist
PN-6732A
MARY GIERSCH CONSULTING ARBORIST
PO Box 621, Tualatin, OR 97062 — 503-523-6411

ATTACHMENT B -- TREE INVENTORY TABLE

ID	COMMON NAME	BOTANIC NAME	DBH[1]	CONDITION[2]	TREATMENT	COMMENTS/RPZ[3]
20154	Douglas-fir	*Pseudotsuga menziesii*	19	Fair	Retain	15' RPZ
20155	Douglas-fir	*Pseudotsuga menziesii*	16	Fair	Retain	12' RPZ
20156	Douglas-fir	*Pseudotsuga menziesii*	22	Fair	Retain	16' RPZ
20169	Douglas-fir	*Pseudotsuga menziesii*	30	Fair	Remove	
20170	Douglas-fir	*Pseudotsuga menziesii*	19	Fair	Remove	
20171	Douglas-fir	*Pseudotsuga menziesii*	13	Poor	Remove	
20172	Douglas-fir	*Pseudotsuga menziesii*	18	Dying	Remove	
20173	Douglas-fir	*Pseudotsuga menziesii*	23	Dying	Remove	
20174	Douglas-fir	*Pseudotsuga menziesii*	6	Dead	Remove	
20175	Douglas-fir	*Pseudotsuga menziesii*	11	Poor	Remove	
20176	Douglas-fir	*Pseudotsuga menziesii*	26	Fair	Remove	
30402	Douglas-fir	*Pseudotsuga menziesii*	33	Fair	Remove	
30403	Douglas-fir	*Pseudotsuga menziesii*	28	Fair	Remove	
30404	Douglas-fir	*Pseudotsuga menziesii*	21	Fair	Remove	
30405	Douglas-fir	*Pseudotsuga menziesii*	18	Poor	Remove	
30406	Douglas-fir	*Pseudotsuga menziesii*	11	Poor	Remove	
30407	Douglas-fir	*Pseudotsuga menziesii*	25	Fair	Remove	
30408	Douglas-fir	*Pseudotsuga menziesii*	20	Fair	Remove	
30409	Douglas-fir	*Pseudotsuga menziesii*	16	Fair	Remove	
30414	Douglas-fir	*Pseudotsuga menziesii*	30	Fair	Remove	

ISA Certified Arborist
PN-6732A
MARY GIERSCH CONSULTING ARBORIST
PO Box 621, Tualatin, OR 97062 — 503-523-6411

ATTACHMENT B -- TREE INVENTORY TABLE

ID	COMMON NAME	BOTANIC NAME	DBH[1]	CONDITION[2]	TREATMENT	COMMENTS/RPZ[3]
30416	Oregon White Oak	*Quercus garryana*	18	Poor	Remove	
30417	Oregon White Oak	*Quercus garryana*	9	Poor	Remove	
30418	Douglas-fir	*Pseudotsuga menziesii*	25	Fair	Remove	
30420	Douglas-fir	*Pseudotsuga menziesii*	19	Fair	Remove	
30421	Douglas-fir	*Pseudotsuga menziesii*	10	Fair	Remove	
30422	Douglas-fir	*Pseudotsuga menziesii*	15	Fair	Remove	
30423	Douglas-fir	*Pseudotsuga menziesii*	19	Fair	Remove	
30427	Douglas-fir	*Pseudotsuga menziesii*	30	Fair	Remove	
30429	Douglas-fir	*Pseudotsuga menziesii*	26	Fair	Remove	
30430	Douglas-fir	*Pseudotsuga menziesii*	17	Fair	Remove	
30431	Douglas-fir	*Pseudotsuga menziesii*	6	Dead	Remove	
30432	Douglas-fir	*Pseudotsuga menziesii*	13	Poor	Remove	
30433	Douglas-fir	*Pseudotsuga menziesii*	13	Poor	Remove	
30434	Douglas-fir	*Pseudotsuga menziesii*	21	Poor	Remove	
30435	Douglas-fir	*Pseudotsuga menziesii*	17	Dead	Remove	
30436	Douglas-fir	*Pseudotsuga menziesii*	13	Poor	Remove	
30437	Douglas-fir	*Pseudotsuga menziesii*	18	Poor	Remove	
30438	Douglas-fir	*Pseudotsuga menziesii*	24	Poor	Remove	
30439	Douglas-fir	*Pseudotsuga menziesii*	28	Fair	Remove	
30440	Douglas-fir	*Pseudotsuga menziesii*	18	Dead	Remove	

ISA Certified Arborist
PN-6732A
MARY GIERSCH CONSULTING ARBORIST
PO Box 621, Tualatin, OR 97062 — 503-523-6411

ATTACHMENT B -- TREE INVENTORY TABLE

ID	COMMON NAME	BOTANIC NAME	DBH[1]	CONDITION[2]	TREATMENT	COMMENTS/RPZ[3]
30441	Douglas-fir	*Pseudotsuga menziesii*	11	Poor	Remove	
30442	Douglas-fir	*Pseudotsuga menziesii*	18	Poor	Remove	
30443	Douglas-fir	*Pseudotsuga menziesii*	20	Fair	Remove	
30444	Douglas-fir	*Pseudotsuga menziesii*	19	Poor	Remove	
30445	Douglas-fir	*Pseudotsuga menziesii*	15	Poor	Remove	
30446	Douglas-fir	*Pseudotsuga menziesii*	13	Poor	Remove	
30447	Douglas-fir	*Pseudotsuga menziesii*	22	Poor	Remove	
30457	Douglas-fir	*Pseudotsuga menziesii*	20	Fair	Retain	Off Property – 15' RPZ
30458	Douglas-fir	*Pseudotsuga menziesii*	16	Fair	Retain	Off Property – 15' RPZ
30466	Oregon White Oak	*Quercus garryana*	42	Poor	Retain	25' RPZ
30468	Oregon White Oak	*Quercus garryana*	15	Poor	Retain	15' RPZ
30469	Douglas-fir	*Pseudotsuga menziesii*	42	Fair	Retain	25' RPZ
30470	Douglas-fir	*Pseudotsuga menziesii*	21	Fair	Retain	16' RPZ
30471	Oregon White Oak	*Quercus garryana*	24	Dying	Retain	Off Property – 20' RPZ
30472	Oregon White Oak	*Quercus garryana*	21	Poor	Retain	Off Property – 20' RPZ
30473	Oregon White Oak	*Quercus garryana*	23	Poor	Retain	Off Property – 20' RPZ
30474	Oregon White Oak	*Quercus garryana*	21	Poor	Retain	Off Property – 20' RPZ
30475	Oregon White Oak	*Quercus garryana*	26	Poor	Retain	Off Property – 20' RPZ
30476	Oregon White Oak	*Quercus garryana*	28	Poor	Retain	Off Property – 20' RPZ
30477	Oregon White Oak	*Quercus garryana*	33	Poor	Retain	Off Property – 20' RPZ

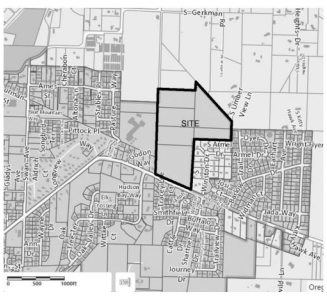
ISA Certified Arborist
PN-6732A
MARY GIERSCH CONSULTING ARBORIST
PO Box 621, Tualatin, OR 97062 — 503-523-6411

ATTACHMENT B -- TREE INVENTORY TABLE

ID	COMMON NAME	BOTANIC NAME	DBH[1]	CONDITION[2]	TREATMENT	COMMENTS/RPZ[3]
30478	Douglas-fir	*Pseudotsuga menziesii*	23	Poor	Remove	
30479	Douglas-fir	*Pseudotsuga menziesii*	16	Poor	Remove	
30481	Oregon White Oak	*Quercus garryana*	20	Poor	Remove	
30482	Douglas-fir	*Pseudotsuga menziesii*	6	Dead	Remove	
30483	Oregon White Oak	*Quercus garryana*	30	Poor	Remove	
30484	Douglas-fir	*Pseudotsuga menziesii*	13	Fair	Remove	
30485	Douglas-fir	*Pseudotsuga menziesii*	11	Poor	Remove	
40000	Oregon White Oak	*Quercus garryana*	42	Dying	Remove	
40001	Oregon White Oak	*Quercus garryana*	40	Fair	Remove	

(1) DBH = Diameter-at-Breast-Height = measured at 4.5 feet above natural grade
(2) Condition = Good, Fair, Poor, Dead
(3) RPZ = Root Protection Zone measured in feet in radius from tree trunk





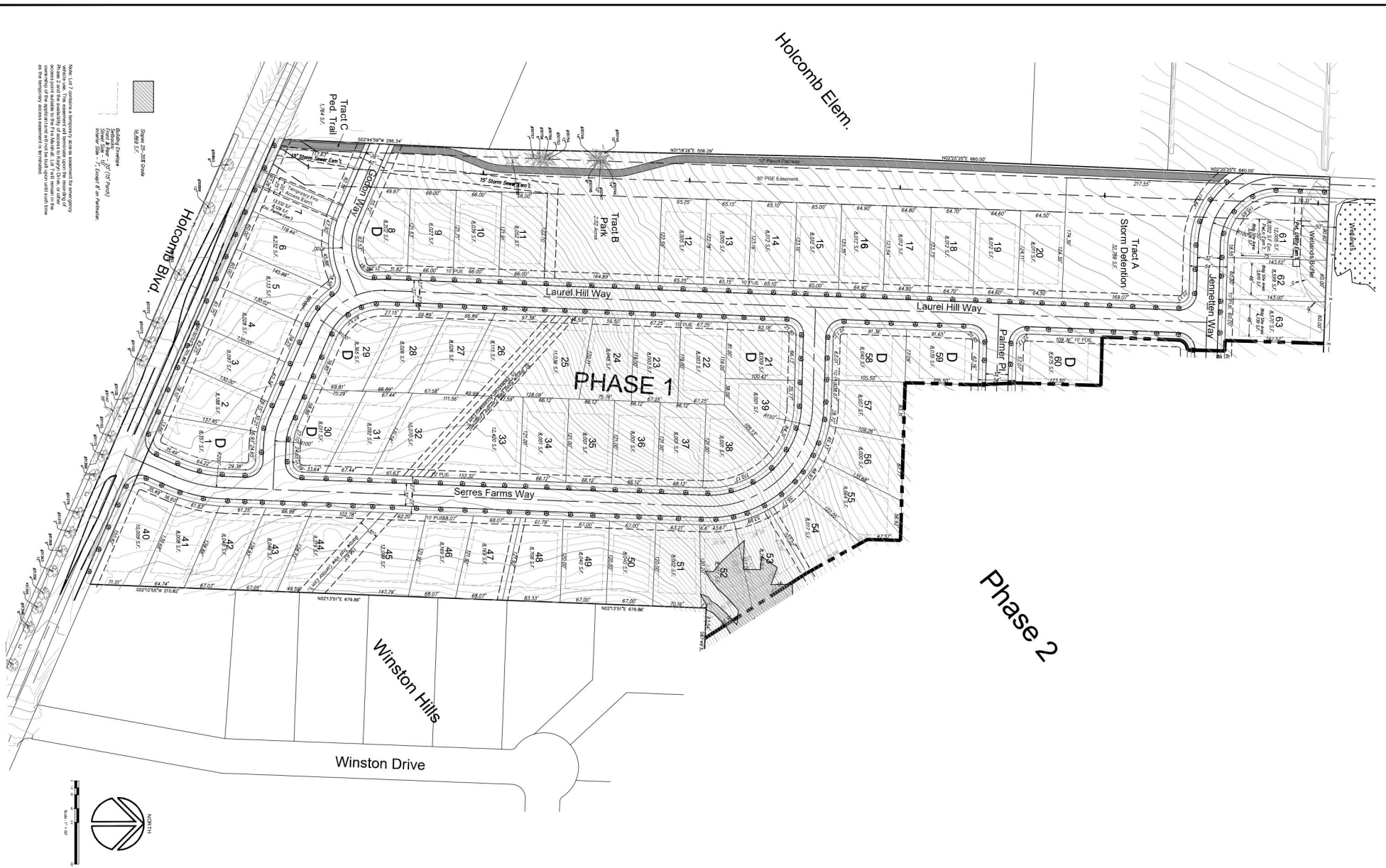
Vicinity Map

DESIGNED: REG				
DRAWN: REG				
SCALE: 1" = 80'				
DATE: June 2021				
FILE: 19-ICN-102	DATE	NO.	REVISION	

Richard E. Givens, Planning Consultant
18680 Sunblaze Dr.
Oregon City, OR 97045
PH: (503) 479-0097

APPLICANT: Icon Construction & Development, LLC
1969 Willamette Falls Drive, Suite 260
West Linn, OR 97068
PH: (503) 657-0406

Serres Farms
General Development Plan



Note: (*) indicates a temporary access easement to existing vehicle use. The easement will terminate upon the recording of Phase 2 and the availability of access to Kalyn Drive, or other acceptable public access. Lots 1-7 may not be sold in the ownership of the applicant and will not be built upon until such time as the temporary access easement is terminated.

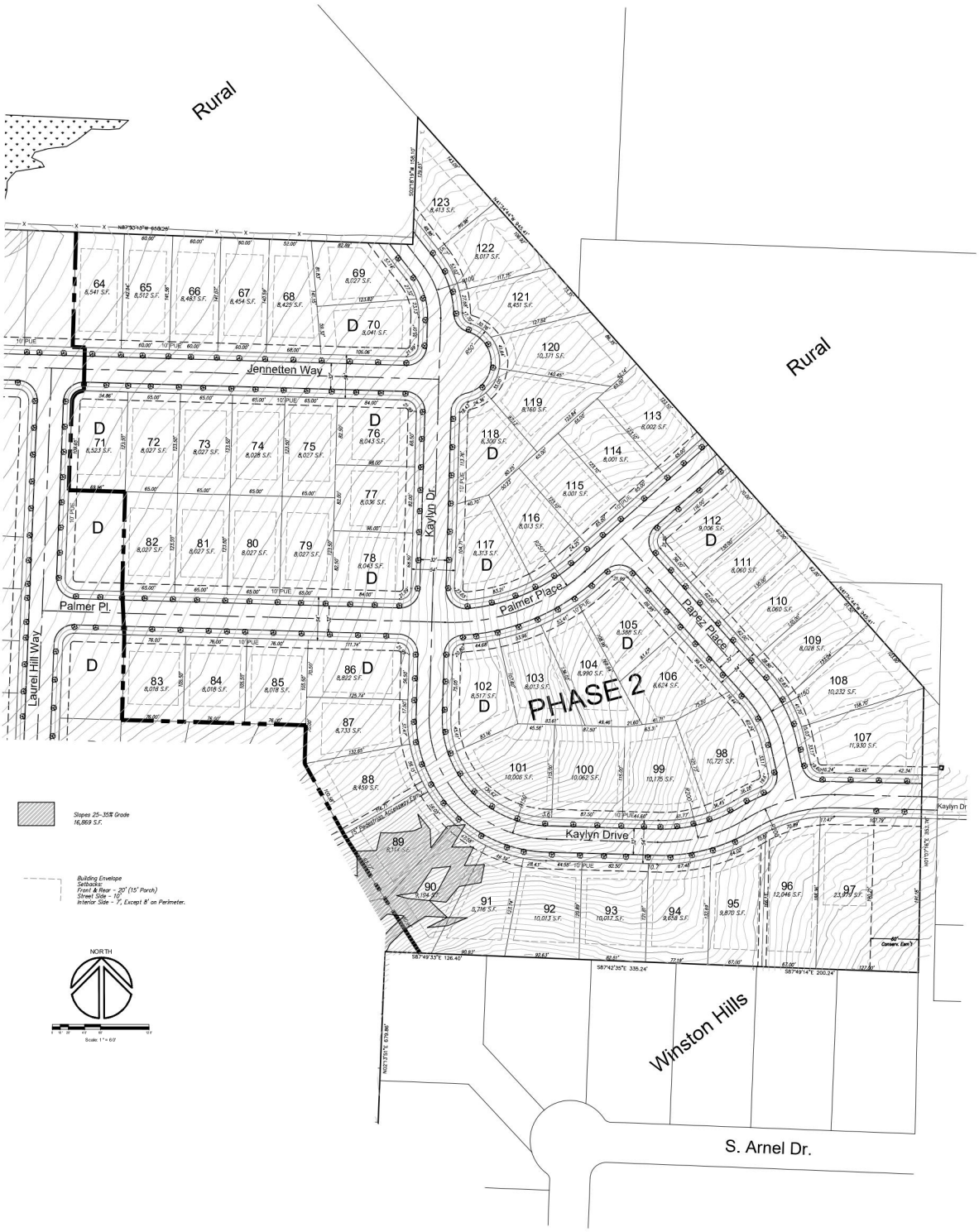
DESIGNED: REG			
G			
= 100'			
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-HGN-104	DATE	NO.	REVISION

Richard E. Givens, Planning Consultant
11303 Brandow St.
Oregon City, OR 97045
PH: (503) 479-0097

APPLICANT: Icon Construction & Development, LLC
1969 Willamette Falls Drive, Suite 260
West Linn, OR 97068
PH: (503) 657-0406

Serres Farms
Phase 1 Detailed Development Plan

SHEET:



SHEET:

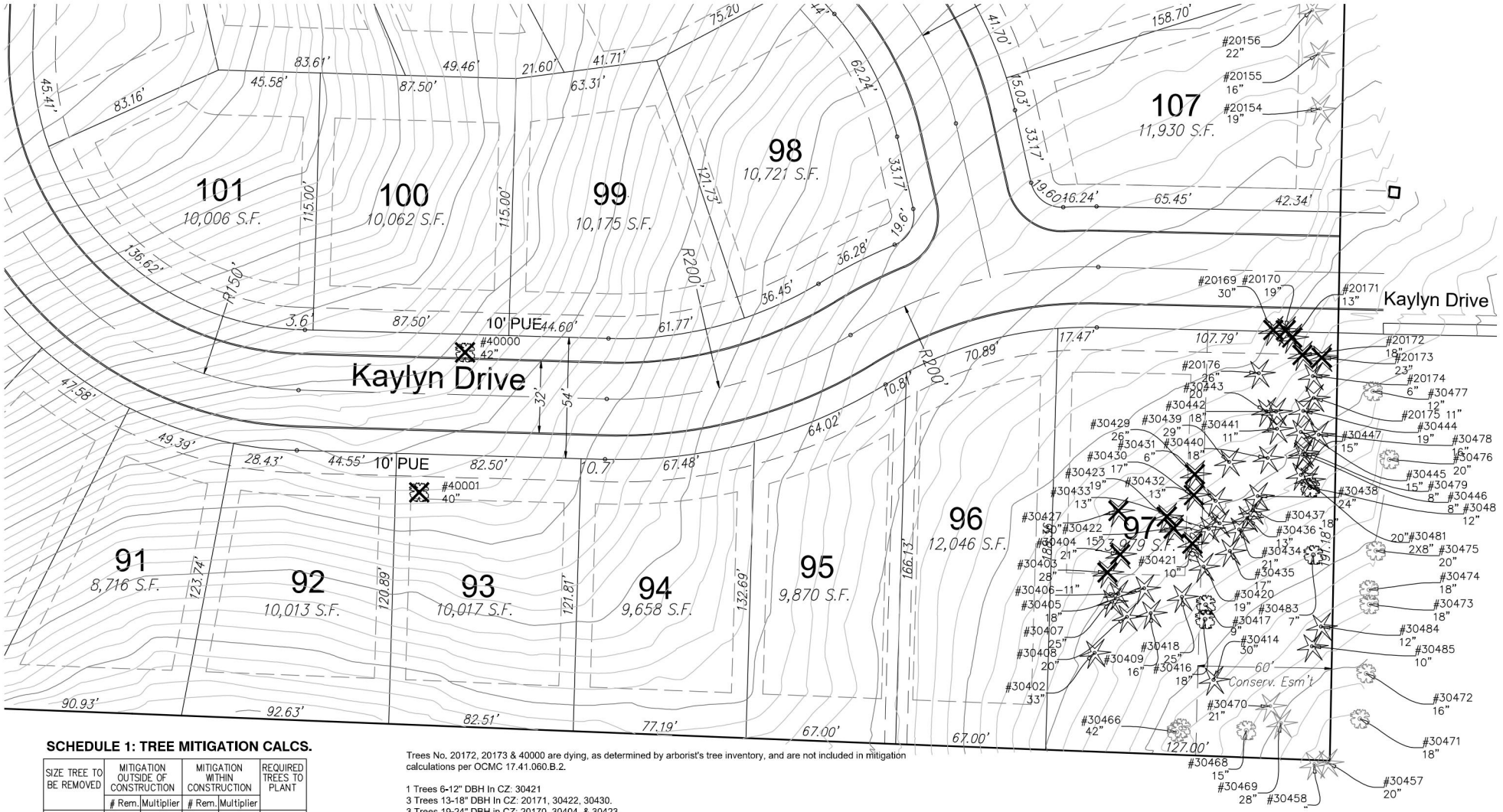
Serres Farms
Phase 2 Detailed Development Plan

APPLICANT:
Icon Construction & Development, LLC
1969 Willamette Falls Drive, Suite 260
West Linn, OR 97068
PH: (503) 657-0406

Richard E. Givens, Planning Consultant
11303 Brandow St.
Oregon City, OR 97045
PH: (503) 479-0097

NO.	DATE	REVISION

DESIGNED: BEG
DRAWN: CG
SCALE: 1" = 60'
DATE: May 2021
JOB NO: ICH-102


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Kaylyn Drive
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10' PUE
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#40001
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10,017 S.F.
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12,046 S.F.
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98
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Diliana Vassileva

From: Kristen Tiede <KristenTiede@ctuir.org>
Sent: Wednesday, August 4, 2021 2:20 PM
To: Diliana Vassileva
Cc: POULEY John * OPRD; Bambi Rodriguez; Jennifer Karson Engum
Subject: FW: Development Review in Oregon City - Multiple Properties
Attachments: 07272021SHPO Letter.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Diliana,

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Cultural Resources Protection Program (CRPP) has reviewed the proposed projects in your letter dated July 23. As PA 21-04, PA 21-14, and PA 21-15 are within one of our areas of concern, the CRPP recommends conducting archaeological surveys with subsurface testing prior to development. Please let me know if you have any questions or concerns.

Thank you,

Kristen Tiede
Archaeologist
Cultural Resources Protection Program
Confederated Tribes of the Umatilla Indian Reservation
46411 Timíne Way, Pendleton, OR 97801
Direct Line/Fax: (541) 429-7206
Main Office: (541) 276-3447
KristenTiede@ctuir.org



From: Diliana Vassileva [mailto:dvassileva@orcity.org]
Sent: Friday, July 30, 2021 9:34 AM
To: kate@yakama.com; rkentta@ctsi.nsn.us; thpo@grandronde.org; Teara Farrow Ferman <TearaFarrowFerman@ctuir.org>; robert.brunoe@ctwsbnr.org; johnson@yakama.com
Subject: Development Review in Oregon City - Multiple Properties

EXTERNAL EMAIL: Please use caution when clicking links or opening attachments.

Good morning,

Oregon City's Municipal Code requires that notice be sent to selected Tribes and SHPO before development involving ground disturbance may occur. Oregon City will not be reviewing projects on archeological criteria but we want to make sure that the applicant is aware of any potential archeological issues as early in the process as possible.

Please review the attached documents and return any comments regarding potential archeological issues to me w
45 days and your comments will be forwarded to the applicant.

Thank you and feel free to contact me with any additional questions or concerns.

Thank you.

Diliana Vassileva, AICP
Assistant Planner – Planning Division
She/Her
City of Oregon City
PO Box 3040
695 Warner Parrott Road,
Oregon City, Oregon 97045
Direct - 503.974.5501
Planning Division - 503.722.3789
Fax 503.722.3880

What's your Vision for Oregon City?

Website: www.orcity.org | [webmaps.orcity.org]webmaps.orcity.org | Follow us on: Facebook!|Twitter
Think **GREEN** before you print.

The City of Oregon City continues to offer services and programs in-person and online - find facility hours of operation here.

PUBLIC RECORDS LAW DISCLOSURE: This e-mail is subject to the State Retention Schedule and may be made available to the public.

The opinions expressed by the author are his or her own and are not necessarily those of the Confederated Tribes of the Umatilla Indian Reservation. The information, contents and attachments in this email are Confidential and Private.

Serres Farms Planned Unit Development

Neighborhood Meeting Notes

The neighborhood meeting for the proposed Serres Farms Planned Unit Development was held via Zoom meeting on April 19, 2021. The meeting was held at the regularly-scheduled meeting of the Park Place Neighborhood Steering Committee. An emailed invitation to the Zoom meeting was sent out by the PPNA prior to the meeting.

The project planning consultant, Rick Givens gave an overview of the project, explaining that the proposed master plan/planned unit development would create approximately 124 lots for single-family homes. He presented a copy of the site plan and explained that the masterplan included a proposal for a ten percent density bonus. He also noted that the density bonus provisions were being used rather than requesting a zone change to R-8 and that the density of the development would be in between R-10 and R-8. He pointed out that the lots in the development would range in size from more than 10,000 square feet to a minimum of 8,000 square feet. He pointed out that the project includes about 2 acres of open space and that a pedestrian trail would be provided through the property parallel with the powerline easement. He discussed the Barlow Road view corridor and pointed out that the proposed alignment of that would be reviewed by the Historic Review Board. He mentioned that an informational kiosk relating to the Barlow Road's history would be provided within the open space.

Mr. Givens explained that the land use process would include a public hearing before the Planning Commission and that property owners in the area would be notified of the hearing date per City standards, and that they would be afforded the opportunity to offer testimony for the Planning Commission's consideration.

Comments and questions received included:

1. Concerns about traffic impacts were raised. Mr. Givens noted that a traffic study was being prepared for the project.
2. A question was raised about access to the site being limited to one entrance from Holcomb Blvd. Mr. Givens noted that access would also be provided via the half-street of Kaylyn Drive on the eastern side of the project.
3. A question was raised about school impacts. Mr. Givens noted that he would be talking with the School District about that.
4. Timing for development of the site was discussed. The first phase is anticipated to begin development in Summer of 2022, with the second phase following the next year.
5. A question was raised about home prices. Mr. Givens noted that they would likely be in the high $500,000 range and up.

Mr. Givens gave his contact information and stated that anyone with other questions should feel free to contact him.

Josh Wheeler - OCPW

Rick Givens

Bob

Damon

GREG STONE

mary devall

Linda Smith

steve & linda

Paulette Merrill

Ryan Richards

Harlan

barbara renken

Kathy Haydon

Jason Butterfield

Armondo Borboa

david brokaw

Lisa Novak

Jackie Hammon...

Della

Jan Grady

Darren Gusdorf

Steve

work computer

Travis Stone

Gretchen P

SCHOTT & ASSOCIATES
Ecologists & Wetlands Specialists
21018 NE Hwy 99E • P.O. Box 589 • Aurora, OR 97002 • (503) 678-6007 • FAX: (503) 678-6011

May 18, 2021

Harlan Borow
Icon Construction and Development
1969 Willamette Falls Drive, Suite 160
West Linn, Oregon 97068

Re: Natural Resource Assessment for Serres Farm site in Oregon City, Clackamas County, Oregon

Dear Mr. Borow,

Schott & Associates (S&A) was contracted to conduct a wetland determination on the property (T2S R2E Sec.21D TL2000) north of the above-referenced Serres Farm property. The purpose of the determination was to determine the offsite wetland boundary for the purposes of determining Oregon City's Natural Resource Overlay District (NROD) and its extent onto the Serres Farm property (TL2100, 2200, 2300). Please note wetland boundaries are considered preliminary until approved in writing by the appropriate regulatory bodies.

S&A conducted a site visit on May 4, 2021 to collect data on vegetation, soils, and hydrology according to methods described in the *1987 Manual* and the *Regional Supplement to the Corps of Engineers Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0)* to determine boundaries of wetlands subject to state and federal jurisdiction. Sample plots were established in areas of mapped hydric soils or low-lying areas most likely to support wetland characteristics. S&A also reviewed soil survey maps, National Wetland Inventory (NWI) and Local Wetland Inventory (LWI) maps, aerial imagery, and other available data and information. No wetlands are indicated on the NWI. An isolated wetland is mapped by the LWI triggering this review and NROD mapping by the City. Soils in the vicinity of the mapped wetland are Huberly silt loam, 0-3 percent slopes which is a listed hydric soil series.

S&A identified one wetland in the southwestern portion of the property (see attached map). Data was gathered to document the southern boundary of the wetland and a study area within TL2000 was defined. Vegetation was dominated by a mix of grasses and forbs, mostly sweet vernal grass (*Anthoxanthum odoratum*) and tall fescue (*Schedonorus arundinaceus*). Soils in the wetland met the redox dark surface (F6) hydric soil indicator and soils were generally moist. The wetland boundary was defined by the fenceline which was located in the approximate middle of a 20' right-of-way and an average of 10 feet north of the property boundary as defined in the title report. A dirt farm road is located just to the south. To the north the wetland extends into the trees beyond the study area. Offsite mapping (NWI and LWI) indicates the wetland to be an isolated feature and it is not known if the wetland connects to any other wetlands/waters. The wetland is likely subject to regulation by DSL and may be subject to regulation by the Corps.

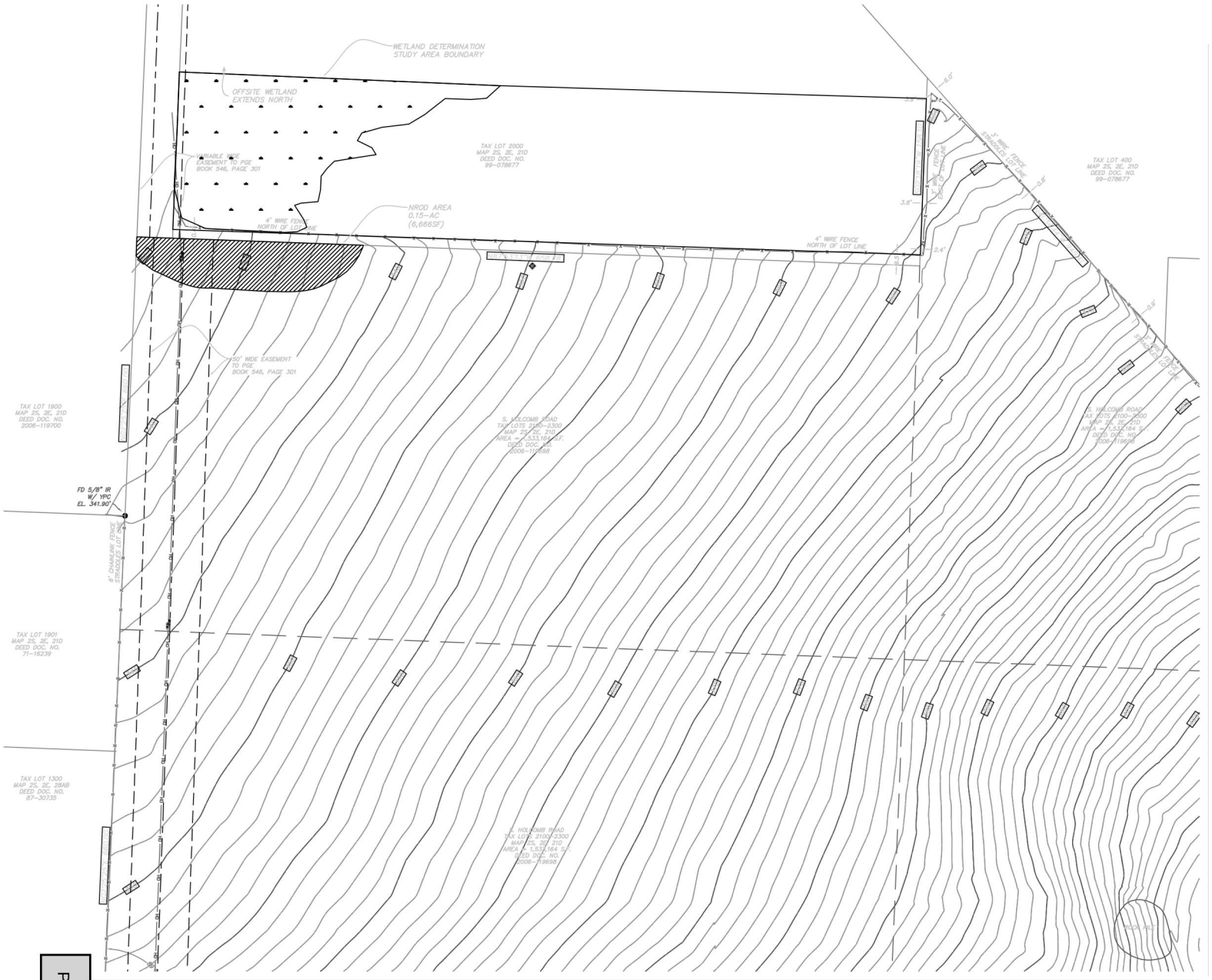
The delineated wetland boundary will be used as the basis of the NROD boundary for Oregon City. City ordinance requires a 50’ buffer from the wetland edge. Buffers extending onto the proposed Serres farm development site (see attached map) are subject to Chapter 17.49 of the City Development Code. Please note that wetland boundaries are considered preliminary until approved by the regulatory bodies and concurrence *may* be required by the city. Please let me know if you have any questions.

Sincerely,

Juniper Tagliabue
Wetland Ecologist
juniper@schottandassociates.com

EXISTING CONDITIONS MAP

TAX LOTS 2100–2300, MAP 2S, 2E, 21D
TAX LOTS 500 AND 2200–2300, MAP 2S, 2E, 28A
LOCATED IN THE S.E. 1/4 SECTION 21, T.2S., R.2E., W.M.
AND THE N.E. 1/4 SECTION 28, T.2S., R.2E., W.M.
CITY OF OREGON CITY, CLACKAMAS COUNTY, OREGON
MARCH 15, 2021 SCALE 1"=40'
SHEET 3 OF 4



SURVEY NOTES:

THE DATUM FOR THIS SURVEY IS BASED UPON A STATIC GPS OBSERVATION OF LOCAL CONTROL POINTS, PROCESSED THROUGH OPUS. DATUM IS NAVD 88.

A TRIMBLE S6–SERIES ROBOTIC INSTRUMENT WAS USED TO COMPLETE A CLOSED LOOP FIELD TRAVERSE.

THE BASIS OF BEARINGS FOR THIS SURVEY IS BASED ON OREGON STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NAD83(2011), POST PROCESSED STATIC GPS OBSERVATIONS.

THE PURPOSE OF THIS SURVEY IS TO RESOLVE AND DETERMINE THE PERIMETER BOUNDARY OF THE SUBJECT PROPERTY, TO SHOW ALL PERTINENT BOUNDARY ISSUES AND ENCROACHMENTS. NO PROPERTY CORNERS WERE SET IN THIS SURVEY.

NO WARRANTIES ARE MADE AS TO MATTERS OF UNWRITTEN TITLE, SUCH AS ADVERSE POSSESSION, ESTOPPEL, ACQUIESCENCE, ETC.

THE EASEMENTS SHOWN HEREON ARE BASED ON FIRST AMERICAN TITLE INSURANCE COMPANY PRELIMINARY TITLE REPORT ORDER NO. 7000–3869351, WITH AN EFFECTIVE DATE OF JANUARY 18, 2021. EXCEPTION 12, DEED BOOK 546, PAGES 301–305, CONTAINS THE ONLY EASEMENT ENCUMBERING THE SUBJECT PROPERTY, BEING A 50–FOOT WIDE EASEMENT FOR THE BENEFIT OF PGE, AFFECTING THE SUBJECT TRACT AS SHOWN HEREON. THOSE EASEMENTS SHOWN AS UTILITY EASEMENTS WITHIN THE VACATED RIGHTS OF WAY WITHIN THE BOUNDS OF THE PLAT OF "WINSTON ACRES" ARE IN THE PROCESS OF BEING VACATED AS WELL AND ARE NOT SHOWN HEREON.

THE UNDERGROUND UTILITIES AS SHOWN ON THIS MAP HAVE BEEN LOCATED FROM FIELD SURVEY OF ABOVE GROUND STRUCTURES AND AS MARKED BY ONE CALL TICKET NUMBER 21027940 DATED FEBRUARY 17,2021. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS A PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES THAT MAY AFFECT THE USE OR DEVELOPMENT OF THIS TRACT. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY SURVEYOR.

LEGEND:

Some Symbols shown may not be used on map

- DECIDUOUS TREE (12" / 24")
- EVERGREEN TREE
- STORM SEWER MANHOLE
- CATCH BASIN
- CURB INLET
- AREA DRAIN
- DITCH INLET
- SANITARY SEWER CLEANOUT
- SANITARY SEWER MANHOLE
- WATER MANHOLE
- WATER METER
- WATER VALVE
- HOSE BIB
- IRRIGATION CONTROL VALVE
- WATER LINE MARKER
- GAS VALVE
- GAS METER
- MAILBOX
- UTILITY RISER
- UTILITY BOX
- TELEPHONE MANHOLE
- TELEPHONE RISER
- STORM OUTFALL
- SIGN
- BOLLARD
- FOUND MONUMENT
- DOWN SPOUT TO STORM SYSTEM
- TRAFFIC SIGNAL POLE
- UTILITY POLE
- LIGHT POLE
- GUY WIRE
- ELECTRIC BOX
- ELECTRIC METER
- TRANSFORMER
- ELECTRIC RISER
- ELECTRIC VAULT
- UTILITY VAULT
- HEAT PUMP
- GATE POST
- CABLE TV BOX
- CABLE TV RISER
- OVERHEAD LINE
- GAS LINE
- ELECTRICAL LINE
- COMMUNICATIONS LINE
- SANITARY SEWER LINE
- STORM DRAIN LINE
- WATER LINE
- FENCELINE
- HANDRAIL

FD = FOUND
IP = IRON PIPE
IR = IRON ROD
YPC = YELLOW PLASTIC CAP
ALC = ALUMINUM CAP
RPC = RED PLASTIC CAP

N

GRAPHIC SCALE
40 0 20 40
(IN FEET)
1 INCH = 40 FT.

SIGNED ON: _____

REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON
JULY 13, 2004
TOBY S. BOLDEN
80371LS

RENEWS: DECEMBER 31, 2021

CENTERLINE CONCEPTS
LAND SURVEYING, INC.
19376 MOLALLA AVE
OREGON CITY, OREG
PHONE 503.650.0188 F

OREGON CITY

Community Development – Planning

695 Warner Parrott Rd | Oregon City OR 97045
(503) 722-3789 | Fax (503) 722-3880

Public Comment/Agency Comment Table of Contents

GLUA-21-00029: Serres Farm Planned Unit Development: MAS-21-00003 – Master Plan/Planned Unit Development, MAS-21-00004 – Detailed Development Plan – Phase I, MAS-21-00005 - Detailed Development Plan – Phase II, SUB-21-00001 – Subdivision – 123 lots, GEO-21-00010 Geologic Hazard Review & NROD-21-00006 – Natural Resources Overlay District

All public comments received before 12/6/21 are included in this document in the following order:

1. Ed and Lynda Kulawiak & Karen (Kulawiak) Streeter
2. Betty Johnson, Clackamas River Water
3. Erik Bertram, Water Environment Services
4. Kendall Reid, Oregon City Parks Department - Email #1
5. Park Place Neighborhood Association Letter #1
6. Jennifer Hughes, Clackamas County Planning and Zoning
7. Kendall Reid, Oregon City Parks Department - Email #2
8. Commissioner Mike Mitchell
9. Karen Streeter
10. Park Place Neighborhood Association Letter #2 with attachments

From: Karen L. Streeter
To: Kelly Reid; Sang Pau
Cc: Mom and Dad
Subject: Serres Farm Planned Unit Development: Comments
Date: Friday, October 15, 2021 9:03:07 AM

Ms. Kelly Reid, AICP Planner
Mr. Sang Pau, Engineer
City of Oregon City

RE: GLUA-21-00029: Serres Farm Planned Unit Development

Ms. Reid and Mr. Pau,

Thank you for the opportunity to provide comment on the Serres Farm proposed development. I own property immediately north of the existing Serres Farm, in rural Clackamas County. I have lived at this property for 28 years, and have experienced consistent issues with groundwater and surface water accumulation on my land and in my basement. I currently have two sump-pumps in my basement to pump out water that builds up over the course of the wet season.

However, my property is downhill and downstream of the proposed devleopment, which sits on a hill to the south. My concerns are primarly related to stormwater drainage and traffic patterns. I have the following comments specific to the application materials and reports:

Stormwater Report: I reviewed the Preliminary Stormwater report prepared for this project. Page 8 of the Preliminary Geotechnical Engineering Report states that the soil onsite has low permeability, and that infiltration rates may be low, with a high probablity of silting up over time. Based on my personal experience living on my property for 20+ years, I would agree that water does not absorb into the ground quickly, and I am concerned that the stormwater facilities will plug up over time, leading to more downstream discharge than anticipated. Being the downstream property, I am concerned about my land receiving a lot more water as a result of the development. I understand that the plan is to outfall the stormwater pond to an open ditch to the west of the development, across a Serres Farm agricultural field. I would like to note that a new ditch was built recently (in 2021) that runs parallel to the western boundary of the PGE Easement, and the water runs north in this open ditch to the intersection of Gerkman and Forsythe Road. This ditch is not shown on the current project plans, and I am concerned about the outfall discharge being intercepted by this new ditch, and flowing in a different ditch than the one planned.

I also have concerns about the size and dimensions of any ditch that is receiving stormwater from this new development. The project plans avaialble for public review currently do not have any dimemsions drawn or described, either on the plans or in the stormwater report. In

fact, the stormwater reports clearly say that those reports are NOT based on an actual grading plan, and that all information in that report is based on very preliminary information. The report is aged at this point, prepared in September 2020. I would like to find out more detail about the specific sizing of the receiving ditches, and the location of those ditches. A downstream analysis was also not presented, and this is a requirement of the Oregon City stormwater code. Based on my conversation with Mr. Aaron Parker, City of Oregon City Engineering Tech, on October 13, 2021, the city is also aware that a downstream analysis has not been presented at this time.

The ditches that will receive the development discharge are potentially problematic from a long term maintenance standpoint. Those ditches are on adjacent land, and not owned by the developer. They will be located on active agricultural fields, and are also in a different jurisdiction (outside of the City of Oregon City, in rural Clackamas County, and outside of the Urban Growth Boundary). It is my undrstanding that generally, a neighborhood assciation would be responsible for maintenance of stormwater facilities. However, in this case, since a homeowner association will likely not have access or maintnance easement across private agricultural property, then the landowner would need to maintain those ditches in such a manner as to ensure that the discharge water flows correctly over the long term. My experience living next to these agricultural fields for the last 20+ years is that winter loss of topsoil during heavy storms happens. Heavy sheet flow from rain moves the soil to the lowest point, often filling ditches and resulting in soil and rocks covering Forsythe Road and Gerkman Road, creating a safety issue to people driving on the road. In fact, I have personally removed these rocks and soil materials from Forsythe Road to keep the road safe on the corners. In multiple instances, drivers have lost traction on Forsythe in the location where the gravels build up and crashed into the ditch in front of my house. This most recently happened in September, 2021.

As a result of the ditches likely filling with the agricultural soils, I have concerns with the same ditches maintaining capacity for the runoff from the subdivision.

I would also like to point out that per the Oregon City Public works Stormwater and Grading Design Standards, Chapter 5.2.4.B, that Clackamas County must be notified and given an opportunity to review and comment on the analysis. Since this analysis has not yet been developed, the County has not likely had a chance to review or consider the impacts of this development. The recieiving ditch system in this case is outside of the City of Oregon City jurisdiction, and outside of the Metro Urban Growth boundary, in rural Clackamas County. I do not believe this area is within any of the Water Environment Services stormwater management service boundaries.

As a result of the above information, we respectfully request that the City consider adding the following Conditions of Approval in the City's decision:

- The applicant shall submit updated geotechical and stormwater analysis based on an actual development grading plan.
- The applicant shall submit updated project design sheets that show current dimensions and locations of all ditches on the adjacent properties where the stormwater conveyance system is proposed. This includes incorporating design elements to prevent interception of stormwater into other ditches in the vicinity that could convey stormwater.
- The applicant shall submit a complete Downstream Drainage Conveyance system analysis, based on the final plans and updated stormwater report/design, that fully meets the requirements of Oregon City Public Works code 5.2.4, including specifically items B (notification to adjacent jurisdictions and opportunity to review and comment), D (evaluation of distance of analsyis and extending as necessary), E (evaluation of downstream systems for adequacy, and correct/improve drainage conditions as necessary), and I (where no conveyance exists, measures must be taken to prevent downstream impacts).
- The applicant shall submit a long term maintenance agreement, including the frequency and detail of maintenance activities, that addresses the downstream drainage conveyance system that is offsite from the development, and maintenance reports shall be submitted to the City on a frequency that matches submittal of other, similar stormwater maintenance facility reports.
- The applicant shall promptly remove any soils or gravels that accumulate on Forsythe Road as a result of ditches filling with agricultural soil materials, thereby displacing the stormwater runoff from the development, causing flooding and material accumulation on a public, County roadway (ie, Forsythe Road) downstream of the development.

In addition to my stormwater concerns, I would like the City to include a Condition of Approval stating that the roadway in the PGE Easement shall not be used for the purposes of accessing the development, including as a construction access during the construction and grading period. I understand that a pedestrian trail is proposed on the western boundary of the development, adjacent to the PGE Easement. As there is not ultimate destination for people to go with this trail (ie, it does not really go anywhere or connect to a larger trail network), the City should also require the applicant place permanent barriers at the end of the trail and install No Trespassing signs to prevent people from walking off the improved pathway onto the PGE roadway, heading north to Gerkman/Forsythe Road and, more personally, my property.

Once again, thank you for the opportunity to comment on this development. We have enjoyed the opportunity to learn more about the details of this development from you, and look forward to participating in any public comment opportunities in the future.

Respectfully,

Ed and Lynda Kulawiak
Karen (Kulawiak) Streeter, Professional Senior Wetland Scientist
14720 South Forsythe Road
Oregon City, Oregon 97045

OREGON CITY
Community Development – Planning
695 Warner Parrott Road | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

LAND USE APPLICATION TRANSMITTAL – RESPONSE FORM

Date: 8/31/21

Land Use Application File Number: GLUA-21-00029

NAME: Betty Johnson

AGENCY: Clackamas River Water

EMAIL ADDRESS: bjohnson@crwater.com

The land use application material is referred to you for your information, study and official comments. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return a copy of this form to facilitate the processing of this application and to ensure prompt consideration of your recommendations.

Please check the appropriate spaces below.

☑	The proposal does not conflict with our interests.
☐	The proposal conflicts with our interests for the reasons attached. (Please attach additional information)
☐	The proposal would not conflict our interests if the changes noted below or attached are addressed.

Please add any specific comments below or attach a separate document with more information.

Per the "HOPP Area" Intergovernmental Cooperative Agreement Clackamas River Water is available to serve those properties that are at elevation 450-feet and higher.

CONTACT THE PLANNING DIVISION IF YOU HAVE ANY QUESTIONS ABOUT THIS APPLICATION

From: Carr, Erik
To: Kelly Reid
Subject: RE: Land Use Transmittal for Serres Farm 124-lot Planned Unit Development
Date: Tuesday, August 31, 2021 3:24:18 PM

Hi Kelly,

22E28A, Tax Lots 500, 2200, and 2300, and 22E21D, Tax Lots 2100, 2200 and 2300 will all need to annex into the Tri-City Service District before sanitary sewer service can be provided to this development. The TCSD annexation is available on the WES website.

Thanks,

Erik Bertram
WES Development Review Specialist
503-936-3666
ecarr@clackamas.us

From: Kelly Reid <kreid@orcity.org>
Sent: Tuesday, August 31, 2021 11:36 AM
Subject: Land Use Transmittal for Serres Farm 124-lot Planned Unit Development

Warning: External email. Be cautious opening attachments and links.

Good Morning,

This application material is referred to you for your information, study and official comments. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please respond to this email or return the attached copy of the attached transmittal form. The full application materials can be found at the links below or in the attached notice.

REQUEST: 124-lot residential Planned Unit Development subdivision built in two phases, with commonly owned open space and adjustments to dimensional standards. The property is zoned R-10 Low-Density Residential, and the site is approximately 35 acres.

PROJECT WEBPAGE: https://www.orcity.org/planning/project/glua-21-00029

COMMENT DEADLINE: On Monday, September 27, 2021, the City of Oregon City - Planning Commission will conduct a public hearing at 7:00 p.m. in the Commission Chambers at the Robert

Libke Public Safety Building, 1234 Linn Avenue, Oregon City 97045 and virtually on the following Type III Land Use Application. Any interested party may testify at the public hearings or submit written testimony at or prior to the close of the Planning Commission hearing. Please contact planning@orcity.org to provide virtual testimony. The meeting may be viewed live at www.youtube.com/user/CityofOregonCity . Written comments must be received by the Planning Division by 4pm 2 weeks before the first scheduled hearing to be included in the staff report. Written comments received after that date will be provided to the Commission but may not be included in the staff report. The agenda and associated report will be posted at www.orcity.org/meetings one week prior to the meeting.

FILE NUMBERS: GLUA-21-00029: MAS-21-00003 – Master Plan/Planned Unit Development, MAS-21-00004 – Detailed Development Plan – Phase I, MAS-21-00005 - Detailed Development Plan – Phase II, SUB-21-00001 – Subdivision – 124 lots, & NROD-21-00006 – Natural Resources Overlay District

APPLICANT: Icon Construction & Development; 1969 Willamette Falls Drive, Suite 260; West Linn, Oregon 97068

OWNER: Serres Family H, LLC

LOCATION: N. Side of Holcomb Blvd, between Holcomb Elementary School and S. Winston Dr. Clackamas County Map 2-2E-28A, TL 500, 2200, & 2300; 2-2E21D, TL 2100, 2200, 2300

Kelly Reid
She/her/hers
Planner
Community Development Department, City of Oregon City
695 Warner Parrott Rd, Oregon City, OR 97045
kreid@orcity.org
(503) 496-1540 Direct
(503) 722-3789 Main
Website
Interactive Maps and Apps
On-Line Submittal of Land Use Applications

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PUBLIC RECORDS LAW DISCLOSURE: This e-mail is subject to the State Retention Schedule and may be made available to the public.

From: Kendall Reid
To: Kelly Reid; Josh Wheeler
Subject: RE: Serres Farm development in Park Place - seeking comment from Parks
Date: Tuesday, September 14, 2021 2:47:55 PM

Kelly,

This 2-acre park fails to meet our minimum requirement of 3 acres, so we are not interested in accepting this dedication.

Thanks,

Kendall Reid

Kendall Reid
kendallreid@orcity.org
Parks and Recreation Director
City of Oregon City
625 Center St.
Oregon City, Oregon 97045
503-496-1546 Direct phone
503-657-0891 City phone
503-657-7026 Fax

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From: Kelly Reid <kreid@orcity.org>
Sent: Tuesday, September 14, 2021 2:43 PM
To: Kendall Reid <kendallreid@orcity.org>; Josh Wheeler <jwheeler@orcity.org>
Subject: Serres Farm development in Park Place - seeking comment from Parks

Hi Kendall,

The residential development application I am reviewing includes a proposed trail to fulfill the Trails Master Plan, along with a small open space. The application says: *The proposed site plan includes a 2-acre park that adjoins the Holcomb Elementary School playground. The applicant proposes dedication of this park to the City of Oregon City. An HOA will own and maintain it should the City determine that it does not wish to accept the dedication.*

It would be helpful if you could provide a comment for the record indicating whether or not you expect this to be dedicated as a city park/trail. If not, the trail at least will have a public access easement so it is open to the public, and we will refer to the trails Master Plan for guidance on design. Anything more you want to add is welcome!

Thanks,

Kelly Reid
She/her/hers
Planner
Community Development Department, City of Oregon City
695 Warner Parrott Rd, Oregon City, OR 97045
kreid@orcity.org
(503) 496-1540 Direct
(503) 722-3789 Main
Website
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Oregon City Planning Commission Meeting
October 25th, 2021
Oregon City, OR

RE: Testimony of Christine Kosinski, Unincorporated Clackamas County, Holly Ln

Agenda, Public Hearing:
Item 2. GLUA 21-00029:Serres Farm Planned Unit Development: MAS-21-00003-Master Plan/Planned Unit Development, MAS-21-00004- Detailed Development Plan – Phase 1, MAS-21-00005 – Detailed Development Plan – Phase 11, SUB-21-00001 – Subdivision 123 lots, GEO-21-00010 Geologic Hazard Review and NROD-21-00006-Natural Resources Overlay District

I cannot believe this land use application may not go before the City Commission. Yes, this is in an area where landslides are highly susceptible to re-activate in the future, and yet NONE of these HOMEOWNERS will be able to purchase Landslide Insurance because (1) if you live within one mile of a previous landslide you will be denied insurance coverage.

The landslide on Oak Tree Terrace occurred on a slope of only 10% and is 370 yards from the landslide itself and only 63 yards from debris flow. Kaylyn Drive is 382 yards from this huge landslide and 46 yards away from one debris flow and 132 yards away from another debris flow. All of the proposed 123 homes will be within one mile of the Oak Tree Terrace landslide, therefore if the homeowners had even a slight chance of getting insurance for losses due to landslide, since they are within one mile, insurance will not be available. Take a compass and draw one mile out from the landslide on Oak Tree Terrace, homeowners within one mile of the landslide, and/or debris flow will be denied. Therefore, the Hazard/landslide regulations for the City, Chapter 17.44, apply to this plan and need to be added to the General Staff Report and Recommendation.

This is a land use application which requires careful attention and it must go before the City Commission, especially since several future land use applications will be proposed to the City adjacent to this current proposed area of the Serres farm property and they all will have to meet the City's Comprehensive Plan, the City's Natural Hazards Mitigation Plan, the DLCD-DOGAMI Landslide hazards land use guide for Oregon, and the City's Hazard Regulations, Chapter 17.44.

This land use application should contain language stating “the new buyer will be legally informed they are moving into a landslide zone and that landslide insurance is not available for losses due to landslides”, this language fulfills requirements of ORS 105.465.

I find it appalling that the City continues to ignore the hundreds of homeowners on Holly Ln since these people will be dramatically affected by this proposed Serres Farm development. Holly Ln is part of the Transportation Report by Replinger and Associates for this proposed land use on the Serres Farm property. So I ask again, why were these homeowners not invited to these hearings????? A massive breach of Statewide Land Use Goal 1, and I wonder if DLCD would be interested in knowing the total impacts being placed upon these people which the City continues to keep “in the dark” and have not been forthcoming in telling these homeowners the whole truth.

I have testified to the City on numerous occasions about the proposed transportation system plan for Holcomb Blvd and the Park Place neighborhood, which now also involves the proposed Holly Ln Extension, and the Swan Rd Extension. This transportation plan will not work when considering the huge amount of development that has already occurred, plus the overwhelming amount of development being proposed in the next few years. The Park Place area is pretty much “one way in” and “one way out”. In a terrible earthquake or wildfire, these citizens will have no way to get out to safety. I can attest to this, because in the fires of 2020, I had to leave my home due to the heavy smoke. It took me almost 3 hours to get from Holly Ln to Oak Grove. In a disaster these people could well become trapped, all due to a poorly thought out transportation plan. The people living in Park Place need direct access to the transportation system. This proposal to build the Holly Ln Extension, the Swan Rd Extension will not work and will only cause gridlock. Additionally, I would like to know how many ADT's per day are proposed for the Holly Ln and Swan Rd Extensions? In 2006, the City told us at least 20,000 ADT's per day would come from the Park Place Concept Plan. Add to that the hundreds, or thousands, of homes you have built since that time, now Oregon City please let us know exactly how many more thousands of ADT's per day will these streets take? This is NOT SUSTAINABLE! Heavy traffic belongs on the Major Arterials, not down Residential Streets where safety is severely compromised and the people are put right in the middle of harm's way. This means the City does not meet their own Comprehensive Plan, nor the DLCD – DOGAMI Landslide Hazards Guide, nor the Oregon City Natural Hazards Mitigation Plan.

If the City continues to propose dense development in a landslide area, there are other things to be considered, such as health issues for the people of Holly Ln, as well as to the people living on Trailview Dr. Lifetime health issues are well documented for persons living in homes situated very close to the road where heavy traffic exists 24/7. There is NO shortage of articles bringing attention to these health concerns, such as, Cancer, Asthma, Impaired Lung Function, Premature Death, Cardiovascular Disease, COPD, Diabetes, Poisoning, Heart Disease, Birth Defects, Parkinson's and Multiple Sclerosis disease, and shall I go on and on? For homeowners living within 100-500 meters from the road, this is especially disastrous, and this is their future, this is what the City and developer are giving the homeowners of Holly Ln and Trailview Dr, a lifetime of agony and illness.

According to the EPA, motor vehicles cause 75% of the Carbon Monoxide pollution in the U.S. Consider the typical passenger vehicle emits about 4.6 metric tons of carbon dioxide per year. If you want to figure this per mile, the typical vehicle emits about 404 grams of CO2 per mile. Air pollution is one of the world's leading risk factors for deaths, with air pollution attributing about 9% of deaths globally, and it also is one of the leading risk factors for disease burden. So yes, I'm concerned when I read statistics like these. Is this what huge development and poor transportation plans give to the people? Do you call this fair? And how can the City go to DLCD and say they comply with our Statewide Land Use Goals? The Goals that were put into place to protect the people and their property, one of Goals being Statewide Land Use Goal 7, which is part of Oregon City's Natural Hazards Mitigation Plan, however the City fails to comply as the people and their property are not being protected.

Now that we've talked about Health Issues, let's address further issues for both Holly Ln and the homeowners presently living on Trailview Dr. who will have the Holly Ln extension in their backyards, way too close to their existing homes. These homeowners will have to monitor their homes and surrounding property for landslide activity since this heavy traffic, being proposed, will vibrate these homes 24/7. They will have to monitor for newly cracked pavement, foundations, support walls and sidewalks, tilted or cracked chimney's, check for doors/windows that stick or jam, watch for outside walls, walkways or stairs that start pulling away from their homes, watch for soil that moves away from

the foundation, check plumbing/gas lines for leakage, cracks in the ground, tilted trees. If any of these occur, they will have to be reported to the City This places a huge amount of pressure and legal issues upon the homeowner, developer, and the City, and should I mention the huge costs to repair landslides and/or pay for homes that are crumbling away due to heavy vibrations from the huge amount of traffic. Let's face it, the City TSP has more than 100 roads aimed right at Holly Ln so motorists can get down the hill to reach the I-205, a very diabolical plan for a City that failed the people when it did not build the grade separated intersection at Hwy 213 and Beavercreek roads, when funds were available. Traffic belongs on the Major Arterials, NOT down Residential Streets!

I will briefly touch on the plans for the Swan Rd extension, the Holly Ln extension, the wetlands where the City plans to bring Swan Rd up parallel to Holly and connect Swan to Morton Rd. This will never happen, not enough money to bring Swan down to Redland Rd due to the tremendous landslides below, a bridge is needed and never enough money will be available. DOGAMI has stated in the past, that building over wetlands can be very difficult. If you do not have knowledge of the Morton Rd-Hwy213 landslide, you will want to read the "Thesis" from Bill Burns of DOGAMI where he speaks to the very difficult topography and landslides that exist in this area. A Place for a road? I think not!

The City does not comply with the DLCD-DOGAMI Landslide Hazards guidelines. One example can be found on Pg. 41 (B) Goal 7 – Areas subject to Natural Hazards. "Section A requires local governments to adopt comprehensive plans and implementation measures for reducing risk to people and property from a minimum (landslides, earthquakes and related hazards." Throughout this 146 pg. Document, you will read over and over, "to avoid development in hazard areas where risk cannot be mitigated", and that development CANNOT PUT PEOPLE AND THEIR PROPERTY IN HARM'S WAY. In fact, they go on to say "local jurisdictions must analyze the trade-offs inherent in working to reduce and minimize potential damage to life, property, and the environment which may result in locating development in or away from hazards area".

The City does not comply with it's own "Oregon City Natural Hazards Mitigation Plan", and fails almost all requirements. One example is found on Pg OC-46, under the heading **Ideas for implementation**, "Use the Mitigation plan to help the City's Comprehensive Land Use Plan meet State Land Use Planning Goal 7, designed to protect life and property from natural disasters and hazards through planning strategies that restrict development in areas of known hazards." This is not happening, and why?

Again, on Pg OC-46, under the heading **Ideas for implementation,** Use Zoning Codes to regulate development in hazard prone areas; so why is the City proposing R-2 and dense zoning codes? The City is going against their own "Oregon City Natural Hazards Mitigation Plan"! These very dense zoning codes should not be allowed or approved for this proposed development. As I have previously stated, the proposed development lies in a hazard zone which is in a very high-to highly susceptible area where landslides will re-activate in the future. As well, the future homeowners, as well as those on Holly Ln and on Trailview Dr.,literally all homeowners in this vicinity are unable to purchase landslide insurance to cover losses due to landslides. Statewide Land Use Goal 7 does not allow development in hazardous areas where people and their property cannot be protected.

The **safety of the people should never be compromised.** This proposed land use development should not be approved. The City must honor it's Natural Hazards Mitigation Plan agreement, as well as the DLCD-DOGAMI Landslide Hazards Guide. This should be a Type 3 or Type 4 land use application and should be heard by the Oregon City Commission.

DATE: 25 October, 2021

TO: Planning Commission

REFERENCE: GLUA-21-00029 Serres Farm Planned Unit Development

FROM: Park Place Neighborhood Association

Good evening ~~Mayor and~~ Commissioners. My name is Bob La Salle and I am the Land Use Chair for the Park Place Neighborhood Association. Thank you for the opportunity to address this issue this evening.

We would like my presentation entered into the record in reference to the Serres Farm Planned Unit Development Application. This presentation represents testimony from Tom Geil, Barbara Renken, Ray Renken, Ryan Richards, Linda Smith, Linda Van Haverbeke, Steve Van Haverbeke, and Jackie Hammond-Williams thus giving them standing in future meetings. I have attached a list of their names and email addresses. I would like to claim 5 minutes as the representative of the Park Place Neighborhood Association and 3 minutes as a private citizen.

At the very beginning of the Planned Unit Development Application on page 7 of a 74 page document, an untrue statement is made. The applicant states "To the east---. This area is outside of the UGB and inside the city limits." That is a false statement. That area is not within the City limits, but is within the Urban Growth Boundary. If the applicant cannot read a map correctly and starts with a falsehood, how many others might there be?

p. 8 "Sanitary Sewer." This paragraph lists some sanitary sewer restrictions. "City staff advised the applicant that the Holcomb Blvd sewer is nearing capacity so no project sanitary sewer will be directed to that facility." It further states the sewer from this development will need to be directed to the Ames Street sewer to the west. It goes on to state "This location will require the approval of Clackamas County---." Has this been approved by the County? And if so, we would like to see the documentation.

p. 11 Item f: The applicant states "The proposed development will be served by a network of local streets." This is an imaginary connection that would need to take place outside of the Urban Growth Boundary, and outside of the City limits. Since it is imaginary it does nothing to alleviate the additional traffic imposed on Holcomb Blvd by this development.

p. 12 The applicant states "Left-turn lane warrants are projected to be met at the proposed public site access intersection at S. Holcomb Blvd---." Does this mean the applicant proposes to install a left-turn lane at that location? Another thing. I cannot find a "South" Holcomb Blvd on any maps. Does this mean the applicant is using his memory rather than stating facts? Just a thought.

p.12 The applicant states "For the proposed temporary emergency connection onto S. Holcomb Blvd---." This references the emergency access through lot #7. OCMC Chapter 12.04.120.B.7 describes the types of obstructions.

"A. Permanent Obstruction...Unlawful---without obtaining approval---from the City Commission by passage of a resolution---."

"B.7.a. A short-term ---obstruction is allowed---not more than sixty consecutive calendar days.

b. A long-term obstruction is allowed---not more than one year---.

Which is it to be?

One of the most disturbing parts of this application is on p. 13, item J. "It is ---proposed that a 20% adjustment to the R-10 minimum lot size standard be approved, reducing the minimum lot size from 10,000 sq. ft. to 8,000 sq. ft. An adjustment to reduce the interior side yard setback from 8 feet to 7 feet also approved".

OCMC Chapter 16.08.065 states "dwelling district may utilize a lot size reduction of up to twenty-five percent of the lots proposed---." The applicant is not asking for twenty-five percent of the lots be reduced by 20%, which would be 30.5 lots. They are asking for 102 lots be so reduced. The Code further states "The reduced size lots may be up to ten-percent less than the required lot area---provided the average lot size of all---lots meet the minimum requirement of the underlying zone." The proposed lot size reduction amounts to an average lot size of 8,839 sq. ft., which is well below the requirement that the average lot sizes meet the minimum requirement of the underlying zone, which is R-10. The developer knew full well what the zoning was here, and this request, in all reality, results in a zone change from R-10 to R-8 without going through the zone change process There is an additional request to "reduce the interior side yard setback from 8 feet to 7 feet. These requests are simply a means to build more homes on less property, thus increasing profits. Don't let the applicant, in their rebuttal, convince you by using semantics or "legaleze" that this is allowed.

On page 19 they again make the same request. I guess this way, if you denied them the first time they might be able to slip it through a second time. We request that reference to these requests, wherever they are found in this document, or elsewhere, be denied. If this request is granted why even have zones because they don't mean anything?

OCMC Chapter 17.65.070 states"---an applicant may request one or more adjustments to the applicable development regulations---." This doesn't mean they should automatically get the adjustments. They should be required to show very good reasons why they want to operate outside of the City Code.

p. 29 in regard to Holcomb Blvd it is stated"---this width is adequate to accommodate planned a left-turn lane into the property---." Again, does this mean the developer plans to install that left-turn lane?

p. 34 item D. "accessways shall be lighted with pedestrian scale lighting. ---street lighting shall be provided at both entrances." It should be noted that this developer had the same requirement in a recently developed subdivision nearby. That requirement was deleted from the Conditions of Approval for reasons yet to be determined, and that lighting has never been provided. A definite safety issue the Commission should be concerned with.

We request that we be allowed a rebuttal time of 5 minutes after the developer's rebuttal. We know this is an unusual request but past experience has shown it may be necessary with this developer and his attorney, to maintain an even playing field and counter the developer's misconceptions or misinformation. We have found nowhere where this is prohibited.

I haven't even touched on traffic issues but intend to do so in subsequent testimony. Thus we request this issue be continued and testimony be kept open.

I'm providing a narrative of my testimony to be put in the record, and a copy for each of you.
Thank you very much for your time and I'll try to answer any questions you may have.

Most Respectfully;
Bob La Salle
Land Use Chair, Park Place Neighborhood Association

Park Place Signators to Bob La Salle testimony before Planning Commission on 25 October, 2021

Tom Geil trailview@comcast.net

Barbara Renken miniflower@comcast.net

Ray Renken rbrenken@comcast.net

Ryan Richards ryn79@hotmail.com

Linda Smith ocgal5700@gmail.com

Linda Van Haverbeke linda@vanhaverbeke.org

Steve Van Haverbeke steve@vanhaverbeke.org

Jackie Hammond-Williams jackiespins@gmail.com

Extension of Sewer System Outside UGB

Inbox

Rick Givens <rickgivens@gmail.com> Mon, Oct 18, 8:47 AM (10 days ago)

to Jennifer, Harlan

Hi Jennifer,

I see that ZDO-280 goes into effect next week. As you will probably recall, the Serres Farms project that I am working on in Oregon City will need to have sewer service extended through an unincorporated area of Future Urban land in order to serve the site. What land use process would you see as being required in order to approve this extension? I assume that we can apply after the 23rd.

Thanks,

Rick

--

Rick Givens
Planning Consultant
18680 Sunblaze Dr.
Oregon City, OR 97045
Office: (503) 479-0097
Cell: (503) 351-8204

Hughes, Jennifer <jenniferh@clackamas.us> Mon, Oct 18, 8:59 AM (10 days ago)

to me, Harlan

Hi Rick,

It's a Type II review with a fee of $960. It will require the General Land Use Application, a site plan, and a narrative response to the criteria in the cited OAR. See attached draft of ZDO 316 with redlined changes.

Jennifer Hughes | Planning Director
Clackamas County Planning and Zoning Division | 150 Beavercreek Road | Oregon City, OR 97045 | 503-742-4518

The Planning and Zoning Division public service telephone line at 503-742-4500 and email account at zoninginfo@clackamas.us are staffed, and the public service lobby is open, Monday through Thursday from 8:00 a.m. to 4:00 p.m. and Friday from 8:00 a.m. to 3:00 p.m.

From: Kelly Reid
To: Kelly Reid
Subject: FW: Serres Farm development in Park Place - seeking comment from Parks
Date: Tuesday, November 2, 2021 7:25:21 AM

From: Kendall Reid <kendallreid@orcity.org>
Sent: Friday, October 29, 2021 10:13 AM
To: Kelly Reid <kreid@orcity.org>
Cc: Jonathan Waverly <jwaverly@orcity.org>; Denise Conrad <dconrad@orcity.org>; Josh Wheeler <jwheeler@orcity.org>
Subject: FW: Serres Farm development in Park Place - seeking comment from Parks

Kelly,

This 2-acre park fails to meet the minimum requirements of 3 acres dictated by our Parks Master Plan, and we are not interested in accepting this dedication. Parks less than three acres, known as "mini-parks" or "pocket parks", are discouraged because of their limited recreational value and high cost to maintain.
The Parks Master Plan states, "the City should not assume the ownership or operations of any privately developed/owned parks which do not meet these same thresholds: at least three acres in size and built to City parks standards."

Please let me know if you require any additional information.

Thanks,

Kendall Reid

Kendall Reid
kendallreid@orcity.org
Parks and Recreation Director
City of Oregon City
625 Center St.
Oregon City, Oregon 97045
503-496-1546 Direct phone
503-657-0891 City phone
503-657-7026 Fax

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From: Mike Mitchell
To: Kelly Reid
Cc: Laura Terway
Subject: Serres Farm application
Date: Monday, November 1, 2021 5:35:55 PM
Attachments: proposed curb bump-outs.pdf

Kelly,
I'm assuming that the continued hearing for the Serres Farm application will go ahead on November 8th. Unfortunately, I'm going to be on vacation and probably will not be able to zoom into the meeting. I'd like you to provide this letter and pdf drawing to the planning commissioners for their consideration.

Thanks,
Mike

Planning Commissioners,
I apologize for not being able to attend the Nov. 8th meeting, and I apologize for not thinking of this idea sooner. Per the staff report section 16.12.032(C), parking will not be allowed at the ends of the Barlow Road accessway on Laurel Hill Way and Serres Farm Way. Instead of just no parking signs, I would like to suggest a landscaped curb bump-out at those two locations, with interpretive signs about the Barlow Road. The attached pdf is a sketch of what I have in mind. I believe the advantages of this idea are:

1. signage helps to identify the purpose of the accessway.
2. the landscaped bump-out gives a visual cue that the accessway is something out of the ordinary.
3. as a side benefit, the bump-outs will serve as traffic calming devices on those two long straight sections of road.

Please consider adding these bump-outs and signage as an additional condition of approval.

Thanks,
Mike

From: Kelly Reid
To: Kelly Reid
Subject: FW: Planning Commission Agenda for November 8, 2021
Date: Monday, November 8, 2021 12:14:45 PM

From: Karen L. Streeter
Sent: Monday, November 8, 2021 12:01 PM
To: Kelly Reid <kreid@orcity.org>

Subject: Re: Planning Commission Agenda for November 8, 2021

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Kelly,

Thanks for sending along the information about the meeting tonight. Our family prepared the following comments, which are based on the Applicant's November 1st memo in the hearing packet for tonights continued hearing, specifically the part about construction access being moved from Holcomb Road to off Forsythe and Gerkman Roads. The timeline between the original hearing date and tonights continued hearing was short, so the normal time frame for getting written comments included in the Commissioner's packets was not really possible. We would appreciate it if there was a way to include these written comments in the record for the project.

By proposing an entirely new construction access off Forsythe Road and Gerkman Road, the applicant is expanding the project footprint in a significant way. This proposal extends the project beyond the City of Oregon City boundary, and beyond the Metro Urban Growth Boundary into rural Clackamas County.

Not only would changing the project footprint at this point require reevaluation of all aspects of this proposal (environmental, engineering, traffic, stormwater, etc), it also introduces a complicated land use approval aspect by introducing Metro and Clackamas County into the review process.

While it seems that a construction access is something relatively 'innocent' in the big scheme of things, it would require widening what is now a single lane dirt road only big enough for a tractor into some sort of roadway (quarter mile plus) that would allow two way construction equipment (excavators being hauled in/out, dump trucks, cement trucks, asphalt trucks, truss and lumber trucks, not to mention likely hundreds of individual contractor employees reporting to work each day), for several years. A construction access requires equivalent

environmental and traffic impact analysis as the final construction layout would.

The construction access is now being referred to as public land. It always been considered to be a private road, used for farming purposes only with PGE having a right of way for maintenance. The public has been kept off this road even to the extent of blocking the entrance with farm equipment and trailers. When asked, the surveyors from Centerline Concepts told me it was a “private road”.

The residents who use Gerkman Road to access their houses are highly alarmed by this information. They have not received public notice from the City about this proposal that would directly affect their ingress and egress for several years, nor had a chance to consider or comment. Of significance is an existing school bus stop on Forsythe at Gerkman Road. Once can easily imagine the issues arising with elementary school kids waiting for the bus while massive construction equipment rolls by them. As a parent, I would be extremely concerned about letting any of my own kids stand in such a place to wait for the bus. I would like to hear the school district's comment on this proposal as well.

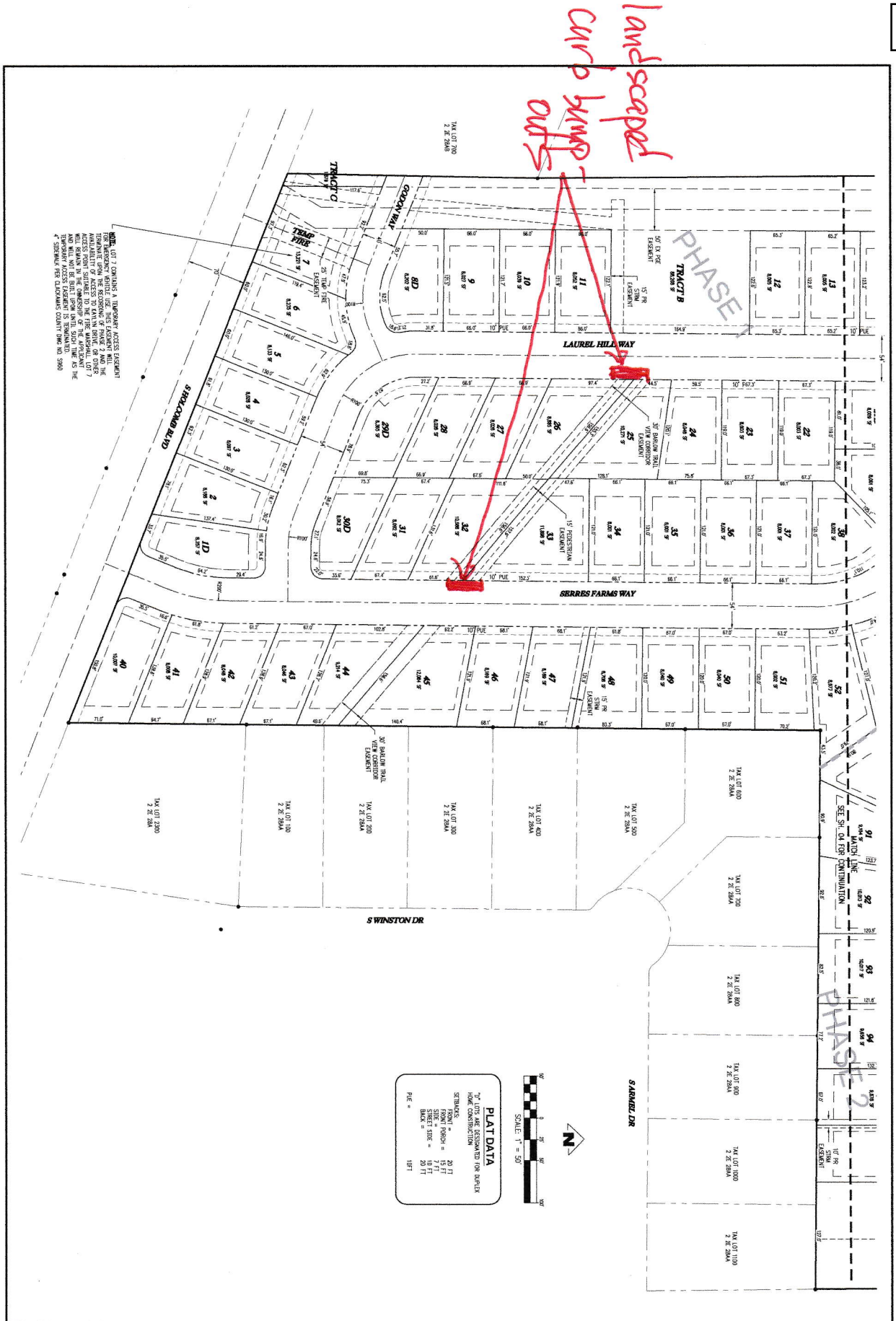
As for access off of Forsythe road, it would be difficult at best. Forsythe road is narrow with many sharp curves and drop offs. As for Gerkman road, it is a gravel road on a sharp curve. Then there is the impact of traffic management trying to get to the access road on the surrounding city roads, like Swan and Hunter roads, coming over from Holcomb Blvd.

In summary, several other developers have managed to figure out how to use Holcomb Road, and roads like it, for construction access during their development phases. I believe that this developer should be held to the same standard, and required to 'figure it out' and use a road within the City of Oregon City to access this major development.

This development proposal was always to have access off of Holcomb Blvd. It is an Oregon City project, so let’s keep it in Oregon City and don’t extend it into rural Clackamas County.

Respectfully,

Ed Kulawiak
Lynda Kulawiak
Paul Kulawiak
Karen (Kulawiak) Streeter
14720 South Forsythe Road
Oregon City, Oregon 97045



REVISIONS		
NO.	DATE	DESCRIPTION
1	05/2021	1ST LAND USE SUBMITTAL
2	07/2021	2ND LAND USE SUBMITTAL
3	09/2021	3RD LAND USE SUBMITTAL

SHEET 05 OF 31

EMERIO ENGINEERING • SURVEYING • DESIGN
6445 SW FALLBROOK PLACE, SUITE 100
BEAVERTON, OREGON 97008
TEL: (503) 746-8812
FAX: (503) 639-9592
www.emeriodesign.com

REGISTERED PROFESSIONAL ENGINEER — OREGON — JANUARY 14, 2003 — DANIEL EVANS — RENEWAL: 12/31/2021

PRELIMINARY PLAT (SOUTH)

SERRES FARMS SUBDIVISION
123 LOT SUBDIVISION
TAX LOTS 500, 2200, 2300
2100, 2200, & 2300
OREGON CITY, OREGON

FILE: P:\0082-005 Serres Farms\dwg\plan\0082-005_05plat02, Layout: 05 PRELIMINARY PLAT (SOUTH), Plot Date: 9/20/2021 4:08 PM, by: Tyler Korb

Hello Commissioners:

My name is Bob La Salle. I live in Oregon City and represent the Park Place Neighborhood Association. Since 1997 there have been, or soon will be , 1,206 homes built in Park Place (see attached report from the City GIS). That represents approximately a 12,000 daily trip increase while absolutely nothing has been done to improve Holcomb Blvd.

We ask, when are you going to put an end to this? At least two City Commissioners have expressed concern that there is no alternate route out of Park Place. Developers traffic studies have indicated the need for alternate routes. The Park Place Concept Plan says the same. During the recent wildfire events it took people over two hours to get out. Many just gave up and went back home, despite the danger!

There are solutions. In the Transportation System Plan of 2013 there are the Holly Lane and Swan Avenue extensions, both of which would connect Holcomb Blvd to Redland Road (please see attached map). There is also Livesay Road, a County Road which would have to be improved as identified in the letter from the Clackamas Department of Transportation and Development dated May 5, 2021. I have attached that letter.

These cumulative trips over the years are contributing to the safety of the residents, in addition to affecting their quality of life. You have the ability to stop further development until alternate routes in and out of the Holcomb Blvd area are built. All you need is the courage to do so. Many times morning traffic on Redland Road is backed up from Hwy 213 all the way back to Holcomb Blvd. The evening traffic on Redland Road can be backed up all the way from Hwy 213 to Holcomb Blvd. This isn't even taking into account the construction traffic that often slows the uphill Holcomb Blvd traffic to a virtual crawl. Also, consider the premature wear and tear on Holcomb Blvd from all the heavy construction vehicles, which all the taxpayers in Oregon City will be paying for.

We urge you to have the courage and common sense to halt further development until alternate routes can be completed in and out of Park Place.

I have provided all of you with a copy of my testimony and request a copy be included in the record.

Most Sincerely;

Bob La Salle

Park Place Neighborhood

Prepared 11-3-21 using OC Maps

Platted Lots 2011 - 2021

Subdivision Name	Land Use File Number	Date of Recorded Plat	Number of Lots
Abernethy Landing	TP 16-01	17-Jul-18	98
Barlow Place	TP 13-05	28-Apr-16	6
Cherri Meadows	TP 08-02	13-Sep-13	5
Hillock Heights	TP 17-01	23-Jun-19	8
Hunter Hills	TP 15-06	29-Jun-18	11
John Jeffreys	TP 18-01	17-Jul-19	8
Laurel Ridge	TP 17-06	22-Aug-19	6
Sunnybrook No. 2	TP 14-01	2-Feb-16	27
Sunset Meadows	TP 07-07	7-Jun-11	9
Visionary Place	TP 12-02	12-Dec-13	6
Partition Plat 2015-024	MP 13-03	27-Feb-15	3
Partition Plat 2015-042	MP 14-01	29-Apr-15	2
Partition Plat 2016-007	LL-15-02	19-Jan-16	1
Partition Plat 2017-077	MP 13-01	9-Oct-18	3
Partition Plat 2019-096	LL-18-04	5-Dec-20	2
Partition Plat 2016-102	LL-16-02	10-Oct-16	2
Partition Plat 2020-072	LL-20-03	17-Sep-20	2
Total Number of Lots			199

Platted Lots previous to 2011

Subdivision Name	Land Use File Number	Date of Recorded Plat	Number of Lots
Allen Heights	TP 04-07	28-Feb-06	7
Altona Ridge	TP 07-02	29-Jul-10	6
Apperson Heights	TP 04-05	23-Jun-05	12
Barlow Crest Phase 1	TP 96-03	2-May-97	38
Barlow Crest Phase 2	TP 97-08	29-Apr-99	47
Beemer Place	MP 06-14	7-Jun-10	3
Camelia Place	TP 05-04	9-Feb-07	16
Clackamette Place	TP 01-03	26-Jun-03	5
Dalles	MP 01-03	28-Dec-01	3
Drakes Landing	TP 05-08	3-Oct-07	9
Godon Estates	TP 04-04	10-Nov-05	4
Holcomb Hill	NA	26-Jun-73	5
Holcomb Hill No. 2	NA	26-Feb-75	3
Holcomb Ridge	TP 02-04	15-Apr-04	40
Holcomb Ridge No. 2	MP 04-04	19-Aug-05	3

Hunters Glen	TP 04-03	25-May-05	7
Ives Estates	TP 99-10	18-Apr-02	8
Jennifer Estates	TP 02-01	28-Feb-03	20
La Vista Grande	NA	31-Dec-69	4
Noble Crest	TP 95-04	15-Oct-96	17
Roseview Terrace	NA	23-Nov-71	4
Sonja Rose	TP 98-05	28-Nov-00	5
Sunnybrook Estates	TP 05-10	14-Feb-08	11
Swan Acres	TP 03-02	25-May-04	4
Thurman Estates	TP 05-03	18-Apr-06	8
Tollfield	TP 04-15	27-Jun-06	6
Toman Heights	TP 06-01	13-Dec-07	8
Tracey Heights	TP 02-07	30-Jun-04	29
Trailview	TP 00-05	16-Jan-03	43
Wasko Acres	TP 98-02	7-Feb-02	36
Wayne Ann Estates	TP 94-09	5-Jun-96	16
Wheeler Estates	TP 94-07	23-Jun-95	9
Winston Hills	NA	26-May-71	19
Wittke Estates	PD 00-01	11-May-04	17
Partition Plat 1990-111	NA	19-Oct-90	3
Partition Plat 1992-15	MP 91-08	12-Dec-91	2
Partition Plat 1992-44	MP 91-10	17-Mar-92	3
Partition Plat 1994-79	MP 93-19	22-Feb-94	3
Partition Plat 1993-64	MP 90-11	28-Apr-93	3
Partition Plat 1995-130	MP 94-14	16-Aug-95	3
Partition Plat 1994-61	MP 93-06	19-Apr-94	2
Partition Plat 1994-62	MP 93-09	26-Apr-94	2
Partition Plat 1994-68	MP 93-15	5-May-94	3
Partition Plat 1994-71	MP 93-16	9-May-94	2
Partition Plat 1994-108	MP 93-12	19-Jul-94	2
Partition Plat 1994-173	MP 93-08	26-Aug-94	2
Partition Plat 1995-111	MP 94-08	29-Jun-95	2
Partition Plat 1993-191	MP 93-10	23-Dec-93	3
Partition Plat 1995-140	MP 94-05	11-Sep-95	3
Partition Plat 1996-005	MP 95-02	9-Jan-96	3
Partition Plat 1996-020	MP 94-04	12-Feb-96	2
Partition Plat 1996-021	MP 95-10	13-Feb-96	2
Partition Plat 1996-119	MP 95-12	29-Oct-96	3
Partition Plat 1998-109	MP 97-05	1-Oct-98	2
Partition Plat 1997-084	MP 96-05	30-Jun-97	2
Partition Plat 1997-087	MP 96-19	5-Aug-97	2
Partition Plat 1997-146	MP 96-11	31-Dec-97	3
Partition Plat 1998-009	MP 96-21	3-Feb-98	2
Partition Plat 1996-138	MP 96-06	26-Dec-96	3
Partition Plat 1998-128	MP 97-07	10-Nov-98	3
Partition Plat 1999-061	MP 98-13	4-Jun-99	2

Partition Plat 1999-106	MP 98-10	29-Sep-99	2
Partition Plat 1999-124	MP 98-03	27-Oct-99	2
Partition Plat 2001-019	MP 00-05	20-Feb-01	2
Partition Plat 2001-097	MP 99-07	4-Oct-01	2
Partition Plat 2002-013	MP 01-05	8-Mar-02	2
Partition Plat 2002-062	MP 00-06	8-Aug-02	3
Partition Plat 2004-023	MP 03-09	13-Apr-04	2
Partition Plat 2004-090	MP 02-05	16-Dec-04	2
Partition Plat 2005-095	LL 05-09	18-Oct-05	2
Partition Plat 2007-101	MP 06-02	20-Jul-07	3
Partition Plat 2005-124	MP 05-04	30-Dec-05	3
Partition Plat 2006-009	MP 03-04	12-Jan-06	2
Partition Plat 2006-027	MP 05-11	16-Mar-06	2
Partition Plat 2006-100	MP 05-14	28-Jul-06	2
Partition Plat 2007-044	MP 06-01	30-Mar-07	3
Partition Plat 2005-112	MP 04-02	1-Dec-05	3
Partition Plat 2008-004	MP 07-04	8-Jan-08	3
Partition Plat 2008-104	MP 07-06	7-Oct-08	2
Partition Plat 2009-023	MP 08-02	31-Mar-09	3
Partition Plat 2010-024	MP 07-01	3-Mar-10	3
Partition Plat 2001-064	MP 00--07	29-Jun-01	3
Partition Plat 1992-142	NA	14-Sep-92	2
Total Number of Lots			592

Projects Under Construction as of 11/3/2021

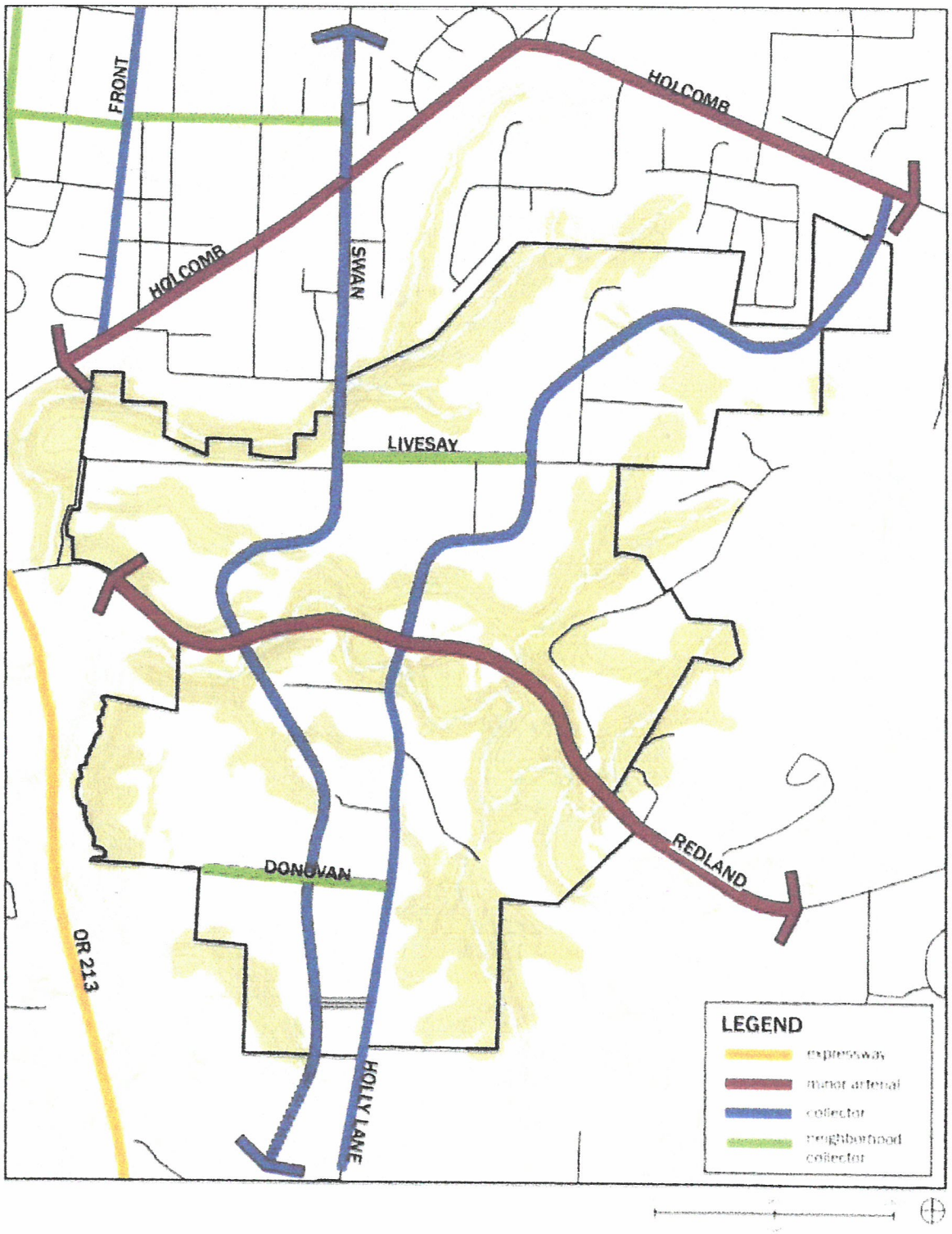
Subdivision Name	Land Use File Number	Date of Recorded Plat	Number of Lots
Edwards Oaks	TP 18-02	NA	8
Mireles	TP 17-08	NA	4

Projects Under Consideration as of 11/3/2021 (may or may not proceed)

Subdivision Name	Land Use File Number	Date of Recorded Plat	Number of Lots
Lemon Subdivsion	SUB 18-01	NA	3
Mihalik Subdivision	SUB 18-02	NA	5
Edwards Subdivision	SUB 19-04	NA	10
Minton Subdivision	SUB 19-02	NA	4
Serres Subdivision	SUB 21-01	NA	123
Park place Crossing	PR 184-2021	NA	403

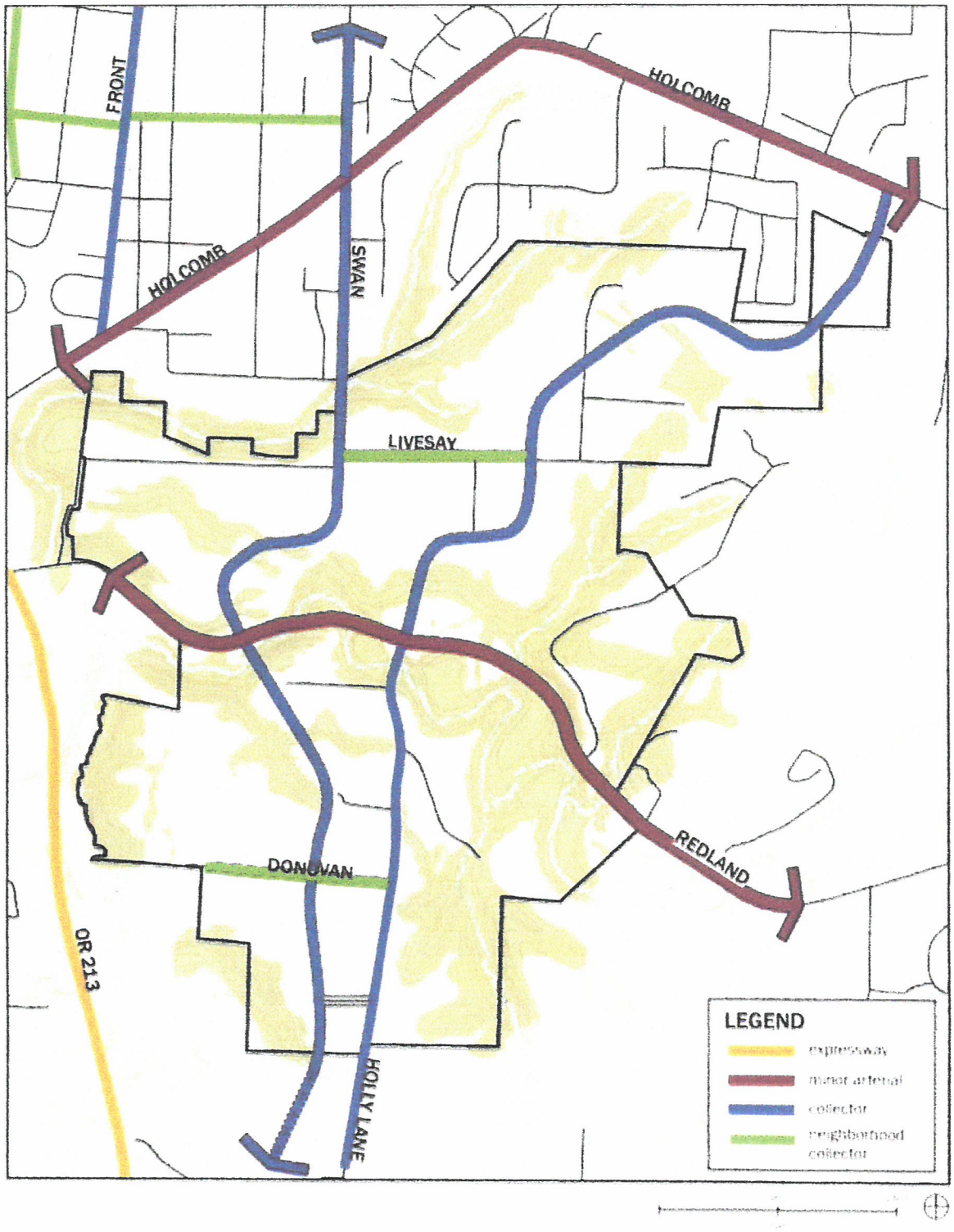
Streets

1. Figure 3-5 from the Park Place Concept Plan (below) shows the functional classification for streets within and adjacent to the proposed development.



Streets

1. Figure 3-5 from the Park Place Concept Plan (below) shows the functional classification for streets within and adjacent to the proposed development.



CLACKAMAS COUNTY

DAN JOHNSON
DIRECTOR

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
DEVELOPMENT SERVICES BUILDING
150 BEAVERCREEK ROAD OREGON CITY, OR 97045

MEMORANDUM

TO: City of Oregon City, Planning Division
FROM: Kenneth Kent, Clackamas County Engineering, Senior Planner
DATE: May 5, 2021
RE: Pre-Application Conference – PA 21-00015 Park Place Master Plan

This office has the following comments pertaining to this proposal:

1. The proposed development site has frontage on S Livesay Road which is a county collector roadway. Prior to commencement of site work, a Development Permit will be required and must be obtained from Clackamas County Engineering for all work performed in the S Livesay Road right-of-way.

2. A traffic impact study is required. The applicant's traffic engineer shall prepare a scope for review by Clackamas County Engineering, complying with Section 295 of the Clackamas County Roadway Standards. Contact Christian Snuffin at 503-742-4716 or CSnuffin@clackamas.us.

3. The County has concerns about the impact to Livesay Road and its intersection with Redland Road, which would directly serve the development, providing a through connection at Phase 3. The traffic impact study should evaluate the S Redland Road/S Livesay Road intersection and the need for a left turn lane. In addition, evaluation of intersection sight distance will be needed.

4. The width of S Livesay Road west of the project site is generally less than 20 feet. Offsite improvements will be needed to provide at least a 20-foot paved width for safe two-way travel to S Redland Road.

5. The intersection of S Livesay Road/S Redland Road and the improvements on S Livesay Road from the project site to S Redland Road will need to be adequate to accommodate proposed traffic generated by the development at Phase 3 or the access will not be permitted.

6. S Livesay Road Frontage – Assuming a three-lane section, the minimum half right-of-way is 38 feet.

7. The following improvements will be required along the entire site frontage of S Livesay Road in accordance with Clackamas County Roadway Standards (Note Additional improvements may be needed based on traffic study):

   a. A 25-foot wide half-street improvement is required, constructed from centerline of the right-of-way. The structural section for S Livesay Road improvements shall be constructed per Clackamas County Roadway Standards Standard Drawing C100 for a collector roadway. Where widening is required, saw-cut and grind and inlay may be needed based on road condition, per Roadway Standards Section 225.5.

   b. Standard curb, or curb and gutter if curbline slope is less than one percent, and pavement with the face of the new curb located 25 feet from the centerline of the right-of-way. Centerline of the right-of-way shall be established by a registered survey.

   c. A minimum 7-foot wide unobstructed setback sidewalk, with a 5-foot wide landscape strip, including street trees shall be constructed along the entire site frontage.

   d. Drainage facilities in conformance Tri-City regulations and Clackamas Roadway Standards, Chapter 4.

   e. For the proposed public street intersection with S Livesay Road, construct dual curb ramps, per Oregon Standard Drawings.

CLACKAMAS COUNTY

DAN JOHNSON
DIRECTOR

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
DEVELOPMENT SERVICES BUILDING
150 BEAVERCREEK ROAD OREGON CITY, OR 97045

MEMORANDUM

TO: City of Oregon City, Planning Division
FROM: Kenneth Kent, Clackamas County Development Engineering
DATE: December 9, 2021
RE: GLUA-21-00029 Serres Farms
22E28A 02300, 02200, 00500
22E21D 02300, 02200, 02100

This office has the following comments pertaining to this proposal:

1. The proposed subdivision includes a street connection to Kaylyn Drive to the east that crosses a 20-foot wide gap in the city boundary. The gap area falls under county jurisdiction. It is not clear from survey records and the Barlow Crest plat, whether the gap area is public right-of-way or private property. The applicant will be required to verify and/or dedicate public right-of-way in order to construct the proposed public street connection. An intergovernmental agreement (IGA) is recommended for permitting and maintenance of this short section of roadway outside the city's boundary.

2. The stormwater discharge for the proposed subdivision is proposed from the northeast corner of the site, extending north through an existing 30-foot wide, unimproved public right-of-way within Clackamas County's jurisdiction. The right-of-way extends approximately 1,370 feet north to the intersection of S Gerkman Road and S Forsythe Road. The discharge will continue west along S Forsythe Road to an outfall that leads to Eda Creek to the north. Improvement of the proposed outfall will require permitting through Clackamas County Engineering, consistent with Roadway Standards Chapter 4. As an unimproved public right-of-way that is not maintained by the county, the applicant will be required to include maintenance provisions for the storm line by the homeowners association.

3. The proposed sewer line connection from the northwest corner of the project site from Jennetten Way to Ames Street to the west, crosses property that is outside the city and the Urban Growth Boundary (UGB). Utility installations outside the city limits fall under the county's jurisdiction. The property has a zoning designation of Future Urban 10-Acre (FU-10). Under County Zoning and Development Ordinance Section 316, Table 316-1, sewer system components proposed within this the FU-10 zone requires a Type II land use application through the Clackamas County Planning and Zoning Division.

CONCLUSION

If the City of Oregon City approves the request, the following conditions of approval are recommended. If the applicant is advised to or chooses to modify the proposal in terms of access location and/or design following the preparation of these comments this office requests an opportunity to review and comment on such changes prior to a decision being made.

1. All improvements in, or adjacent to Clackamas County right-of-way, shall be in compliance with *Clackamas County Roadway Standards*.
2. The applicant shall verify and/or dedicate public right-of-way in order to construct the proposed public street connection to the existing terminus of Kaylyn Drive. An intergovernmental agreement (IGA) between the city and county is recommended for permitting and maintenance of the portion of proposed Kaylyn Drive located outside the city's boundary. The minimum paved roadway shall be no less than 20 feet in width, with a structural section per Roadway Standards Drawing C100 for a local roadway.
3. The proposed off-site downstream conveyance facilities north to S Gerkman Road and S Forsythe Road within County public right-of-way shall be designed and constructed as follows:
    a. Prior to commencement of offsite work and recording of the plat, the applicant shall obtain a Development Permit from the Clackamas County Engineering Division for design and construction of downstream conveyance improvements in unincorporated Clackamas County Right-of-ways. To obtain the Permit, the applicant shall submit plans prepared and stamped by an Engineer registered in the State of Oregon. **Prior to final plat approval**: all required improvements shall be constructed and inspected, or financially guaranteed in the form of a performance bond when access has met minimum Substantial Completion requirements, per Roadway Standards Section 190. Performance bonds shall be in the amount of 125% of the approved engineer's cost estimate of the required improvements.
    b. The stormwater facilities shall be designed in accordance with Clackamas County Roadway Standards Chapter 4.
    c. Maintenance provisions shall be provided for the downstream conveyance facilities within the county public right-of-way by the developer/HOA and/or city with an agreement through the county. An operations and maintenance schedule from the project engineer shall be included addressing inspections and maintenance needs.
    d. The downstream conveyance pipe shall be sized for a 25 year storm event at build out of the storm basin or larger if required by the City of Oregon City.
    e. Provide a final stormwater report with the public facilities construction plans to fully address all applicable stormwater standards per Chapter 4 of the Clackamas County Roadway Standards, including downstream analysis to an acceptable outfall and the safe overflow path for the 100 year storm event.
    f. Submit storm plans for offsite conveyance in unincorporated Clackamas County showing alignment, slope, depth, structures, backfill, and road restorations. The

alignment of the storm pipe and structures will need to take into account the future buildout of the right-of-way with a local roadway cross section.

g. All easements for offsite storm facilities required for the final engineering plans shall be dedicated by separate document and referenced on the plat. All necessary easements shall also be submitted to Clackamas County DTD Engineering.

h. A traffic control plan shall be provided to manage all local traffic during construction.

4. The proposed off-site sewer line connection through Tax Lot 22E21D 01900 from Jennetten Way to Ames Street shall meet the following standards:

   Prior to commencement of offsite work and recording of the plat, the applicant shall obtain approval of a Type II land use application through the Clackamas County Planning and Zoning Division for construction of sewer components outside the UGB within the Future Urban 10-Acre (FU-10) District.

Oregon City Planning Commission 12/13/2021
meeting of December 13th, 2021

RE: GLUA 21-00029 Serres Planned Unit Development

Testimony of : Christine Kosinski, Unincorporated Clackamas County, Holly Ln

At the bottom of the Commission Report, posted on the City website, there are four options listed. I vote for the fourth option which is to continue GLUA 21-00029 to a date certain and provide direction on needed information at the next hearing.

My reasons for this are, that I do not feel this proposed development has been fully vetted. I have submitted a total of 3 testimonies regarding this land use application and I really do not know where they are? None of my testimonies have been posted on the City website for this proposal. Also, I have brought up several important concerns and NONE of them have been addressed by the Commission.

As well, the PPNA has brought forward even more serious concerns, especially regarding the many issues of Transportation and they have received NO answers. In my last testimony I asked why the homeowners on Holly Ln **had not been invited to attend** these Planning Commission hearings where THEIR STREET IS PART OF THE TRANSPORTATION REPORT THAT CAN BE FOUND ON YOUR CITY WEBSITE.

I have consistently stated in my testimonies that Holly Ln cannot be used as a Major Arterial. The City would have to go AGAINST their own Comprehensive Plan, their own FEMA Natural Hazards Mitigation Plan, as well as the DLCD-DOGAMI Landslide Hazards and Statewide Land Use Goal 7.

Did you know it is ILLEGAL for the City to take over “private property”. The City would be in violation of the United States Constitution, which states, “The fifth Amendment to the United States Constitution prohibits the taking of “private property” for public use, without just compensation”. A parallel provision in the Oregon Constitution provides: “Private Property shall not be taken for public use nor the particular services of any man be demanded, without just compensation, Or.Const.Art 1, Sec. 18. This results in a failure of government to provide compensation as stated.

Holly Ln is NOT for sale. Both myself and the people of Holly Ln have stated this same comment to the City since 2004. The City has had plenty of time to plan out a much better Transportation Plan and that would be to propose direct connection to the I-205. Dumping all the Park Place traffic upon Redland Rd would be a huge disaster. The Redland corridor is a fragile environment. Anyone concerned about choking to death all the salmon in the Abernethy Creek, anyone concerned about killing the small animals and deer, when Doug Neely was a Commissioner a few years back, he personally asked the City to leave the Upland Game Corridor open, this wasn't done either. Because unfortunately the Developer is more interested in stuffing dollars in his pockets rather than giving the people what they asked for in the Concept Plan.

The wishes of the people are all but gone! Now they get more density, a transportation plan that will lead immediately to grid lock, you are creating chaos in the Redland corridor by bringing ALL your traffic down this fragile corridor.

A BIG YES, I vote for giving the people their due rights under Statewide Land Use Goal 1, continue this hearing to a date certain where ANSWERS TO ALL THE ABOVE will be addressed, this is to also include the Landslide issues here, which the City and developer state, are of no concern. They are however a matter of large concern. The City is proposing to densely and heavily develop on top of this treacherous landslide area and their will be ramifications from this in the future. Have you really done your due diligence? I fully believe the Hazard Regulations apply here where the DOGAMI Susceptibility maps show this area being proposed for dense development sits in a landslide area with HIGH SUSCEPTIBILITY to landslides in the future. Remember, the future homeowners in this proposed development, are unable to obtain landslide insurance, will they be told this at the time of purchase? It is up to the City to be certain these people are not being put into harm's way, as required in the City's Natural Hazard Mitigation Plan agreement with FEMA, and as well as required by the DLCD-DOGAMI Landslide Hazards Regulations and Statewide Land Use Goal 7.

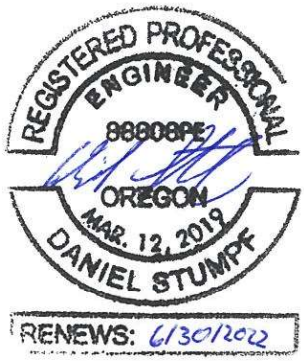
Again, a big YES to Option 4, continue this hearing where the above concerns can be fully vetted.

And will you let me know why my testimonies haven't been exhibits on the City website for this land use application, as well as other letters the City has received from the people. Thank You

lancaster mobley

321 SW 4th Ave., Suite 400
Portland, OR 97204
503.248.0313
lancastermobley.com

Memorandum



To: Harlan Borow
ICON Construction & Development, LLC

From: Daniel Stumpf, PE
Todd Mobley, PE

Date: September 15, 2021

Subject: Serres Farms Master Plan
Transportation Analysis Addendum – Additional Redland Road Intersection Capacity Analysis

Introduction

This memorandum serves as an addendum to the *Serres Farms Master Plan Transportation Impact Study* (TIS), dated May 19, 2021, where Oregon City staff have requested additional capacity/operational analyses at the intersections of Redland Road at OR-213 and Redland Road at Holcomb Boulevard/Abernethy Road. Also, this addendum replaces in its entirety, the prior addendum dated August 20, 2021. The following analyses detail the methodologies used to develop traffic volumes under existing and future conditions and to analyze these intersections, with and without the Serres Farms Master Plan project. Detailed information on traffic counts and level of service calculations are included as an attachment to this addendum.

Vicinity Roadways

The roadways which compose the two intersections requiring additional analyses include OR-213, Redland Road, Abernethy Road, and Holcomb Boulevard. Table 1 provides a description of these vicinity roadways.

Table 1: Vicinity Roadway Descriptions

Street Name	Jurisdiction	Functional Classification	Speed (MPH)	Curbs & Sidewalks	On-Street Parking	Bicycle Lanes
OR-213	ODOT	Expressway/ District Hwy	55	None	Not Permitted	Both Sides
Redland Road	Clackamas County/ODOT	Minor Arterial	45	Partial Both Sides	Not Permitted	Both Sides
Abernethy Road	Clackamas County	Minor Arterial	35	Partial Both Sides	Not Permitted	Both Sides
Holcomb Boulevard	Oregon City	Minor Arterial	35	Partial Both Sides	Not Permitted	Partial Both Sides

Table Notes: Functional Classification and Jurisdiction based on Oregon City's TSP and ODOT's Online TransGIS map.

Study Intersections

As required by Oregon City staff, an analysis of the Redland Road at OR-213 and Redland Road at Holcomb Boulevard/Abernethy Road intersections is required. Table 2 provides a description of these two study intersections.

Table 2: Study Intersection Descriptions

Number	Intersection	Geometry	Traffic Control	Phasing/Stopped Approaches
1	Redland Road at OR-213	Three-Legged	Signal	Protected NB/EB Left-turns, Permitted/Overlap SB/EB Right-turns
2	Redland Road at Holcomb Boulevard/Abernethy Road	Four-Legged	Signal	Protected Left-turns on All Approaches

A vicinity map showing the vicinity streets and study intersections under their existing configurations is shown in Figure 1 on page 5.

Site Trips

The following subsections address the updated trip generation calculations and restates the trip distribution patterns, which have not changed from what is in the original TIS.

Trip Generation

The proposed Park Place Master Plan project will include the creation of 124 individual lots. Of these lots, 18 will be duplex lots, capable of accommodating two dwelling units. The applicant intends to develop the duplex lots with one larger unit and a second attached smaller unit. It was assumed for the purposes of trip generation that an additional 18 single-family homes could be constructed, for a total of 142 homes over two phases of development. This was done to provide a conservative worst-case analysis.

To estimate the number of trips that will be generated by the project, trip equations from the *Trip Generation Manual*[1] were used. Specifically, data from land use code 210, *Single-Family Detached Housing*, was used to estimate site trip generation based on the number of dwelling units.

The trip generation calculations show that the proposed development is projected to generate 92 morning peak hour trips, 124 evening peak hour trips, and 1,258 average weekday trips. The trip generation estimates are summarized in Table 3. Detailed trip generation calculations are included as an attachment to this memorandum.

[1] Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 10th Edition, 2017.

Table 3: Trip Generation Summary

	ITE Code	Variable	Morning Peak Hour			Evening Peak Hour			Weekday Total
			Enter	Exit	Total	Enter	Exit	Total	
Single-Family Houses	210	142 units	26	80	106	89	53	142	1,436

Trip Distribution

The directional distribution of site trips to and from the proposed development was referenced and generally based on the distribution utilized in the *Park Place Annexation TIS* and succeeding addendum. The trip distribution in the TIS was estimated based on locations of likely trip destinations, locations of major transportation facilities in the site vicinity, and existing travel patterns at studied intersections. The following trip distribution is projected:

- Approximately 25 percent of site trips will travel to/from the northeast along I-205;
- Approximately 18 percent of site trips will travel to/from the east along S Holcomb Boulevard;
- Approximately 15 percent of site trips will travel to/from the southwest along I-205;
- Approximately 13 percent of site trips will travel to/from the southwest along Washington Street;
- Approximately 8 percent of site trips will travel to/from the north along OR-99E;
- Approximately 4 percent of site trips will travel to/from the south along OR-213;
- Approximately 3 percent of site trips will travel to/from the southwest along Main Street;
- Approximately 3 percent of site trips will travel to/from the southwest along S Anchor Way;
- Approximately 3 percent of site trips will travel to/from the west along Beavercreek Road;
- Approximately 1 percent of site trips will travel to/from the southwest along OR-99E;
- Approximately 1 percent of site trips will travel to/from the south along S Holly Lane;
- Approximately 1 percent of site trips will travel to/from the east along Beavercreek Road; and
- Approximately 5 percent of site trips will travel to/from locales within the immediate vicinity, including surrounding residential areas, Holcomb Elementary School, and other land-uses.

The trip distribution and trip assignment for the morning and evening peak hours at the intersections of Redland Road at OR-213 and Redland Road at Holcomb Boulevard/Abernethy Road are shown in Figure 1.

Traffic Volumes

The following section describes how traffic volumes at the study intersections were derived, including all adjustments and additional trips from region-wide growth as well as individual projects that are approved but not yet constructed.

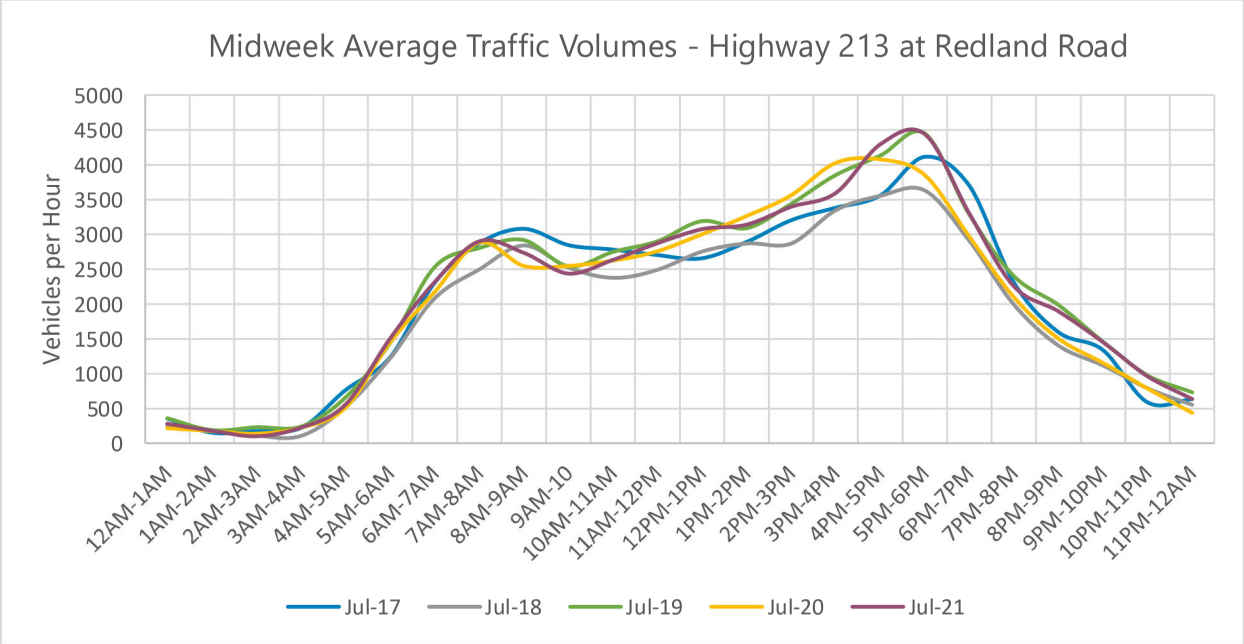
Existing Conditions

Due to the ongoing COVID-19 viral pandemic, traffic volumes around Oregon have been depressed relative to normal conditions. According to ODOT's Transportation Volume Tables, annual average daily traffic (AADT) along OR-213, just south of Redland Road, is available from year 2019. Given this available count data, the following methodology for data collection and volume adjustment was used:

- The historical traffic counts from 2019 were grown to reflect 2021 existing conditions by applying a 0.0118 percent per year linear growth rate over a two-year period, calculated in accordance with ODOT's *Future Volumes Table*.
- As requested by the City of Oregon City, current year 2021 weekday morning and evening peak hour counts were collected at the study intersections. These counts were collected on Thursday, July 22, 2021, from 7:00 AM to 10:00 AM and from 3:00 PM to 6:00 PM.
- The 2019 historical count data (grown to reflect 2021 conditions) and the recently collected 2021 evening peak hour counts at the intersection of Redland Road at OR-213 were compared. Specifically, it is assumed that the evening peak hour counts represent approximately ten percent of annual average daily traffic (AADT). Based on the difference in traffic volumes traveling between the intersection and ODOT count location, an adjustment factor of 1.0765 was calculated. This adjustment factor is intended to estimate normal traffic conditions without impacts from the COVID-19 virus (i.e. normal commuter patterns, businesses open, etc).
- The calculated adjustment factor was applied to the collected 2021 peak hour intersection traffic counts.

To further investigate the effect of the COVID-19 pandemic on traffic volumes, data was obtained through StreetLight Insight, which is a "big data" company that utilizes primarily cell phone data to derive traffic volumes that are based on millions of data points across a broad range of time, rather than just a single count on a single day over a few hours of time.

Since the traffic counts at the subject intersections were collected in July of 2021, traffic volumes from each July from 2017 through 2021 were compared. In fact, the data set represented below includes every Tuesday, Wednesday, and Thursday in the month of July, which serves to average out any peaks or valleys that may occur on individual days or hours, resulting in a reliable, robust data set. The chart on the following page shows the average daily traffic volume profile for each year.



As shown in the chart above, July traffic volumes have been reasonably consistent with the exception of July 2020 being predictably lower than July of 2019 and 2021, both which are very similar in volume particularly during the evening peak period. Permanent traffic recorder data on Highway 213 south of Oregon City shows that July is nearly the peak month, exceeded only slightly by August. July is considerably higher in volume than other months of the year when school is in session.

These data show us that the July 2021 traffic count data used in this addendum is reliable and that the influence of COVID is at best, very minor. Therefore, the calculated adjustment factor described in the previous section provides a reasonable high-end estimate of evening peak conditions.

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. In order to approximate the future year 2025 traffic volumes (the anticipated buildout year of the proposed development) at the study intersections, the following linear growth rates were referenced from *The North End Master Plan Transportation Impact Analysis Report*, dated March 23, 2021:

- Redland Road at OR-213: 0.31 percent per year growth for the morning and evening peak hours.
- Redland Road at Holcomb Boulevard/Abernethy Road: 1.15 percent per year growth for the morning and evening peak hours.

The aforementioned growth rates were applied to the adjusted 2021 existing traffic volumes at the study intersections over a four-year period to estimate year 2025 traffic conditions.

In addition to the traffic growth described above, The North End Master Plan project will be developing at a similar time as the proposed project. This in-process development is currently not contributing trips to the

transportation system but may potentially be by the assumed 2025 buildout year of the proposed development. Additional trips corresponding to the in-process development were added to the study intersections as follows:

- The North End Master Plan: According to the project's revised staff report, dated July 19, 2021, conditions of approval 78.b, "*for development phases with planned occupancy dates before the end of 2022 and for development phases totaling 40 percent or less of the total trips generated by the buildout values in the TIA (both date and volume conditions must be met), the applicant will not be required to undertake additional traffic operations analysis or implement off-site mitigation measures for traffic operations or safety*."
- Since the North End project can construct a portion of their project to utilize up to 40 percent of the total trip generation without conducting further traffic analysis or providing any off-site mitigation, 40 percent of the North End Master Plan trips were included as in-process trips. Beyond 40 percent, the North End project will be required to conduct additional traffic analysis and/or construct additional off-site improvement.

These in-process development volumes were added to the 2021 existing year traffic volumes in addition to the four years of traffic growth at each of the applicable study intersections.

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 2025 background traffic volumes to obtain the estimated 2025 site buildout volumes.

Figure 1 shows the morning and evening peak hour traffic volumes at the study intersections under year 2021 existing conditions, 2025 background conditions, and 2025 buildout conditions.

TRAFFIC VOLUMES

Year 2021 Existing, 2025 Background, and 2025 Buildout Conditions

AM & PM Peak Hours

Figure 1

Serres Farm Master Plan

9/15/2021

lancaster mobley

Item #2.

Operational Analysis

Intersection Capacity Analysis

A capacity and delay analysis were conducted for each of the study intersections per the signalized and unsignalized intersection analysis methodologies in the *Highway Capacity Manual* (HCM)[2]. 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 Oregon City are summarized below.

Oregon City

Per Oregon City's Transportation System Plan and Metro's online 2018 Regional Transportation Plan (RTP) Network maps, the study intersections are located outside of the City's regional center and S Holcomb Boulevard is not designated on the arterial and throughway network. Therefore, per Section *16.12.033 – Mobility Standards* of the Oregon City Municipal Code, the following minimum acceptable operation standards apply to the study intersections.

- For intersections within the regional center, the following mobility standards apply:
    - During the 1st hour, a maximum v/c ratio of 1.10 shall be maintained. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches.
    - During the 2nd hour, a maximum v/c ratio of 0.99 shall be maintained at signalized intersections. For signalized intersections, this standard applies to the intersection as a whole. For unsignalized intersections, this standard applies to movements on the major street. There is no performance standard for the minor street approaches.

Delay & Capacity Analysis

The LOS, delay, and v/c results of the capacity analysis are shown in Table 4 for the morning and evening peak hours. The TrafficWare Synchro software utilized for analysis does not report the overall v/c ratio of signalized intersections in the HCM 6th Edition capacity reports. For these intersections, the v/c ratio was calculated based on methods detailed in ODOT's APM *Section 13 Signalized Intersection Analysis*. Detailed calculations as well as tables showing the relationship between delay and LOS are included in the appendix to this report.

[2] Transportation Research Board, *Highway Capacity Manual 6th Edition*, 2016.

Table 4: Intersection Capacity Analysis Summary (1st Hour)

	AM Peak Hour			PM Peak Hour		
	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c
1. Redland Road at OR-213						
2021 Existing Conditions	B	19	0.91	C	31	0.97
2025 Background Conditions	B	20	0.93	D	40	1.02
2025 Buildout Conditions	C	21	0.94	D	43	1.03
2. Redland Road at Holcomb Boulevard/Abernethy Road						
2021 Existing Conditions	C	21	0.56	C	34	0.73
2025 Background Conditions	C	23	0.61	D	37	0.78
2025 Buildout Conditions	C	24	0.64	D	40	0.83

Table Notes: ***BOLDED*** *text indicates intersection operation above jurisdictional standards.*

Based on the results of the operational analysis, both study intersections are projected to operate acceptably per jurisdictional standards under the 2025 site buildout year. Although the intersection of Redland Road at OR-213 operates within acceptable standards during the 1st hour of analysis, since it operates with a v/c ratio greater than 1.00 during the evening peak hour, the 2nd hour of analysis was evaluated to determine whether the intersection meets the 0.99 v/c ratio 2nd hour standard.

To develop the 2nd hour of traffic volumes, the hour before and after the peak hour (4:35 PM to 5:35 PM) were considered.

- Based on the collected count data, the peak hour had a measured 5,029 vehicles entering the intersection. For the hour prior to the peak (3:35 PM to 4:35 PM), the total entering volumes were 4,714 vehicles.
- Although a full hour of data was not captured after the intersection's evening peak hour, approximately 25 minutes worth of counts were collected (i.e. 5:35 PM to 6:00 PM). To provide a reasonable estimate of post peak hour volumes, these volumes were increased by multiplying the intersection entering volumes during the available 5:35 PM to 6:00 PM period by a ratio of 60 minutes to 25 minutes (note this would be a conservative estimate of post hour volumes since this method doesn't consider a continuous downtrend of entering volumes as time progresses further from the peak hour).
- Based on a comparison of the pre and post peak hour volumes, the intersection volumes between 3:35 PM to 4:35 PM were higher whereby these volumes were utilized to analyse the 2nd hour.
- To estimate what in-process volumes and site trip volumes would be during the 2nd hour, these volumes were decreased by applying a ratio of total entering intersection volumes between the two analysis hours (i.e. a ratio of 4,714 total entering vehicles during the 2nd hour to 5,029 total entering vehicles during the 1st hour).

The LOS, delay, and v/c results of the 2nd hour capacity analysis are shown in Table 5 for the evening peak hour. Note that only the future analysis scenarios where the v/c ratio exceeded 1.00 during the first hour were

evaluated. Detailed calculations as well as tables showing the relationship between delay and LOS are included in the appendix to this report.

Table 5: Intersection Capacity Analysis Summary (2nd Hour)

	PM Peak Hour		
	LOS	Delay (s)	v/c
1. Redland Road at OR-213			
2025 Background Conditions	C	32	0.98
2025 Buildout Conditions	C	34	0.99

Table Notes: ***BOLDED*** *text indicates intersection operation above jurisdictional standards.*

Based on the results of the operational analysis, the intersection of Redland Road at OR-213 is projected to operate acceptably per jurisdictional standards during the 2nd hour under the 2025 site buildout year. Accordingly, no operational mitigation is necessary or recommended at these intersections.

Queuing Analysis

A queuing analysis was conducted at the study intersections to determine whether sufficient storage is available at applicable turning movements to accommodate projected queues. The queue lengths were projected based on the results of a Synchro/SimTraffic simulation, with the reported values representing the 95th percentile queue length. The 95th percentile queue is a statistical measurement which indicate there is a 5 percent chance that the queue may exceed this length during the analysis period; however, given this is a probability, the 95th percentile queue length may theoretically never be met or observed in the field.

The projected 95th percentile queue lengths reported in the simulation are presented in Table 6 for the morning and evening peak hours. Note the reported queue lengths were rounded up to the nearest five feet while the available lane storage was rounded to the nearest five feet. Detailed queuing analysis worksheets are included in the technical appendix to this report.

Table 6: 95th Percentile Intersection Queuing Analysis Summary

		Available Storage (ft)	2021 Existing Conditions	2025 Background Conditions	2025 Buildout Conditions
1. Redland Road at OR-213					
AM Peak Hour	EB LT Lanes	335/760*	195/205	205/220	205/215
	EB RT Lane	760*	55	60	65
	NB LT Lane	-	110	125	120
	NB Th Lanes	350	280	290	350
	SB Th Lanes	-	225	225	235
	SB RT Lane	-	75	85	85
PM Peak Hour	EB LT Lanes	335/760*	315/325	**500**/510	**485**/490
	EB RT Lane	760*	160	190	180
	NB LT Lane	-	280	**375**	**420**
	NB Th Lanes	350	140	145	155
	SB Th Lanes	-	>1600	>1600	>1600
	SB RT Lane	-	>1600	>1600	>1600
2. Redland Road at Holcomb Boulevard/Abernethy Road					
AM Peak Hour	EB LT Lane	115	65	90	90
	EB Th/RT Lane	-	100	110	120
	WB LT Lane	90	45	50	50
	WB Th Lane	-	105	110	125
	WB RT Lane	90	90	90	**95**
	NB LT Lane	130	130	**150**	**160**
	NB Th/RT Lane	-	200	195	225
	SB LT Lane	320	115	130	135
	SB Th Lane	820*	150	175	180
	SB RT Lane	255	30	45	40
PM Peak Hour	EB LT Lane	115	90	**165**	**170**
	EB Th/RT Lane	-	260	300	405
	WB LT Lane	90	75	80	75
	WB Th Lane	-	110	135	140
	WB RT Lane	90	75	85	90
	NB LT Lane	130	110	**135**	**150**
	NB Th/RT Lane	-	290	320	340
	SB LT Lane	320	255	275	**335**
	SB Th Lane	820*	305	350	325
	SB RT Lane	255	30	60	55

Table Notes: ***BOLDED*** *text indicates queue length exceeds avaialble storage.*

** Available vehicle storage between study intersections.*

Based on the queuing analysis, several turning movements at the study intersections are projected to exceed available lane storages. The following describe where and when this extended queuing occurs and details whether mitigation may be necessary:

1. Redland Road at OR-213
    - Northbound left-turn lane under 2025 background and buildout conditions (evening peak hour).
        - The projected 420-foot-long queue exceeds available lane storage by 70 feet. Note that this extended queuing is likely due to the intersection operating above a 1.00 v/c ratio where the standard of operation is a v/c ratio of 1.10; therefore, under these conditions extended queuing is anticipated. Planned improvements at the intersection are expected to alleviate this queuing issue to acceptable levels. Accordingly, no further mitigation is necessary or recommended.
    - Eastbound innermost left-turn pocket lane under 2025 background and buildout conditions (evening peak hour).
        - Projected queues under the 2025 future conditions, with or without the Serres Farms Master Plan project, will exceed available pocket left-turn lane storage of the innermost turn lane. Although this pocket turn lane exceeds available storage, there is sufficient storage within the outermost left-turn lane to accommodate this excess queuing without spillback to the adjacent intersection of Redland Road at Holcomb Boulevard/Abernethy Road. Additionally, as noted above, extended queuing at this pocket turn lane is likely due to the intersection operating above a 1.00 v/c ratio where the standard of operation is a v/c ratio of 1.10; therefore, under these conditions extended queuing is anticipated. Planned improvements at the intersection are expected to alleviate this queuing issue to acceptable levels. Accordingly, no further mitigation is necessary or recommended.
2. Redland Road at Holcomb Boulevard/Abernethy Road
    - Westbound right-turn lane under 2025 buildout conditions (evening peak hour).
        - The highest reported queue of 95 feet exceeds the available lane storage by 5 feet. Although this queuing exceeds the available storage striping at this turn lane, there is additional space beyond this striping to accommodate up to approximately 20 feet of additional queuing without these queues creating significant impacts or obstructing the through travel lane at the intersection. Therefore, no queuing related mitigation is necessary.
    - Northbound left-turn lane under 2025 background and buildout conditions (morning and evening peak hours).
        - The highest reported queue of 160 feet exceeds the available lane storage by 30 feet. Although this queuing exceeds the available storage striping at this turn lane, there is additional space beyond this striping to accommodate up to approximately 80 feet of

additional queuing without these queues creating significant impacts or obstructing the shared through/right-turn travel lane at the intersection. Therefore, no queuing related mitigation is necessary.

- Eastbound left-turn lane under 2025 background and buildout conditions (evening peak hour).
    - The highest reported queue of 170 feet exceeds the available lane storage by 55 feet. However, these extended queues may be stored within the center two-way left-turn turn (TWLTL) whereby no obstructions to the shared through/right-turn travel lane at the intersection will occur.
- Southbound left-turn lane under 2025 buildout conditions (evening peak hour).
    - The projected 335-foot queue will exceed the available lane storage by approximately 15 feet. There is an additional space beyond the striped storage area to accommodate up to approximately 25 feet of additional queuing. Therefore, no mitigation is necessary or recommended.

All other queues projected at the study intersections are not expected to create significant safety concerns or hazards. Accordingly, no other mitigation is necessary or recommended.

Conclusion

The intersections of Redland Road at OR-213 and Redland Road at Holcomb Boulevard/Abernethy Road are projected to operate acceptably per jurisdictional standards under the 2025 site buildout year. No operational mitigation is necessary or recommended at these intersections.

Per a queuing analysis at the study intersections, the eastbound pocket left-turn lane and northbound left-turn lane queues at the intersection of Redland Road at OR-213 are projected to exceed available lane storage under 2025 future conditions, with or without the Serres Farms Master Plan project. This extended queuing is likely due to the intersection operating above a 1.00 v/c ratio during the evening peak hour where the standard of operation is a v/c ratio of 1.10. Future planned improvements at the intersection are expected to alleviate this queuing to acceptable lengths. In addition, all other queues projected at the study intersections are not expected to create significant safety concerns or hazards. Accordingly, no mitigation is necessary or recommended as part of the proposed Serres Farms Master Plan project.

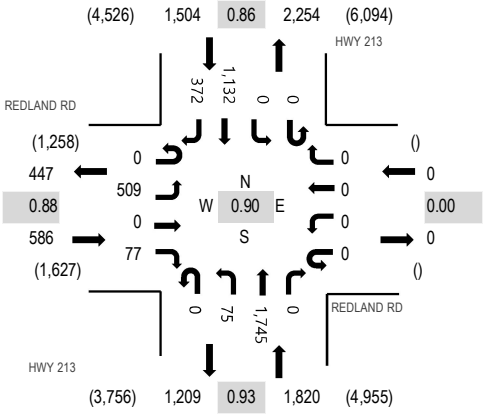
If you have any questions or concerns regarding this analysis or need further assistance, please don't hesitate to contact us.

ALL TRAFFIC DATA SERVICES
(303) 216-2439
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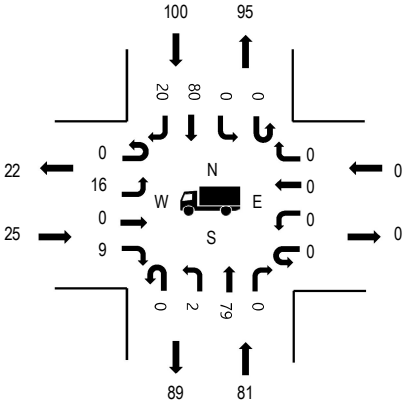
Location: 1 HWY 213 & REDLAND RD AM
Date: Thursday, July 22, 2021
Peak Hour: 07:05 AM - 08:05 AM
Peak 15-Minutes: 07:35 AM - 07:50 AM

Peak Hour

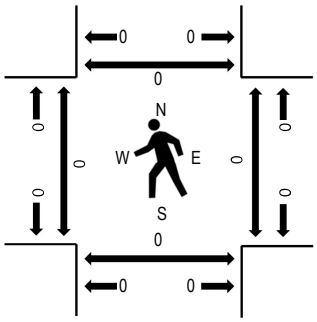
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	4.3%	0.88
WB	0.0%	0.00
NB	4.5%	0.93
SB	6.6%	0.86
All	5.3%	0.90

Traffic Counts - Motorized Vehicles

Interval Start Time	REDLAND RD Eastbound				REDLAND RD Westbound				HWY 213 Northbound				HWY 213 Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
7:00 AM	0	36	0	3	0	0	0	0	0	4	139	0	0	0	83	13	278	3,898
7:05 AM	0	56	0	6	0	0	0	0	0	8	133	0	0	0	68	15	286	3,910
7:10 AM	0	35	0	3	0	0	0	0	0	3	185	0	0	0	74	32	332	3,894
7:15 AM	0	32	0	3	0	0	0	0	0	10	157	0	0	0	90	26	318	3,827
7:20 AM	0	56	0	12	0	0	0	0	0	3	117	0	0	0	84	26	298	3,857
7:25 AM	0	44	0	4	0	0	0	0	0	11	165	0	0	0	88	34	346	3,858
7:30 AM	0	38	0	7	0	0	0	0	0	6	151	0	0	0	115	26	343	3,792
7:35 AM	0	61	0	5	0	0	0	0	0	2	145	0	0	0	88	35	336	3,768
7:40 AM	0	34	0	8	0	0	0	0	0	4	160	0	0	0	122	40	368	3,746
7:45 AM	0	42	0	17	0	0	0	0	0	6	166	0	0	0	108	44	383	3,680
7:50 AM	0	33	0	5	0	0	0	0	0	6	121	0	0	0	108	37	310	3,625
7:55 AM	0	42	0	1	0	0	0	0	0	12	124	0	0	0	88	33	300	3,637
8:00 AM	0	36	0	6	0	0	0	0	0	4	121	0	0	0	99	24	290	3,614
8:05 AM	0	33	0	7	0	0	0	0	0	4	128	0	0	0	81	17	270	3,571
8:10 AM	0	40	0	8	0	0	0	0	0	7	110	0	0	0	76	24	265	3,591
8:15 AM	0	42	0	8	0	0	0	0	0	6	129	0	0	0	126	37	348	3,576
8:20 AM	0	38	0	6	0	0	0	0	0	4	127	0	0	0	93	31	299	3,521
8:25 AM	0	44	0	5	0	0	0	0	0	5	118	0	0	0	68	40	280	3,522
8:30 AM	0	25	0	3	0	0	0	0	0	4	136	0	0	0	117	34	319	3,530
8:35 AM	0	42	0	6	0	0	0	0	0	10	128	0	0	0	103	25	314	3,510
8:40 AM	0	49	0	7	0	0	0	0	0	7	128	0	0	0	79	32	302	3,511
8:45 AM	0	26	0	6	0	0	0	0	0	13	146	0	0	0	111	26	328	3,531
8:50 AM	0	36	0	3	0	0	0	0	0	12	128	0	0	0	110	33	322	3,570
8:55 AM	0	44	0	11	0	0	0	0	0	4	102	0	0	0	97	19	277	3,578
9:00 AM	0	29	0	6	0	0	0	0	0	3	93	0	0	0	90	26	247	3,596
9:05 AM	0	35	0	9	0	0	0	0	0	4	114	0	0	0	103	25	290	
9:10 AM	0	20	0	9	0	0	0	0	0	1	110	0	0	0	89	21	250	
9:15 AM	0	56	0	12	0	0	0	0	1	11	119	0	0	0	77	17		

Location: 1 HWY 213 & REDLAND RD AM

9:20 AM	0	26	0	8	0	0	0	0	0	6	130	0	0	0	110	20	300
9:25 AM	0	28	0	5	0	0	0	0	0	5	120	0	0	0	101	29	288
9:30 AM	0	45	0	7	0	0	0	0	0	8	116	0	0	0	107	16	299
9:35 AM	0	27	0	7	0	0	0	0	1	11	126	0	0	0	107	36	315
9:40 AM	0	39	0	10	0	0	0	0	0	6	131	0	0	0	105	31	322
9:45 AM	0	45	0	7	0	0	0	0	0	9	160	0	0	0	107	39	367
9:50 AM	0	32	0	13	0	0	0	0	0	7	118	0	0	0	124	36	330
9:55 AM	0	30	0	8	0	0	0	0	1	8	117	0	0	0	106	25	295
Count Total	0	1,376	0	251	0	0	0	0	3	234	4,718	0	0	0	3,502	1,024	11,108
Peak Hour	0	509	0	77	0	0	0	0	0	75	1,745	0	0	0	1,132	372	3,910

Location: 1 HWY 213 & REDLAND RD AM

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

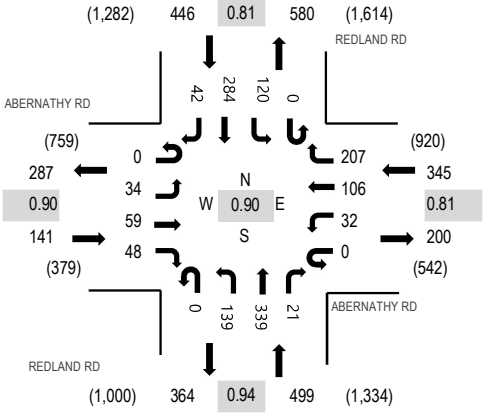
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	8	0	6	14	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	1	7	0	6	14	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	1	5	0	7	13	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	0	9	0	7	16	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	6	7	0	6	19	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	5	0	10	15	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	1	10	0	16	27	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	3	3	0	7	13	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	3	10	0	1	14	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0
7:45 AM	1	6	0	10	17	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	3	5	0	11	19	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	2	10	0	8	20	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	4	4	0	11	19	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	2	6	0	7	15	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	0	5	0	8	13	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	4	6	0	13	23	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	0	9	0	3	12	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	2	4	0	10	16	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	0	12	0	17	29	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	3	10	0	9	22	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	1	9	0	11	21	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	2	8	0	5	15	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	1	4	0	12	17	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	2	7	0	8	17	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
9:00 AM	1	7	0	6	14	9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	0	0
9:05 AM	1	4	0	11	16	9:05 AM	0	0	0	0	0	9:05 AM	0	0	0	0	0
9:10 AM	2	5	0	12	19	9:10 AM	0	0	0	0	0	9:10 AM	0	0	0	0	0
9:15 AM	2	12	0	9	23	9:15 AM	0	0	0	0	0	9:15 AM	0	0	0	0	0
9:20 AM	1	7	0	11	19	9:20 AM	0	0	0	0	0	9:20 AM	0	0	0	0	0
9:25 AM	2	7	0	14	23	9:25 AM	0	0	0	0	0	9:25 AM	0	0	0	0	0
9:30 AM	2	8	0	9	19	9:30 AM	0	0	0	0	0	9:30 AM	1	1	0	0	2
9:35 AM	0	9	0	6	15	9:35 AM	0	0	0	0	0	9:35 AM	0	0	0	0	0
9:40 AM	1	5	0	13	19	9:40 AM	0	0	0	0	0	9:40 AM	0	0	0	0	0
9:45 AM	1	15	0	11	27	9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	0	0
9:50 AM	0	6	0	15	21	9:50 AM	0	0	0	0	0	9:50 AM	0	0	0	0	0
9:55 AM	2	8	0	11	21	9:55 AM	0	0	0	0	0	9:55 AM	0	0	0	0	0
Count Total	57	262	0	337	656	Count Total	0	0	0	0	0	Count Total	1	1	0	0	2
Peak Hour	25	81	0	100	206	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0

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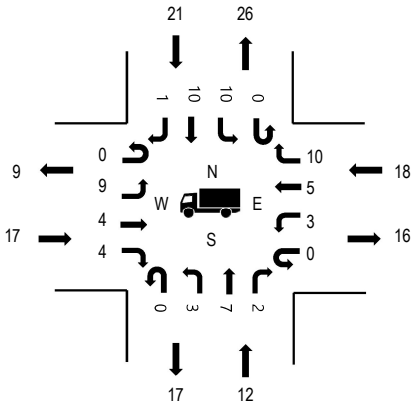
Location: 2 REDLAND RD & ABERNATHY RD AM
Date: Thursday, July 22, 2021
Peak Hour: 07:25 AM - 08:25 AM
Peak 15-Minutes: 07:40 AM - 07:55 AM

Peak Hour

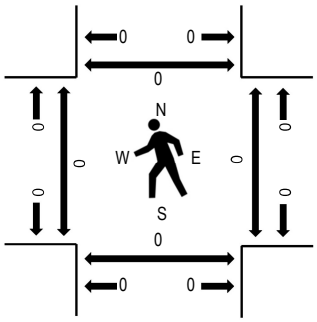
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	12.1%	0.90
WB	5.2%	0.81
NB	2.4%	0.94
SB	4.7%	0.81
All	4.8%	0.90

Traffic Counts - Motorized Vehicles

Interval Start Time	ABERNATHY RD Eastbound				ABERNATHY RD Westbound				REDLAND RD Northbound				REDLAND 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	1	2	1	0	0	6	14	0	10	28	2	0	10	15	6	95	1,359
7:05 AM	0	1	3	1	0	0	2	16	0	8	32	0	0	6	9	5	83	1,388
7:10 AM	0	2	6	0	0	3	7	21	0	8	18	1	0	6	13	4	89	1,393
7:15 AM	0	1	3	2	0	1	3	15	0	5	35	2	0	1	28	6	102	1,405
7:20 AM	0	3	5	3	0	1	7	11	0	10	29	0	0	10	19	6	104	1,417
7:25 AM	0	3	4	3	0	3	7	22	0	11	39	2	0	14	18	3	129	1,431
7:30 AM	0	0	3	3	0	3	14	20	0	7	25	4	0	11	27	2	119	1,402
7:35 AM	0	3	7	8	0	3	13	21	0	13	26	0	0	8	16	4	122	1,400
7:40 AM	0	6	4	1	0	2	10	14	0	10	37	1	0	13	32	3	133	1,394
7:45 AM	0	4	8	9	0	5	4	21	0	13	25	0	0	13	24	2	128	1,360
7:50 AM	0	3	1	4	0	5	12	16	0	14	34	1	0	6	36	5	137	1,352
7:55 AM	0	0	6	2	0	2	6	13	0	14	25	2	0	11	32	5	118	1,321
8:00 AM	0	3	5	5	0	0	9	15	0	9	27	5	0	14	27	5	124	1,332
8:05 AM	0	0	8	2	0	2	4	12	0	10	25	3	0	3	16	3	88	1,321
8:10 AM	0	5	4	1	0	4	7	10	0	14	30	0	0	8	14	4	101	1,326
8:15 AM	0	5	3	5	0	3	10	22	0	13	20	2	0	9	21	1	114	1,322
8:20 AM	0	2	6	5	0	0	10	21	0	11	26	1	0	10	21	5	118	1,319
8:25 AM	0	5	4	3	0	2	6	18	0	5	20	0	0	6	27	4	100	1,282
8:30 AM	0	2	3	1	0	3	10	12	0	11	23	4	0	11	32	5	117	1,282
8:35 AM	0	1	7	11	0	3	14	19	0	5	25	1	0	6	19	5	116	1,264
8:40 AM	0	0	4	2	0	1	5	14	0	10	23	3	0	11	18	8	99	1,233
8:45 AM	0	1	3	2	0	0	9	15	0	10	36	0	0	11	23	10	120	1,239
8:50 AM	0	1	12	9	0	1	6	13	0	8	21	1	0	10	20	4	106	1,234
8:55 AM	0	2	3	4	0	1	10	20	0	11	28	4	0	9	28	9	129	1,245
9:00 AM	0	0	4	6	0	1	11	17	0	8	20	0	0	17	23	6	113	1,224
9:05 AM	0	0	4	1	0	3	4	17	0	11	24	1	0	10	15	3	93	
9:10 AM	0	2	5	7	0	0	10	19	0	6	19	1	0	7	17	4		

Location: 2 REDLAND RD & ABERNATHY RD AM

9:15 AM	0	1	4	7	0	2	7	20	0	11	33	0	0	8	16	2	111
9:20 AM	0	3	1	6	0	0	7	14	0	3	18	1	0	10	13	5	81
9:25 AM	0	2	2	8	0	1	4	13	0	12	26	2	0	13	13	4	100
9:30 AM	0	1	4	5	0	1	4	16	0	10	24	1	0	7	23	3	99
9:35 AM	0	3	1	10	0	2	4	12	0	1	28	0	0	3	16	5	85
9:40 AM	0	2	3	3	0	1	7	17	0	5	20	2	0	7	32	6	105
9:45 AM	0	3	2	8	0	4	6	14	0	6	31	1	0	12	21	7	115
9:50 AM	0	4	1	3	0	0	2	18	0	9	25	7	0	13	29	6	117
9:55 AM	0	1	4	3	0	5	7	16	0	6	25	1	0	13	25	2	108
Count Total	0	76	149	154	0	68	264	588	0	328	950	56	0	337	778	167	3,915
Peak Hour	0	34	59	48	0	32	106	207	0	139	339	21	0	120	284	42	1,431

Location: 2 REDLAND RD & ABERNATHY RD AM

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

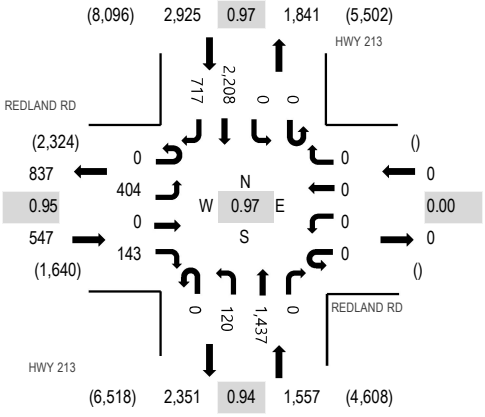
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	1	1	1	3	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	2	1	0	2	5	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	0	1	0	1	2	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	0	1	2	1	4	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	1	0	2	2	5	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	2	1	1	1	5	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	1	1	1	2	5	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	2	0	1	3	6	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	3	0	0	3	6	7:40 AM	0	0	1	0	1	7:40 AM	0	0	0	0	0
7:45 AM	4	2	2	0	8	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	2	0	0	3	5	7:50 AM	0	0	0	0	0	7:50 AM	0	0	0	0	0
7:55 AM	0	2	0	3	5	7:55 AM	0	0	0	0	0	7:55 AM	0	0	0	0	0
8:00 AM	2	2	5	1	10	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	0	1	1	1	3	8:05 AM	0	0	0	0	0	8:05 AM	0	0	0	0	0
8:10 AM	0	0	3	1	4	8:10 AM	0	0	0	0	0	8:10 AM	0	0	0	0	0
8:15 AM	1	0	3	0	4	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	0	3	1	3	7	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	0	1	1	2	4	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	1	2	0	0	3	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	1	0	3	1	5	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	0	1	0	3	4	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	0	2	0	0	2	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	1	0	2	2	5	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	0	0
8:55 AM	1	2	1	1	5	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
9:00 AM	1	1	1	4	7	9:00 AM	0	0	0	0	0	9:00 AM	0	0	0	0	0
9:05 AM	0	0	1	0	1	9:05 AM	0	0	0	0	0	9:05 AM	0	0	0	0	0
9:10 AM	0	1	1	0	2	9:10 AM	0	0	1	0	1	9:10 AM	0	0	0	0	0
9:15 AM	0	3	1	3	7	9:15 AM	0	0	0	0	0	9:15 AM	0	0	0	0	0
9:20 AM	0	0	0	1	1	9:20 AM	0	0	0	0	0	9:20 AM	0	0	0	0	0
9:25 AM	1	1	2	0	4	9:25 AM	0	0	0	0	0	9:25 AM	0	0	0	0	0
9:30 AM	1	1	0	2	4	9:30 AM	0	0	0	0	0	9:30 AM	0	0	0	0	0
9:35 AM	0	2	0	0	2	9:35 AM	0	0	0	1	1	9:35 AM	0	0	0	0	0
9:40 AM	0	0	0	1	1	9:40 AM	0	0	0	0	0	9:40 AM	0	0	0	0	0
9:45 AM	0	1	0	4	5	9:45 AM	0	0	0	0	0	9:45 AM	0	0	0	0	0
9:50 AM	2	0	0	4	6	9:50 AM	0	0	0	0	0	9:50 AM	0	0	0	0	0
9:55 AM	1	1	0	3	5	9:55 AM	0	0	0	0	0	9:55 AM	0	0	0	0	0
Count Total	30	35	36	59	160	Count Total	0	0	2	1	3	Count Total	0	0	0	0	0
Peak Hour	17	12	18	21	68	Peak Hour	0	0	1	0	1	Peak Hour	0	0	0	0	0

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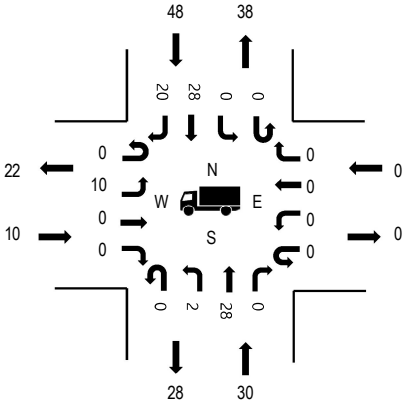
Location: 1 HWY 213 & REDLAND RD PM
Date: Thursday, July 22, 2021
Peak Hour: 04:35 PM - 05:35 PM
Peak 15-Minutes: 05:05 PM - 05:20 PM

Peak Hour

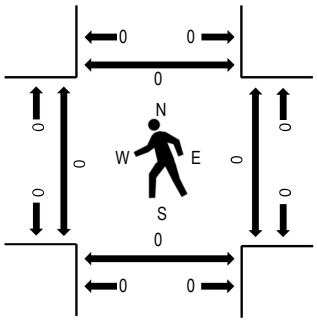
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.8%	0.95
WB	0.0%	0.00
NB	1.9%	0.94
SB	1.6%	0.97
All	1.7%	0.97

Traffic Counts - Motorized Vehicles

Interval Start Time	REDLAND RD Eastbound				REDLAND RD Westbound				HWY 213 Northbound				HWY 213 Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
3:00 PM	0	32	0	10	0	0	0	0	0	6	128	0	0	0	157	44	377	4,487
3:05 PM	0	27	0	5	0	0	0	0	0	12	144	0	0	0	156	51	395	4,507
3:10 PM	0	44	0	17	0	0	0	0	0	13	119	0	0	0	135	28	356	4,515
3:15 PM	0	26	0	4	0	0	0	0	0	13	135	0	0	0	165	54	397	4,587
3:20 PM	0	35	0	6	0	0	0	0	0	7	127	0	0	0	170	40	385	4,597
3:25 PM	0	45	0	12	0	0	0	0	0	6	105	0	0	0	156	49	373	4,620
3:30 PM	0	42	0	5	0	0	0	0	0	15	128	0	0	0	139	41	370	4,679
3:35 PM	0	31	0	9	0	0	0	0	0	4	112	0	0	0	197	50	403	4,714
3:40 PM	0	32	0	15	0	0	0	0	0	11	98	0	0	0	131	38	325	4,722
3:45 PM	0	32	0	9	0	0	0	0	0	15	115	0	0	0	134	40	345	4,845
3:50 PM	0	29	0	3	0	0	0	0	0	8	113	0	0	0	161	66	380	4,906
3:55 PM	0	25	0	15	0	0	0	0	0	10	100	0	0	0	181	50	381	4,912
4:00 PM	0	51	0	15	0	0	0	0	0	14	124	0	0	0	150	43	397	4,968
4:05 PM	0	24	0	5	0	0	0	0	0	8	132	0	0	0	179	55	403	4,959
4:10 PM	0	30	0	11	0	0	0	0	0	9	133	0	0	0	188	57	428	4,979
4:15 PM	0	50	0	21	0	0	0	0	0	3	95	0	0	0	194	44	407	5,017
4:20 PM	0	24	0	12	0	0	0	0	0	16	127	0	0	0	162	67	408	5,021
4:25 PM	0	22	0	13	0	0	0	0	0	6	121	0	0	0	196	74	432	5,010
4:30 PM	0	41	0	18	0	0	0	0	0	10	114	0	0	0	169	53	405	5,010
4:35 PM	0	37	0	17	0	0	0	0	0	16	128	0	0	0	150	63	411	5,029
4:40 PM	0	29	0	9	0	0	0	0	0	3	137	0	0	0	221	49	448	5,016
4:45 PM	0	33	0	13	0	0	0	0	0	8	105	0	0	0	186	61	406	4,955
4:50 PM	0	35	0	6	0	0	0	0	0	10	115	0	0	0	163	57	386	4,994
4:55 PM	0	32	0	11	0	0	0	0	0	10	128	0	0	0	197	59	437	4,955
5:00 PM	0	25	0	12	0	0	0	0	0	12	99	0	0	0	183	57	388	4,889
5:05 PM	0	56	0	14	0	0	0	0	0	13	120	0	0	0	168	52	423	
5:10 PM	0	27	0	18	0	0	0	0	0	9	136	0	0	0	191	85	466	
5:15 PM	0	19	0	8	0	0	0	0	0	8	119	0	0	0	199	58		

Location: 1 HWY 213 & REDLAND RD PM

5:20 PM	0	50	0	12	0	0	0	0	0	11	112	0	0	0	154	58	397
5:25 PM	0	31	0	15	0	0	0	0	0	12	124	0	0	0	190	60	432
5:30 PM	0	30	0	8	0	0	0	0	0	8	114	0	0	0	206	58	424
5:35 PM	0	46	0	13	0	0	0	0	0	9	109	0	0	0	158	63	398
5:40 PM	0	39	0	5	0	0	0	0	0	6	120	0	0	0	149	68	387
5:45 PM	0	35	0	13	0	0	0	0	0	8	131	0	0	0	194	64	445
5:50 PM	0	28	0	15	0	0	0	0	0	8	85	0	0	0	143	68	347
5:55 PM	0	45	0	7	0	0	0	0	0	8	111	0	0	0	145	55	371
Count Total	0	1,239	0	401	0	0	0	0	0	345	4,263	0	0	0	6,117	1,979	14,344
Peak Hour	0	404	0	143	0	0	0	0	0	120	1,437	0	0	0	2,208	717	5,029

Location: 1 HWY 213 & REDLAND RD PM

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

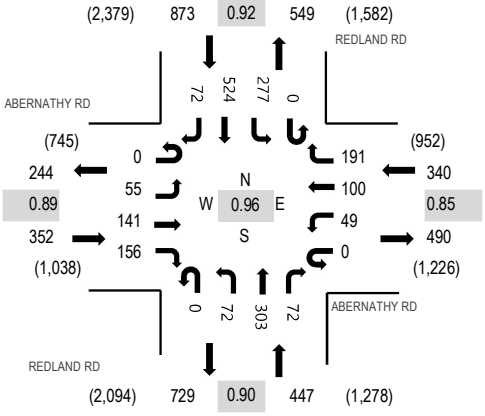
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
3:00 PM	0	7	0	8	15	3:00 PM	0	0	0	0	0	3:00 PM	0	0	0	0	0
3:05 PM	0	5	0	6	11	3:05 PM	0	0	0	0	0	3:05 PM	0	0	0	0	0
3:10 PM	1	5	0	7	13	3:10 PM	0	0	0	0	0	3:10 PM	0	0	0	0	0
3:15 PM	1	4	0	6	11	3:15 PM	0	0	0	0	0	3:15 PM	0	0	0	0	0
3:20 PM	1	2	0	8	11	3:20 PM	0	0	0	0	0	3:20 PM	0	0	0	0	0
3:25 PM	3	3	0	1	7	3:25 PM	0	0	0	0	0	3:25 PM	0	0	0	0	0
3:30 PM	4	3	0	1	8	3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	0	0
3:35 PM	1	3	0	5	9	3:35 PM	0	0	0	0	0	3:35 PM	0	0	0	0	0
3:40 PM	1	2	0	3	6	3:40 PM	0	0	0	0	0	3:40 PM	0	0	0	0	0
3:45 PM	2	4	0	3	9	3:45 PM	0	0	0	0	0	3:45 PM	0	0	0	0	0
3:50 PM	0	4	0	5	9	3:50 PM	0	0	0	0	0	3:50 PM	0	0	0	0	0
3:55 PM	2	3	0	5	10	3:55 PM	0	0	0	0	0	3:55 PM	0	0	0	0	0
4:00 PM	3	6	0	6	15	4:00 PM	0	0	0	0	0	4:00 PM	0	1	0	0	1
4:05 PM	3	5	0	8	16	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	1	1	0	6	8	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	1	4	0	8	13	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	0	8	0	5	13	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	7	0	6	13	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	2	4	0	8	14	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	4	0	5	9	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	1	1	0	2	4	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	3	2	0	5	10	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	2	3	0	1	6	4:50 PM	0	0	0	0	0	4:50 PM	0	1	0	0	1
4:55 PM	0	3	0	5	8	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	1	3	0	5	9	5:00 PM	0	0	0	1	1	5:00 PM	0	0	0	0	0
5:05 PM	0	2	0	3	5	5:05 PM	0	0	0	1	1	5:05 PM	0	0	0	0	0
5:10 PM	2	3	0	9	14	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	1	4	0	2	7	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	4	4	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	3	0	2	5	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	2	0	5	7	5:30 PM	0	1	0	0	1	5:30 PM	0	0	0	0	0
5:35 PM	0	3	0	4	7	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	1	0	5	6	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	1	2	0	8	11	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	2	0	4	6	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	1	3	0	3	7	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	38	121	0	177	336	Count Total	0	1	0	2	3	Count Total	0	2	0	0	2
Peak Hour	10	30	0	48	88	Peak Hour	0	1	0	2	3	Peak Hour	0	1	0	0	1

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

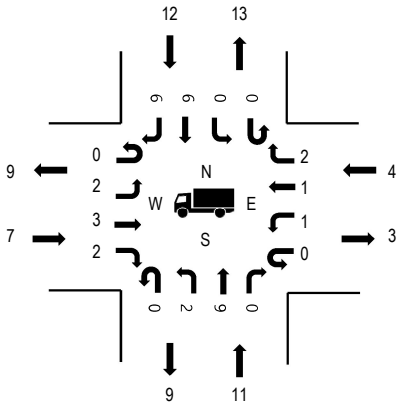
Location: 2 REDLAND RD & ABERNATHY RD PM
Date: Thursday, July 22, 2021
Peak Hour: 04:25 PM - 05:25 PM
Peak 15-Minutes: 05:10 PM - 05:25 PM

Peak Hour

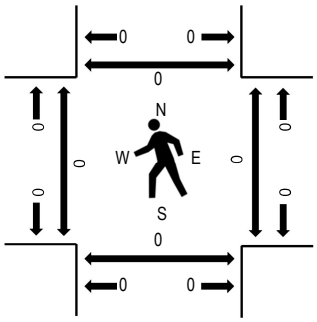
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	2.0%	0.89
WB	1.2%	0.85
NB	2.5%	0.90
SB	1.4%	0.92
All	1.7%	0.96

Traffic Counts - Motorized Vehicles

Interval Start Time	ABERNATHY RD Eastbound				ABERNATHY RD Westbound				REDLAND RD Northbound				REDLAND 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		
3:00 PM	0	0	10	19	0	1	4	15	0	8	25	3	0	17	44	9	155	1,721
3:05 PM	0	6	7	21	0	2	7	16	0	7	21	0	0	12	25	6	130	1,708
3:10 PM	0	4	5	5	0	8	6	17	0	10	24	1	0	22	35	7	144	1,743
3:15 PM	0	1	5	12	0	1	2	15	0	12	22	6	0	9	34	8	127	1,770
3:20 PM	0	4	7	21	0	4	9	17	0	9	16	4	0	22	29	12	154	1,805
3:25 PM	0	8	13	11	0	4	5	17	0	4	28	3	0	10	34	2	139	1,811
3:30 PM	0	6	7	10	0	5	9	24	0	9	19	3	0	20	35	8	155	1,851
3:35 PM	0	4	7	6	0	3	15	14	0	8	25	1	0	9	30	4	126	1,844
3:40 PM	0	4	12	20	0	0	4	12	0	11	23	4	0	13	38	5	146	1,893
3:45 PM	0	3	11	13	0	2	10	14	0	10	24	3	0	18	31	9	148	1,920
3:50 PM	0	4	20	16	0	3	6	15	0	8	16	5	0	18	30	11	152	1,942
3:55 PM	0	2	16	20	0	3	7	12	0	11	22	0	0	13	35	4	145	1,964
4:00 PM	0	4	9	16	0	3	8	7	0	7	26	4	0	20	36	2	142	1,990
4:05 PM	0	5	15	12	0	5	11	16	0	5	17	3	0	25	47	4	165	1,990
4:10 PM	0	4	8	15	0	6	9	20	0	4	26	2	0	17	55	5	171	1,982
4:15 PM	0	2	14	16	0	0	7	20	0	6	27	4	0	18	43	5	162	1,991
4:20 PM	0	5	8	11	0	3	5	17	0	10	23	1	0	12	57	8	160	2,005
4:25 PM	0	5	12	14	0	3	10	17	0	6	29	7	0	25	42	9	179	2,012
4:30 PM	0	2	8	14	0	1	8	11	0	8	23	4	0	22	45	2	148	1,989
4:35 PM	0	4	20	18	0	7	9	25	0	0	25	3	0	20	35	9	175	2,001
4:40 PM	0	2	10	11	0	5	13	19	0	13	22	4	0	18	48	8	173	1,988
4:45 PM	0	3	11	5	0	3	8	15	0	6	32	5	0	27	52	3	170	1,969
4:50 PM	0	4	8	16	0	2	9	16	0	4	32	6	0	22	49	6	174	1,956
4:55 PM	0	3	9	14	0	6	12	15	0	5	25	8	0	22	46	6	171	1,959
5:00 PM	0	8	11	13	0	4	6	9	0	2	23	6	0	14	37	9	142	1,936
5:05 PM	0	6	16	8	0	4	8	19	0	5	24	7	0	27	29	4	157	
5:10 PM	0	6	14	7	0	6	4	21	0	9	24	7	0	29	49	4		

Location: 2 REDLAND RD & ABERNATHY RD PM

5:15 PM	0	8	16	17	0	5	5	11	0	7	18	8	0	20	53	8	176
5:20 PM	0	4	6	19	0	3	8	13	0	7	26	7	0	31	39	4	167
5:25 PM	0	1	11	12	0	1	6	16	0	5	29	6	0	24	40	5	156
5:30 PM	0	9	8	26	0	1	6	19	0	8	19	6	0	21	35	2	160
5:35 PM	0	9	7	15	0	5	5	14	0	12	16	3	0	20	55	1	162
5:40 PM	0	5	4	18	0	2	5	15	0	11	19	3	0	16	49	7	154
5:45 PM	0	4	17	15	0	1	9	17	0	9	31	3	0	13	34	4	157
5:50 PM	0	2	7	11	0	2	5	17	0	4	32	6	1	34	53	3	177
5:55 PM	0	3	9	9	0	2	7	12	0	5	25	9	0	13	44	10	148
Count Total	0	154	378	506	0	116	267	569	0	265	858	155	1	693	1,472	213	5,647
Peak Hour	0	55	141	156	0	49	100	191	0	72	303	72	0	277	524	72	2,012

Location: 2 REDLAND RD & ABERNATHY 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
3:00 PM	0	0	2	4	6	3:00 PM	0	0	0	0	0	3:00 PM	0	0	0	0	0
3:05 PM	2	0	0	0	2	3:05 PM	0	0	0	0	0	3:05 PM	0	0	0	0	0
3:10 PM	0	1	1	3	5	3:10 PM	0	0	0	0	0	3:10 PM	0	0	0	0	0
3:15 PM	0	1	0	1	2	3:15 PM	0	0	0	0	0	3:15 PM	0	0	0	0	0
3:20 PM	1	2	1	0	4	3:20 PM	0	0	0	0	0	3:20 PM	0	0	0	0	0
3:25 PM	1	0	1	2	4	3:25 PM	0	0	0	0	0	3:25 PM	0	0	1	0	1
3:30 PM	2	1	4	0	7	3:30 PM	0	0	0	0	0	3:30 PM	0	0	0	0	0
3:35 PM	0	1	2	0	3	3:35 PM	0	0	0	0	0	3:35 PM	0	0	0	0	0
3:40 PM	1	0	0	1	2	3:40 PM	0	0	0	0	0	3:40 PM	0	0	0	0	0
3:45 PM	0	0	2	1	3	3:45 PM	0	0	0	0	0	3:45 PM	0	0	0	0	0
3:50 PM	2	1	0	1	4	3:50 PM	0	0	0	0	0	3:50 PM	0	0	0	0	0
3:55 PM	0	0	0	3	3	3:55 PM	0	0	0	0	0	3:55 PM	0	0	0	0	0
4:00 PM	1	1	1	1	4	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	1	0	0	0	1	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	1	0	0	1	2	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	2	1	0	2	5	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	1	0	2	4:25 PM	0	1	0	0	1	4:25 PM	0	0	0	0	0
4:30 PM	0	0	0	2	2	4:30 PM	1	0	0	0	1	4:30 PM	0	0	0	0	0
4:35 PM	1	1	0	0	2	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	1	1	1	1	4	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	2	1	0	0	3	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	1	0	0	1	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	2	0	1	3	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	2	0	0	2	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	1	0	3	4	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	1	2	1	4	5:10 PM	1	0	0	0	1	5:10 PM	0	0	0	0	0
5:15 PM	2	1	0	4	7	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	3	1	0	1	5	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	2	0	1	3	5:30 PM	0	0	0	0	0	5:30 PM	0	0	1	0	1
5:35 PM	0	0	1	2	3	5:35 PM	1	0	0	0	1	5:35 PM	0	1	0	0	1
5:40 PM	0	1	2	0	3	5:40 PM	0	0	1	0	1	5:40 PM	0	1	0	0	1
5:45 PM	0	0	0	1	1	5:45 PM	0	1	0	0	1	5:45 PM	0	0	1	0	1
5:50 PM	0	1	1	0	2	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	2	2	0	0	4	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	26	27	22	37	112	Count Total	3	2	1	0	6	Count Total	0	2	3	0	5
Peak Hour	7	11	4	12	34	Peak Hour	2	1	0	0	3	Peak Hour	0	0	0	0	0

TRIP GENERATION CALCULATIONS
Phases 1-2

Land Use: Single-Family Detached Housing
Land Use Code: 210
Setting/Location General Urban/Suburban
Variable: Dwelling Units
Variable Value: 142

AM PEAK HOUR

Trip Equation: T = 0.71(X) +4.80

	Enter	Exit	Total
Directional Distribution	25%	75%	
Trip Ends	26	80	106

PM PEAK HOUR

Trip Equation: Ln(T)=0.96Ln(X)+0.20

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	89	53	142

WEEKDAY

Trip Equation: Ln(T)=0.92Ln(X)+2.71

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	718	718	1,436

SATURDAY

Trip Equation: Ln(T)=0.94Ln(X)+2.56

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	682	682	1,364

Source: Trip Generation Manual, Tenth Edition

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

HCM 6th Signalized Intersection Summary
1: OR-213 & S Redland Road

08/17/2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	548	83	81	1878	1219	400
Future Volume (veh/h)	548	83	81	1878	1219	400
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1826	1826	1796	1796
Adj Flow Rate, veh/h	609	76	90	2087	1354	397
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	4	5	5	7	7
Cap, veh/h	826	491	126	2257	1792	1169
Arrive On Green	0.24	0.24	0.07	0.65	0.52	0.52
Sat Flow, veh/h	3401	1560	1739	3561	3503	1522
Grp Volume(v), veh/h	609	76	90	2087	1354	397
Grp Sat Flow(s),veh/h/ln	1700	1560	1739	1735	1706	1522
Q Serve(g_s), s	12.4	2.6	3.8	39.6	23.4	6.1
Cycle Q Clear(g_c), s	12.4	2.6	3.8	39.6	23.4	6.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	826	491	126	2257	1792	1169
V/C Ratio(X)	0.74	0.15	0.72	0.92	0.76	0.34
Avail Cap(c_a), veh/h	826	491	155	2313	1792	1169
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	18.5	34.0	11.5	14.0	2.7
Incr Delay (d2), s/veh	5.0	0.6	11.4	6.9	1.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	2.7	1.9	10.8	7.1	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.2	19.1	45.4	18.4	15.9	2.9
LnGrp LOS	C	B	D	B	B	A
Approach Vol, veh/h	685			2177	1751	
Approach Delay, s/veh	29.9			19.5	13.0	
Approach LOS	C			B	B	

Timer - Assigned Phs	2	4	7	8
Phs Duration (G+Y+Rc), s	22.2	52.8	9.4	43.4
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	49.5	6.2	38.8
Max Q Clear Time (g_c+I1), s	14.4	41.6	5.8	25.4
Green Ext Time (p_c), s	0.6	6.7	0.0	8.1

Intersection Summary	
HCM 6th Ctrl Delay	18.6
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary
2: S Redland Road & S Holcomb Boulevard

08/17/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	64	52	34	114	223	150	365	23	129	306	45
Future Volume (veh/h)	37	64	52	34	114	223	150	365	23	129	306	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	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	1722	1722	1722	1826	1826	1826	1870	1870	1870	1826	1826	1826
Adj Flow Rate, veh/h	41	71	7	38	127	32	167	406	22	143	340	0
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
Percent Heavy Veh, %	12	12	12	5	5	5	2	2	2	5	5	5
Cap, veh/h	81	172	17	82	200	167	224	813	44	194	819	694
Arrive On Green	0.05	0.11	0.10	0.05	0.11	0.11	0.13	0.46	0.45	0.11	0.45	0.00
Sat Flow, veh/h	1640	1538	152	1739	1826	1526	1781	1758	95	1739	1826	1547
Grp Volume(v), veh/h	41	0	78	38	127	32	167	0	428	143	340	0
Grp Sat Flow(s),veh/h/ln	1640	0	1690	1739	1826	1526	1781	0	1853	1739	1826	1547
Q Serve(g_s), s	1.5	0.0	2.6	1.3	4.0	1.1	5.4	0.0	9.7	4.8	7.6	0.0
Cycle Q Clear(g_c), s	1.5	0.0	2.6	1.3	4.0	1.1	5.4	0.0	9.7	4.8	7.6	0.0
Prop In Lane	1.00		0.09	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	81	0	189	82	200	167	224	0	857	194	819	694
V/C Ratio(X)	0.50	0.00	0.41	0.46	0.63	0.19	0.75	0.00	0.50	0.74	0.42	0.00
Avail Cap(c_a), veh/h	150	0	251	162	274	229	297	0	857	261	819	694
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	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.93	0.93	0.00
Uniform Delay (d), s/veh	27.8	0.0	24.8	27.8	25.6	24.3	25.3	0.0	11.3	25.8	11.2	0.0
Incr Delay (d2), s/veh	4.8	0.0	1.4	4.0	3.3	0.5	7.0	0.0	2.1	6.7	1.4	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	0.6	0.0	1.0	0.6	1.8	0.4	2.5	0.0	3.5	2.1	2.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	0.0	26.3	31.8	28.9	24.8	32.3	0.0	13.4	32.4	12.7	0.0
LnGrp LOS	C	A	C	C	C	C	C	A	B	C	B	A
Approach Vol, veh/h		119			197			595			483	
Approach Delay, s/veh		28.4			28.8			18.7			18.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	31.7	6.8	10.7	11.5	30.9	7.0	10.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	20.0	5.1	8.4	9.5	19.0	5.0	8.5
Max Q Clear Time (g_c+I1), s	6.8	11.7	3.3	4.6	7.4	9.6	3.5	6.0
Green Ext Time (p_c), s	0.1	1.5	0.0	0.1	0.1	1.2	0.0	0.1

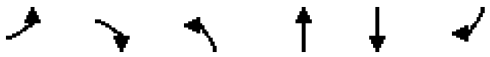
Intersection Summary	
HCM 6th Ctrl Delay	20.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary
1: OR-213 & S Redland Road

08/17/2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	435	154	129	1547	2377	772
Future Volume (veh/h)	435	154	129	1547	2377	772
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	448	154	133	1595	2451	783
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	504	357	141	2799	2399	1278
Arrive On Green	0.15	0.15	0.08	0.79	0.68	0.68
Sat Flow, veh/h	3456	1585	1781	3647	3647	1552
Grp Volume(v), veh/h	448	154	133	1595	2451	783
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1777	1777	1552
Q Serve(g_s), s	15.3	10.0	8.9	20.8	81.0	21.9
Cycle Q Clear(g_c), s	15.3	10.0	8.9	20.8	81.0	21.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	504	357	141	2799	2399	1278
V/C Ratio(X)	0.89	0.43	0.94	0.57	1.02	0.61
Avail Cap(c_a), veh/h	504	357	141	2799	2399	1278
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.3	39.9	55.0	4.9	19.5	3.9
Incr Delay (d2), s/veh	17.1	3.0	58.6	0.3	24.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	9.4	6.1	4.5	33.2	11.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	67.4	42.9	113.6	5.2	43.6	4.8
LnGrp LOS	E	D	F	A	F	A
Approach Vol, veh/h	602			1728	3234	
Approach Delay, s/veh	61.1			13.5	34.2	
Approach LOS	E			B	C	

Timer - Assigned Phs	2	4	7	8
Phs Duration (G+Y+Rc), s	21.5	98.5	13.5	85.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.0	94.0	9.0	80.5
Max Q Clear Time (g_c+I1), s	17.3	22.8	10.9	83.0
Green Ext Time (p_c), s	0.0	16.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary
2: S Redland Road & S Holcomb Boulevard

08/17/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	152	168	53	108	206	78	326	78	298	564	78
Future Volume (veh/h)	59	152	168	53	108	206	78	326	78	298	564	78
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	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	1870	1870	1870	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	61	158	131	55	112	41	81	340	72	310	588	16
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, %	2	2	2	1	1	1	3	3	3	1	1	1
Cap, veh/h	88	182	151	84	363	307	113	564	120	356	973	825
Arrive On Green	0.05	0.19	0.19	0.05	0.19	0.19	0.06	0.38	0.38	0.20	0.52	0.52
Sat Flow, veh/h	1781	934	774	1795	1885	1598	1767	1478	313	1795	1885	1598
Grp Volume(v), veh/h	61	0	289	55	112	41	81	0	412	310	588	16
Grp Sat Flow(s),veh/h/ln	1781	0	1709	1795	1885	1598	1767	0	1791	1795	1885	1598
Q Serve(g_s), s	3.0	0.0	14.8	2.7	4.6	1.9	4.0	0.0	16.6	15.1	19.7	0.4
Cycle Q Clear(g_c), s	3.0	0.0	14.8	2.7	4.6	1.9	4.0	0.0	16.6	15.1	19.7	0.4
Prop In Lane	1.00		0.45	1.00		1.00	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	88	0	333	84	363	307	113	0	684	356	973	825
V/C Ratio(X)	0.69	0.00	0.87	0.65	0.31	0.13	0.72	0.00	0.60	0.87	0.60	0.02
Avail Cap(c_a), veh/h	172	0	361	112	363	307	137	0	684	419	973	825
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	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.70	0.70	0.70
Uniform Delay (d), s/veh	42.1	0.0	35.2	42.2	31.2	30.1	41.3	0.0	22.4	34.9	15.3	10.6
Incr Delay (d2), s/veh	9.3	0.0	18.6	8.2	0.5	0.2	13.0	0.0	3.9	11.7	2.0	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	1.5	0.0	7.7	1.4	2.1	0.7	2.1	0.0	7.1	7.3	7.8	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	0.0	53.8	50.3	31.7	30.3	54.4	0.0	26.3	46.6	17.3	10.7
LnGrp LOS	D	A	D	D	C	C	D	A	C	D	B	B
Approach Vol, veh/h		350			208			493			914	
Approach Delay, s/veh		53.4			36.3			30.9			27.1	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.9	38.4	8.2	21.5	9.8	50.5	8.5	21.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	20.5	27.9	5.1	18.5	6.5	41.9	8.2	15.4
Max Q Clear Time (g_c+I1), s	17.1	18.6	4.7	16.8	6.0	21.7	5.0	6.6
Green Ext Time (p_c), s	0.3	1.6	0.0	0.3	0.0	3.5	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	33.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary
1: OR-213 & S Redland Road

09/14/2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	570	90	92	1911	1245	419
Future Volume (veh/h)	570	90	92	1911	1245	419
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1826	1826	1796	1796
Adj Flow Rate, veh/h	633	81	102	2123	1383	420
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	4	5	5	7	7
Cap, veh/h	811	498	140	2272	1778	1156
Arrive On Green	0.24	0.24	0.08	0.65	0.52	0.52
Sat Flow, veh/h	3401	1560	1739	3561	3503	1522
Grp Volume(v), veh/h	633	81	102	2123	1383	420
Grp Sat Flow(s),veh/h/ln	1700	1560	1739	1735	1706	1522
Q Serve(g_s), s	13.1	2.8	4.3	40.8	24.5	6.9
Cycle Q Clear(g_c), s	13.1	2.8	4.3	40.8	24.5	6.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	811	498	140	2272	1778	1156
V/C Ratio(X)	0.78	0.16	0.73	0.93	0.78	0.36
Avail Cap(c_a), veh/h	811	498	167	2313	1778	1156
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	18.3	33.7	11.5	14.5	3.0
Incr Delay (d2), s/veh	6.1	0.6	12.1	7.8	2.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	2.9	2.1	11.2	7.5	3.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.8	18.9	45.8	19.3	16.7	3.2
LnGrp LOS	C	B	D	B	B	A
Approach Vol, veh/h	714			2225	1803	
Approach Delay, s/veh	31.2			20.5	13.6	
Approach LOS	C			C	B	

Timer - Assigned Phs	2	4	7	8
Phs Duration (G+Y+Rc), s	21.9	53.1	10.1	43.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	16.5	49.5	6.7	38.3
Max Q Clear Time (g_c+I1), s	15.1	42.8	6.3	26.5
Green Ext Time (p_c), s	0.5	5.8	0.0	7.6

Intersection Summary	
HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary
2: S Redland Road & S Holcomb Boulevard

09/14/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	71	62	36	126	231	169	378	24	135	320	70
Future Volume (veh/h)	65	71	62	36	126	231	169	378	24	135	320	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	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	1722	1722	1722	1826	1826	1826	1870	1870	1870	1826	1826	1826
Adj Flow Rate, veh/h	72	79	15	40	140	24	188	420	24	150	356	0
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
Percent Heavy Veh, %	12	12	12	5	5	5	2	2	2	5	5	5
Cap, veh/h	109	185	35	85	209	175	247	764	44	202	755	640
Arrive On Green	0.07	0.13	0.12	0.05	0.11	0.11	0.14	0.44	0.43	0.12	0.41	0.00
Sat Flow, veh/h	1640	1400	266	1739	1826	1526	1781	1752	100	1739	1826	1547
Grp Volume(v), veh/h	72	0	94	40	140	24	188	0	444	150	356	0
Grp Sat Flow(s),veh/h/ln	1640	0	1666	1739	1826	1526	1781	0	1852	1739	1826	1547
Q Serve(g_s), s	2.6	0.0	3.1	1.3	4.4	0.8	6.1	0.0	10.7	5.0	8.5	0.0
Cycle Q Clear(g_c), s	2.6	0.0	3.1	1.3	4.4	0.8	6.1	0.0	10.7	5.0	8.5	0.0
Prop In Lane	1.00		0.16	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	109	0	220	85	209	175	247	0	807	202	755	640
V/C Ratio(X)	0.66	0.00	0.43	0.47	0.67	0.14	0.76	0.00	0.55	0.74	0.47	0.00
Avail Cap(c_a), veh/h	164	0	220	162	213	178	297	0	807	261	755	640
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	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.92	0.92	0.00
Uniform Delay (d), s/veh	27.3	0.0	24.0	27.8	25.5	23.9	24.9	0.0	12.6	25.6	12.8	0.0
Incr Delay (d2), s/veh	6.6	0.0	1.3	4.0	7.7	0.4	9.1	0.0	2.7	7.4	1.9	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	1.1	0.0	1.2	0.6	2.2	0.3	2.9	0.0	4.0	2.3	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	0.0	25.3	31.8	33.1	24.3	34.0	0.0	15.3	33.0	14.7	0.0
LnGrp LOS	C	A	C	C	C	C	C	A	B	C	B	A
Approach Vol, veh/h		166			204			632			506	
Approach Delay, s/veh		29.0			31.8			20.8			20.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	30.2	6.9	11.9	12.3	28.8	8.0	10.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	21.5	5.1	6.9	9.5	20.5	5.5	6.5
Max Q Clear Time (g_c+I1), s	7.0	12.7	3.3	5.1	8.1	10.5	4.6	6.4
Green Ext Time (p_c), s	0.1	1.6	0.0	0.1	0.1	1.3	0.0	0.0

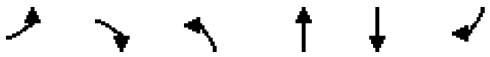
Intersection Summary	
HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary
1: OR-213 & S Redland Road

09/14/2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	492	167	152	1574	2426	823
Future Volume (veh/h)	492	167	152	1574	2426	823
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	507	168	157	1623	2501	835
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	524	383	160	2778	2340	1262
Arrive On Green	0.15	0.15	0.09	0.78	0.66	0.66
Sat Flow, veh/h	3456	1585	1781	3647	3647	1552
Grp Volume(v), veh/h	507	168	157	1623	2501	835
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1777	1777	1552
Q Serve(g_s), s	17.5	10.8	10.6	22.0	79.0	26.6
Cycle Q Clear(g_c), s	17.5	10.8	10.6	22.0	79.0	26.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	524	383	160	2778	2340	1262
V/C Ratio(X)	0.97	0.44	0.98	0.58	1.07	0.66
Avail Cap(c_a), veh/h	524	383	160	2778	2340	1262
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	38.6	54.5	5.3	20.5	4.7
Incr Delay (d2), s/veh	26.1	2.6	64.7	0.3	40.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	10.1	7.4	5.0	38.4	13.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	76.7	41.2	119.2	5.6	60.8	6.0
LnGrp LOS	E	D	F	A	F	A
Approach Vol, veh/h	675			1780	3336	
Approach Delay, s/veh	67.8			15.6	47.0	
Approach LOS	E			B	D	

Timer - Assigned Phs	2	4	7	8
Phs Duration (G+Y+Rc), s	22.2	97.8	14.8	83.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.7	93.3	10.3	78.5
Max Q Clear Time (g_c+I1), s	19.5	24.0	12.6	81.0
Green Ext Time (p_c), s	0.0	17.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	39.8
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary
2: S Redland Road & S Holcomb Boulevard

09/14/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	167	190	55	129	206	109	328	82	312	590	144
Future Volume (veh/h)	147	167	190	55	129	206	109	328	82	312	590	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	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	1870	1870	1870	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	153	174	153	57	134	22	114	342	76	325	615	50
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, %	2	2	2	1	1	1	3	3	3	1	1	1
Cap, veh/h	195	197	173	86	293	249	152	513	114	370	888	752
Arrive On Green	0.11	0.22	0.21	0.05	0.16	0.16	0.09	0.35	0.35	0.21	0.47	0.47
Sat Flow, veh/h	1781	907	797	1795	1885	1598	1767	1464	325	1795	1885	1598
Grp Volume(v), veh/h	153	0	327	57	134	22	114	0	418	325	615	50
Grp Sat Flow(s),veh/h/ln	1781	0	1704	1795	1885	1598	1767	0	1789	1795	1885	1598
Q Serve(g_s), s	7.5	0.0	16.7	2.8	5.8	1.1	5.7	0.0	17.8	15.8	23.1	1.5
Cycle Q Clear(g_c), s	7.5	0.0	16.7	2.8	5.8	1.1	5.7	0.0	17.8	15.8	23.1	1.5
Prop In Lane	1.00		0.47	1.00		1.00	1.00		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	195	0	371	86	293	249	152	0	628	370	888	752
V/C Ratio(X)	0.78	0.00	0.88	0.66	0.46	0.09	0.75	0.00	0.67	0.88	0.69	0.07
Avail Cap(c_a), veh/h	224	0	398	112	320	272	177	0	628	419	888	752
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	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.63	0.63	0.63
Uniform Delay (d), s/veh	39.0	0.0	34.2	42.1	34.5	32.5	40.2	0.0	24.8	34.6	18.7	13.0
Incr Delay (d2), s/veh	14.6	0.0	19.3	9.1	1.1	0.2	14.0	0.0	5.5	11.8	2.8	0.1
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	4.0	0.0	8.7	1.4	2.7	0.4	2.9	0.0	7.9	7.7	9.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.7	0.0	53.5	51.3	35.7	32.7	54.2	0.0	30.3	46.4	21.5	13.1
LnGrp LOS	D	A	D	D	D	C	D	A	C	D	C	B
Approach Vol, veh/h		480			213			532			990	
Approach Delay, s/veh		53.5			39.5			35.4			29.3	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.6	35.6	8.3	23.6	11.7	46.4	13.9	18.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	20.5	25.9	5.1	20.5	8.5	37.9	10.8	14.8
Max Q Clear Time (g_c+I1), s	17.8	19.8	4.8	18.7	7.7	25.1	9.5	7.8
Green Ext Time (p_c), s	0.3	1.2	0.0	0.3	0.0	3.2	0.0	0.4

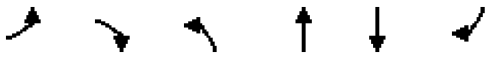
Intersection Summary	
HCM 6th Ctrl Delay	37.0
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary
1: OR-213 & S Redland Road

09/14/2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	602	97	94	1911	1245	429
Future Volume (veh/h)	602	97	94	1911	1245	429
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1826	1826	1796	1796
Adj Flow Rate, veh/h	669	92	104	2123	1383	431
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	4	5	5	7	7
Cap, veh/h	840	513	143	2242	1744	1154
Arrive On Green	0.25	0.25	0.08	0.65	0.51	0.51
Sat Flow, veh/h	3401	1560	1739	3561	3503	1522
Grp Volume(v), veh/h	669	92	104	2123	1383	431
Grp Sat Flow(s),veh/h/ln	1700	1560	1739	1735	1706	1522
Q Serve(g_s), s	13.8	3.2	4.4	41.8	25.0	7.2
Cycle Q Clear(g_c), s	13.8	3.2	4.4	41.8	25.0	7.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	840	513	143	2242	1744	1154
V/C Ratio(X)	0.80	0.18	0.73	0.95	0.79	0.37
Avail Cap(c_a), veh/h	840	513	169	2267	1744	1154
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	17.9	33.6	12.1	15.1	3.1
Incr Delay (d2), s/veh	6.3	0.6	12.2	9.3	2.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	3.3	2.2	12.1	7.8	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.8	18.6	45.8	21.4	17.7	3.3
LnGrp LOS	C	B	D	C	B	A
Approach Vol, veh/h	761			2227	1814	
Approach Delay, s/veh	31.0			22.5	14.3	
Approach LOS	C			C	B	

Timer - Assigned Phs	2	4	7	8
Phs Duration (G+Y+Rc), s	22.5	52.5	10.2	42.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	48.5	6.8	37.2
Max Q Clear Time (g_c+I1), s	15.8	43.8	6.4	27.0
Green Ext Time (p_c), s	0.6	4.2	0.0	6.9

Intersection Summary	
HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary
2: S Redland Road & S Holcomb Boulevard

09/14/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	78	62	39	146	270	169	378	25	147	320	70
Future Volume (veh/h)	65	78	62	39	146	270	169	378	25	147	320	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	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	1722	1722	1722	1826	1826	1826	1870	1870	1870	1826	1826	1826
Adj Flow Rate, veh/h	72	87	20	43	162	33	188	420	24	163	356	0
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
Percent Heavy Veh, %	12	12	12	5	5	5	2	2	2	5	5	5
Cap, veh/h	109	192	44	89	232	194	247	728	42	217	733	621
Arrive On Green	0.07	0.14	0.13	0.05	0.13	0.13	0.14	0.42	0.41	0.12	0.40	0.00
Sat Flow, veh/h	1640	1347	310	1739	1826	1526	1781	1752	100	1739	1826	1547
Grp Volume(v), veh/h	72	0	107	43	162	33	188	0	444	163	356	0
Grp Sat Flow(s),veh/h/ln	1640	0	1657	1739	1826	1526	1781	0	1852	1739	1826	1547
Q Serve(g_s), s	2.6	0.0	3.6	1.4	5.1	1.2	6.1	0.0	11.1	5.4	8.7	0.0
Cycle Q Clear(g_c), s	2.6	0.0	3.6	1.4	5.1	1.2	6.1	0.0	11.1	5.4	8.7	0.0
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.05	1.00		1.00
Lane Grp Cap(c), veh/h	109	0	236	89	232	194	247	0	769	217	733	621
V/C Ratio(X)	0.66	0.00	0.45	0.49	0.70	0.17	0.76	0.00	0.58	0.75	0.49	0.00
Avail Cap(c_a), veh/h	164	0	236	162	243	203	297	0	769	261	733	621
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	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.91	0.91	0.00
Uniform Delay (d), s/veh	27.3	0.0	23.6	27.7	25.1	23.4	24.9	0.0	13.5	25.4	13.4	0.0
Incr Delay (d2), s/veh	6.6	0.0	1.4	4.1	8.1	0.4	9.1	0.0	3.1	8.7	2.1	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	1.1	0.0	1.4	0.7	2.6	0.4	2.9	0.0	4.3	2.5	3.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.0	0.0	25.0	31.8	33.2	23.8	34.0	0.0	16.6	34.1	15.4	0.0
LnGrp LOS	C	A	C	C	C	C	C	A	B	C	B	A
Approach Vol, veh/h		179			238			632			519	
Approach Delay, s/veh		28.6			31.6			21.8			21.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	28.9	7.1	12.5	12.3	28.1	8.0	11.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	8.5	20.5	5.1	7.9	9.5	19.5	5.5	7.5
Max Q Clear Time (g_c+I1), s	7.4	13.1	3.4	5.6	8.1	10.7	4.6	7.1
Green Ext Time (p_c), s	0.0	1.5	0.0	0.1	0.1	1.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	23.9
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary
1: OR-213 & S Redland Road

09/14/2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	513	171	159	1574	2426	859
Future Volume (veh/h)	513	171	159	1574	2426	859
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	529	173	164	1623	2501	873
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	547	396	163	2754	2310	1259
Arrive On Green	0.16	0.16	0.09	0.77	0.65	0.65
Sat Flow, veh/h	3456	1585	1781	3647	3647	1552
Grp Volume(v), veh/h	529	173	164	1623	2501	873
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1777	1777	1552
Q Serve(g_s), s	18.3	11.0	11.0	22.7	78.0	29.6
Cycle Q Clear(g_c), s	18.3	11.0	11.0	22.7	78.0	29.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	547	396	163	2754	2310	1259
V/C Ratio(X)	0.97	0.44	1.00	0.59	1.08	0.69
Avail Cap(c_a), veh/h	547	396	163	2754	2310	1259
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.2	37.9	54.5	5.6	21.0	5.0
Incr Delay (d2), s/veh	24.4	2.3	71.6	0.3	45.6	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	10.3	8.0	5.3	39.9	15.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	74.6	40.2	126.1	5.9	66.6	6.7
LnGrp LOS	E	D	F	A	F	A
Approach Vol, veh/h	702			1787	3374	
Approach Delay, s/veh	66.1			17.0	51.1	
Approach LOS	E			B	D	

Timer - Assigned Phs	2	4	7	8
Phs Duration (G+Y+Rc), s	23.0	97.0	15.0	82.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	92.5	10.5	77.5
Max Q Clear Time (g_c+I1), s	20.3	24.7	13.0	80.0
Green Ext Time (p_c), s	0.0	17.4	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	42.5
HCM 6th LOS	D

Notes

User approved changes to right turn type.

HCM 6th Signalized Intersection Summary
2: S Redland Road & S Holcomb Boulevard

09/14/2021



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	189	190	57	143	231	109	328	85	355	590	144
Future Volume (veh/h)	147	189	190	57	143	231	109	328	85	355	590	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	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	1870	1870	1870	1885	1885	1885	1856	1856	1856	1885	1885	1885
Adj Flow Rate, veh/h	153	197	158	59	149	41	114	342	79	370	615	53
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, %	2	2	2	1	1	1	3	3	3	1	1	1
Cap, veh/h	195	211	169	87	303	257	152	467	108	413	878	744
Arrive On Green	0.11	0.22	0.22	0.05	0.16	0.16	0.09	0.32	0.32	0.23	0.47	0.47
Sat Flow, veh/h	1781	950	762	1795	1885	1598	1767	1451	335	1795	1885	1598
Grp Volume(v), veh/h	153	0	355	59	149	41	114	0	421	370	615	53
Grp Sat Flow(s),veh/h/ln	1781	0	1712	1795	1885	1598	1767	0	1787	1795	1885	1598
Q Serve(g_s), s	7.5	0.0	18.3	2.9	6.5	2.0	5.7	0.0	18.8	18.0	23.3	1.7
Cycle Q Clear(g_c), s	7.5	0.0	18.3	2.9	6.5	2.0	5.7	0.0	18.8	18.0	23.3	1.7
Prop In Lane	1.00		0.45	1.00		1.00	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	195	0	380	87	303	257	152	0	575	413	878	744
V/C Ratio(X)	0.78	0.00	0.93	0.68	0.49	0.16	0.75	0.00	0.73	0.90	0.70	0.07
Avail Cap(c_a), veh/h	224	0	380	112	303	257	167	0	575	439	878	744
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	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.59	0.59	0.59
Uniform Delay (d), s/veh	39.0	0.0	34.5	42.1	34.4	32.5	40.2	0.0	27.1	33.6	19.1	13.3
Incr Delay (d2), s/veh	14.6	0.0	29.8	10.6	1.2	0.3	15.7	0.0	8.0	13.1	2.8	0.1
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	4.0	0.0	10.5	1.5	3.0	0.8	3.0	0.0	8.7	8.8	9.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.7	0.0	64.2	52.7	35.6	32.8	55.9	0.0	35.2	46.7	21.8	13.4
LnGrp LOS	D	A	E	D	D	C	E	A	D	D	C	B
Approach Vol, veh/h		508			249			535			1038	
Approach Delay, s/veh		61.0			39.2			39.6			30.3	
Approach LOS		E			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.7	33.0	8.4	24.0	11.7	45.9	13.9	18.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	21.5	25.9	5.1	19.5	8.0	39.4	10.8	13.8
Max Q Clear Time (g_c+I1), s	20.0	20.8	4.9	20.3	7.7	25.3	9.5	8.5
Green Ext Time (p_c), s	0.2	1.1	0.0	0.0	0.0	3.3	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	40.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary
1: OR-213 & S Redland Road

09/15/2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	475	169	145	1515	2245	733
Future Volume (veh/h)	475	169	145	1515	2245	733
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	500	173	153	1595	2363	756
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	547	396	163	2754	2310	1259
Arrive On Green	0.16	0.16	0.09	0.77	0.65	0.65
Sat Flow, veh/h	3456	1585	1781	3647	3647	1552
Grp Volume(v), veh/h	500	173	153	1595	2363	756
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1777	1777	1552
Q Serve(g_s), s	17.1	11.0	10.2	22.0	78.0	21.9
Cycle Q Clear(g_c), s	17.1	11.0	10.2	22.0	78.0	21.9
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	547	396	163	2754	2310	1259
V/C Ratio(X)	0.91	0.44	0.94	0.58	1.02	0.60
Avail Cap(c_a), veh/h	547	396	163	2754	2310	1259
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	37.9	54.2	5.5	21.0	4.3
Incr Delay (d2), s/veh	17.2	2.5	52.1	0.3	24.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	10.4	6.8	5.1	33.2	11.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	66.9	40.4	106.2	5.8	45.8	5.1
LnGrp LOS	E	D	F	A	F	A
Approach Vol, veh/h	673			1748	3119	
Approach Delay, s/veh	60.0			14.6	35.9	
Approach LOS	E			B	D	

Timer - Assigned Phs	2	4	7	8
Phs Duration (G+Y+Rc), s	23.0	97.0	15.0	82.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	18.5	92.5	10.5	77.5
Max Q Clear Time (g_c+I1), s	19.1	24.0	12.2	80.0
Green Ext Time (p_c), s	0.0	16.8	0.0	0.0

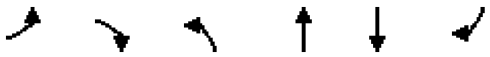
Intersection Summary	
HCM 6th Ctrl Delay	32.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary
1: OR-213 & S Redland Road

09/15/2021



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	495	173	152	1515	2245	767
Future Volume (veh/h)	495	173	152	1515	2245	767
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	521	177	160	1595	2363	792
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	570	409	166	2730	2280	1257
Arrive On Green	0.16	0.16	0.09	0.77	0.64	0.64
Sat Flow, veh/h	3456	1585	1781	3647	3647	1552
Grp Volume(v), veh/h	521	177	160	1595	2363	792
Grp Sat Flow(s),veh/h/ln	1728	1585	1781	1777	1777	1552
Q Serve(g_s), s	17.8	11.2	10.7	22.6	77.0	24.2
Cycle Q Clear(g_c), s	17.8	11.2	10.7	22.6	77.0	24.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	570	409	166	2730	2280	1257
V/C Ratio(X)	0.91	0.43	0.96	0.58	1.04	0.63
Avail Cap(c_a), veh/h	570	409	166	2730	2280	1257
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.3	37.2	54.2	5.8	21.5	4.6
Incr Delay (d2), s/veh	15.9	2.2	58.5	0.3	29.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	10.5	7.3	5.5	34.4	13.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	65.2	39.4	112.7	6.2	50.5	5.6
LnGrp LOS	E	D	F	A	F	A
Approach Vol, veh/h	698			1755	3155	
Approach Delay, s/veh	58.6			15.9	39.2	
Approach LOS	E			B	D	

Timer - Assigned Phs	2	4	7	8
Phs Duration (G+Y+Rc), s	23.8	96.2	15.2	81.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.3	91.7	10.7	76.5
Max Q Clear Time (g_c+I1), s	19.8	24.6	12.7	79.0
Green Ext Time (p_c), s	0.0	16.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	34.3
HCM 6th LOS	C

Notes

User approved changes to right turn type.

S Redland Road at OR-213 (1st Hour)

Right Turns on Red
APM Section 13.4.2: RTOR
Equation: vRTOR=sRTOR*(r/C)

AM Peak Hour												
	sRTOR				r				C	vRTOR			
	EBR	WBR	NBR	SBR	EBR	WBR	NBR	SBR		EBR	WBR	NBR	SBR
2021 Existing Conditions	33			293	31.7			10.7	75	14			42
2025 Background Conditions	29			274	42.8			11.2	75	17			41
2025 Buildout conditions	26			271	41.7			11.3	75	14			41

Intersection v/c
APM Section 13.4.4: Critical Intersection v/c ratio
Method: Determine Critical Movements in HCM 2000 reports
HCM 6th reports, detemine adjusted and sat flow rates
Adjust Flow/Sat Flow
Sum up Crit Movement Flow Rates
Xc of intersection = sum(crit.move. Flow rates*(C/(C-L))

AM Peak Hour													
		Adjust Flow		Saturated Flow			Adj/Sat Flows						
	Critcial Movement	EBL	NBT	EBL	NBT	EBL	NBT	0	Sum	C	L	Xc
2021 Existing Conditions		609	2087	3401	3561	0.179065	0.586071		0.765136	75	12	0.911
2025 Background Conditions	EBL NBT	633	2123	3401	3561	0.186122	0.596181		0.782303	75	12	0.931
2025 Buildout conditions		669	2123	3401	3561	0.196707	0.596181		0.792888	75	12	0.944

S Redland Road at S Holcomb Boulevard/Abernethy Road

Right Turns on Red
APM Section 13.4.2: RTOR
Equation: vRTOR=sRTOR*(r/C)

AM Peak Hour													
	sRTOR				r				C	vRTOR			
	EBR	WBR	NBR	SBR	EBR	WBR	NBR	SBR		EBR	WBR	NBR	SBR
2021 Existing Conditions	58	248	6	191	47.1	47	35.5	36.5	60	46	194	4	116
2025 Background Conditions	60	257	6	191	48.6	49	34	35	60	49	210	3	111
2025 Buildout conditions	55	300	6	191	47.6	48	35	36	60	44	240	4	115

Intersection v/c
APM Section 13.4.4: Critical Intersection v/c ratio
Method: Determine Critical Movements in HCM 2000 reports
HCM 6th reports, detemine adjusted and sat flow rates
Adjust Flow/Sat Flow
Sum up Crit Movement Flow Rates
Xc of intersection = sum(crit.move. Flow rates*(C/(C-L))

AM Peak Hour																			
	Critcial Movement				Adjust Flow				Saturated Flow				Adj/Sat Flows					C	L	Xc
					EBL	WBT	NBTR	SBL	EBL	WBT	NBTR	SBL	EBL	WBT	NBTR	SBL	Sum			
2021 Existing Conditions					41	127	428	143	1640	1826	1853	1739	0.025	0.069551	0.230977	0.082231	0.407759	60	16	0.556
2025 Background Conditions	EBL	WBT	NBTR	SBL	72	140	444	150	1640	1826	1852	1739	0.043902	0.07667	0.239741	0.086256	0.44657	60	16	0.609
2025 Buildout conditions					72	162	444	163	1640	1826	1852	1739	0.043902	0.088719	0.239741	0.093732	0.466094	60	16	0.636

S Redland Road at OR-213 (1st Hour)

Right Turns on Red
APM Section 13.4.2: RTOR
Equation: vRTOR=sRTOR*(r/C)

PM Peak Hour													
	sRTOR				r				C	vRTOR			
	EBR	WBR	NBR	SBR	EBR	WBR	NBR	SBR		EBR	WBR	NBR	SBR
2021 Existing Conditions	7			118	85			13.5	120	5			13
2025 Background Conditions	6			108	83			14.8	120	4			13
2025 Buildout conditions	5			101	82			15	120	3			13

Intersection v/c
APM Section 13.4.4: Critical Intersection v/c ratio
Method: Determine Critical Movements in HCM 2000 reports
HCM 6th reports, detemine adjusted and sat flow rates
Adjust Flow/Sat Flow
Sum up Crit Movement Flow Rates
Xc of intersection = sum(crit.move. Flow rates*(C/(C-L))

PM Peak Hour																
	Critcial Movement			Adjust Flow			Saturated Flow			Adj/Sat Flows				C	L	Xc
				EBL	NBL	SBT	EBL	NBL	SBT	EBL	NBL	SBT	Sum			
2021 Existing Conditions				448	133	2451	3456	1781	3647	0.12963	0.074677	0.672059	0.876366	120	12	0.974
2025 Background Conditions	EBL	NBL	SBT	507	157	2501	3456	1781	3647	0.146701	0.088153	0.685769	0.920623	120	12	1.023
2025 Buildout conditions				529	164	2501	3456	1781	3647	0.153067	0.092083	0.685769	0.930919	120	12	1.034

S Redland Road at S Holcomb Boulevard/Abernethy Road

Right Turns on Red
APM Section 13.4.2: RTOR
Equation: vRTOR=sRTOR*(r/C)

PM Peak Hour													
	sRTOR				r				C	vRTOR			
	EBR	WBR	NBR	SBR	EBR	WBR	NBR	SBR		EBR	WBR	NBR	SBR
2021 Existing Conditions	56	215	14	127	67	70.1	57.6	43.6	90	42	167	9	62
2025 Background Conditions	59	236	14	182	65	70.7	59.6	47.6	90	43	185	9	96
2025 Buildout conditions	52	241	15	182	66	71.7	59.6	46.1	90	38	192	10	93

Intersection v/c
APM Section 13.4.4: Critical Intersection v/c ratio
Method: Determine Critical Movements in HCM 2000 reports
HCM 6th reports, detemine adjusted and sat flow rates
Adjust Flow/Sat Flow
Sum up Crit Movement Flow Rates
Xc of intersection = sum(crit.move. Flow rates*(C/(C-L))

PM Peak Hour																			
	Critcial Movement				Adjust Flow				Saturated Flow				Adj/Sat Flows					C	L	Xc
					EBTR	WBL	NBTR	SBL	EBTR	WBL	NBTR	SBL	EBTR	WBL	NBTR	SBL	Sum			
2021 Existing Conditions					289	55	412	310	1708	1795	1791	1795	0.169204	0.030641	0.230039	0.172702	0.602585	90	16	0.733
2025 Background Conditions	EBTR	WBL	NBTR	SBL	327	57	418	325	1704	1795	1789	1795	0.191901	0.031755	0.23365	0.181058	0.638365	90	16	0.776
2025 Buildout conditions					355	59	421	370	1712	1795	1786	1795	0.20736	0.032869	0.235722	0.206128	0.682079	90	16	0.830

S Redland Road at OR-213 (2nd Hour)

Right Turns on Red
APM Section 13.4.2: RTOR
Equation: vRTOR=sRTOR*(r/C)

PM Peak Hour													
	sRTOR				r				C	vRTOR			
	EBR	WBR	NBR	SBR	EBR	WBR	NBR	SBR		EBR	WBR	NBR	SBR
2021 Existing Conditions	-			-	-			-	120	#VALUE!			#VALUE!
2025 Background Conditions	7			120	82			15	120	5			15
2025 Buildout conditions	7			113	81			15.2	120	5			14

Intersection v/c
APM Section 13.4.4: Critical Intersection v/c ratio
Method: Determine Critical Movements in HCM 2000 reports
HCM 6th reports, detemine adjusted and sat flow rates
Adjust Flow/Sat Flow
Sum up Crit Movement Flow Rates
Xc of intersection = sum(crit.move. Flow rates*(C/(C-L))

PM Peak Hour																		
	Critcial Movement			Adjust Flow			Saturated Flow			Adj/Sat Flows				C	L	Xc
				EBL	NBL	SBT	EBL	NBL	SBT	EBL	NBL	SBT	Sum			
2021 Existing Conditions				-	-	-	-	-	-	#VALUE!	#VALUE!	#VALUE!	#VALUE!	120	12	#VALUE!
2025 Background Conditions	EBL	NBL	SBT	500	153	2363	3456	1781	3647	0.144676	0.085907	0.64793	0.878513	120	12	0.976
2025 Buildout conditions				521	160	2363	3456	1781	3647	0.150752	0.089837	0.64793	0.888519	120	12	0.987

Queuing and Blocking Report
2021 Existing Conditions - AM Peak Hour

09/15/2021

Intersection: 1: OR-213 & S Redland Road

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	R
Maximum Queue (ft)	217	231	82	127	337	320	256	256	93
Average Queue (ft)	122	133	21	58	161	138	144	129	36
95th Queue (ft)	191	205	55	108	277	259	223	220	72
Link Distance (ft)	792	792	792	1340	1340	1340	1986	1986	1986
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 2: S Redland Road & S Holcomb Boulevard

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	78	126	61	123	103	160	233	138	172	44
Average Queue (ft)	28	52	16	52	52	73	112	60	85	10
95th Queue (ft)	63	100	44	101	87	127	198	113	150	29
Link Distance (ft)	862	862	952	952	952	699	699	792	792	792
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report
2021 Existing Conditions - PM Peak Hour

09/15/2021

Intersection: 1: OR-213 & S Redland Road

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	R
Maximum Queue (ft)	312	327	196	280	152	153	1764	1772	1544
Average Queue (ft)	194	207	87	145	83	82	1106	1123	500
95th Queue (ft)	313	324	157	279	134	138	2112	2132	1618
Link Distance (ft)	789	789	789	2561	2561	2561	4882	4882	4882
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 2: S Redland Road & S Holcomb Boulevard

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	102	290	96	139	94	128	320	285	332	43
Average Queue (ft)	41	152	30	54	46	57	180	161	181	12
95th Queue (ft)	86	257	72	106	75	107	288	252	303	30
Link Distance (ft)	2329	2329	999	999	999	1852	1852	789	789	789
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report
2025 Background Conditions - AM Peak Hour

09/15/2021

Intersection: 1: OR-213 & S Redland Road

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	R
Maximum Queue (ft)	231	251	77	153	344	330	253	237	100
Average Queue (ft)	127	141	22	64	167	146	145	124	41
95th Queue (ft)	204	220	57	123	286	274	223	210	81
Link Distance (ft)	794	794	794	1341	1341	1341	1680	1680	1680
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 2: S Redland Road & S Holcomb Boulevard

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	114	143	67	129	110	181	226	155	206	55
Average Queue (ft)	44	54	19	58	52	84	115	68	101	17
95th Queue (ft)	89	106	50	109	87	146	192	126	173	41
Link Distance (ft)	866	866	946	946	946	700	700	794	794	794
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report
2025 Background Conditions - PM Peak Hour

09/15/2021

Intersection: 1: OR-213 & S Redland Road

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	R
Maximum Queue (ft)	440	449	214	340	159	155	3663	3674	3513
Average Queue (ft)	273	286	88	190	87	83	2437	2462	1888
95th Queue (ft)	498	510	186	371	138	142	4134	4148	3966
Link Distance (ft)	797	797	797	2401	2401	2401	6524	6524	6524
Upstream Blk Time (%)		0	0						
Queuing Penalty (veh)		0	0						
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 2: S Redland Road & S Holcomb Boulevard

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	193	334	91	156	101	157	371	316	389	73
Average Queue (ft)	94	174	35	71	49	78	196	171	209	28
95th Queue (ft)	162	300	76	132	83	135	317	274	347	56
Link Distance (ft)	2351	2351	1069	1069	1069	1704	1704	797	797	797
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report
2025 Buildout Conditions - AM Peak Hour

09/15/2021

Intersection: 1: OR-213 & S Redland Road

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	R
Maximum Queue (ft)	229	244	80	136	410	393	265	256	107
Average Queue (ft)	130	145	25	62	193	170	155	139	41
95th Queue (ft)	203	215	62	117	346	331	235	228	85
Link Distance (ft)	792	792	792	1317	1317	1317	2004	2004	2004
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 2: S Redland Road & S Holcomb Boulevard

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	115	148	69	156	113	195	278	160	209	56
Average Queue (ft)	44	59	19	66	57	85	127	72	104	15
95th Queue (ft)	89	118	50	124	94	158	222	133	179	38
Link Distance (ft)	858	858	930	930	930	684	684	792	792	792
Upstream Blk Time (%)							0			
Queuing Penalty (veh)							0			
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Network Summary

Network wide Queuing Penalty: 0

Queuing and Blocking Report
2025 Buildout Conditions - PM Peak Hour

09/15/2021

Intersection: 1: OR-213 & S Redland Road

Movement	EB	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	R	L	T	T	T	T	R
Maximum Queue (ft)	442	447	223	387	164	174	3649	3788	3596
Average Queue (ft)	286	297	92	224	96	89	2339	2364	1919
95th Queue (ft)	481	488	179	419	148	152	4009	4037	4049
Link Distance (ft)	793	793	793	2211	2211	2211	4546	4546	4546
Upstream Blk Time (%)		0					1	2	2
Queuing Penalty (veh)		0					0	0	0
Storage Bay Dist (ft)									
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 2: S Redland Road & S Holcomb Boulevard

Movement	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	TR	L	T	R
Maximum Queue (ft)	192	432	98	171	110	172	386	375	367	67
Average Queue (ft)	98	218	32	76	53	84	205	204	193	25
95th Queue (ft)	170	405	75	140	88	146	336	334	323	53
Link Distance (ft)	1808	1808	998	998	998	1597	1597	793	793	793
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)										
Storage Blk Time (%)										
Queuing Penalty (veh)										

Network Summary

Network wide Queuing Penalty: 0

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321 SW 4th Ave., Suite 400
Portland, OR 97204
503.248.0313
lancastermobley.com

Memorandum

To: Harlan Borow
ICON Construction & Development, LLC

From: Daniel Stumpf, PE
Todd Mobley, PE

Date: May 19, 2021

Subject: Serres Farms Master Plan
Transportation Impact Study



Introduction

This memorandum evaluates the transportation impacts related to the proposed Serres Farms Master Plan, located north of S Holcomb Boulevard, east of Holcomb School Road, and west of S Winston Drive in Oregon City, Oregon. The project will include the construction of 123 single-family detached houses over two phases of development. Public access to the site will be provided via a proposed street along S Holcomb Boulevard and S Barlow Drive at S Holcomb Boulevard, while a temporary emergency access will be available along S Holcomb Boulevard near the west edge of the site. Following completion of Phase 2, the temporary emergency access will be removed, and additional public access provided by way of Trail Drive and S Barlow Drive.

Based on correspondence with Oregon City's transportation consultant, the transportation study includes an analysis of the following:

- An estimate of site trip generation and distribution.
- Tracking of trip impacts at intersections determined as requiring mitigation per the previously prepared *Park Place Annexation Transportation Impact Study* (TIS).
- A review of crash history, sight distances, turn lane warrants, and access spacing standards at proposed access locations, inclusive of the proposed emergency access along S Holcomb Boulevard which will be removed once Phase 2 is complete.
- Review sight distances at the planned mid-block pedestrian crossing across S Holcomb Boulevard, near the west edge of the site.
- A review of average daily trip (ADT) impacts on existing local streets.
- A review capacity/operation at site access intersections along S Holcomb Boulevard, inclusive of the existing S Barlow Drive intersection.

The purpose of this memorandum is to examine transportation-related impacts from the proposed development to the surrounding transportation system and recommend mitigative measures as needed. Detailed information on traffic counts, trip generation calculations, safety analyses, and level of service calculations are included in the appendix to this report.

Location Description

Project Site Description

The project site is located north of S Holcomb Boulevard, east of Holcomb School Road, and west of S Winston Drive in Oregon City, Oregon. The site consists of six tax lots which encompass an approximate total of 34.78± acres and is currently undeveloped. Public access to the site will be provided via a proposed street along S Holcomb Boulevard and S Barlow Drive at S Holcomb Boulevard. Alternative access is available by way of S Winston Drive, Jada Way, and Kitty Hawk Avenue; however, these routes provide less direct access to S Holcomb Boulevard relative to S Barlow Drive and subsequently are not expected to serve significant volumes of site trips. A temporary emergency access will be available along S Holcomb Boulevard near the west edge of the site but will be removed following completion of Phase 2.

Figure 1 presents an aerial image of the nearby vicinity with the project site outlined in yellow.

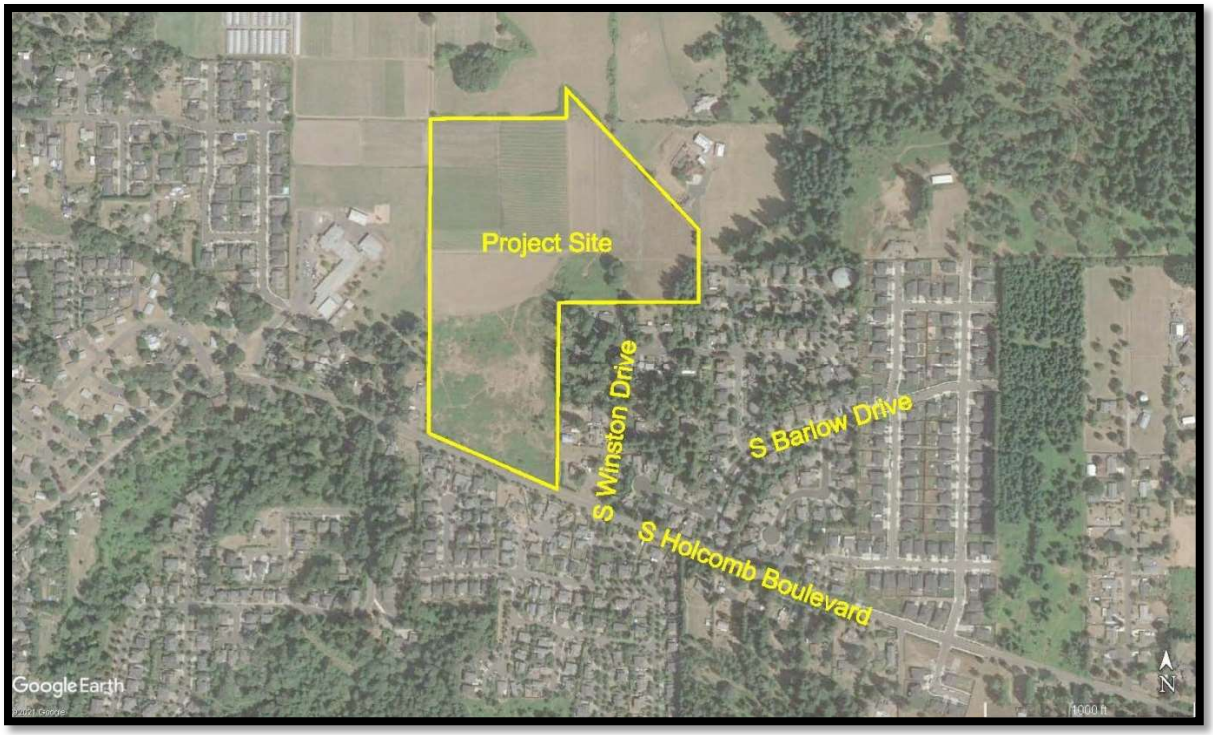


Figure 1: Aerial Photo of Site Vicinity (Image from Google Earth)

Vicinity Roadways

The proposed project may impact the nearby roadways of S Holcomb Boulevard, S Barlow Drive, and Trail Drive. Table 1 provides a description of these vicinity roadways.

Table 1: Vicinity Roadway Descriptions

Street Name	Jurisdiction	Functional Classification	Speed (MPH)	Curbs & Sidewalks	On-Street Parking	Bicycle Lanes
S Holcomb Boulevard	Oregon City	Minor Arterial	35	Partial Both Sides	Partially Permitted	Partial Both Sides
S Barlow Drive	Oregon City	Local Street	25	Both Sides	Permitted	None
Trail Drive	Oregon City	Local Street	25	Both Sides	Permitted	None

Table Notes: Functional Classification and Jurisdiction based on Oregon City's Transportation System Plan.

Study Intersections

Based on coordination with Oregon City's transportation consultant, analysis of site access intersections is required. There is one intersection which currently exists, a description of which is summarized in Table 2.

Table 2: Study Intersection Descriptions

Number	Intersection	Geometry	Traffic Control	Phasing/Stopped Approaches
2	S Barlow Drive at S Holcomb Boulevard	Three-Legged	Stop-Controlled	SB Stop-Controlled Approach

A vicinity map showing the project site, vicinity streets, and study intersections under their existing configurations is shown in Figure 4.

Site Trips

Trip Generation

The proposed Park Place Master Plan project will include the construction of 123 single-family detached houses over two phases of development. To estimate the number of trips that will be generated by the proposed use, trip equations from the *Trip Generation Manual*[1] were used. Specifically, data from land use code 210, *Single-Family Detached Housing*, was used to estimate site trip generation based on the number of dwelling units.

The trip generation calculations show that the proposed development is projected to generate 92 morning peak hour trips, 124 evening peak hour trips, and 1,258 average weekday trips. The trip generation estimates are summarized in Table 3. Detailed trip generation calculations are included as an attachment to this memorandum.

Table 3: Trip Generation Summary

	ITE Code	Variable	Morning Peak Hour			Evening Peak Hour			Weekday Total
			Enter	Exit	Total	Enter	Exit	Total	
Phase 1									
Single-Family Houses	210	67 units	13	39	52	43	26	69	720
Cumulative Trip Generation		67 units	13	39	52	43	26	69	720
Phase 2									
Single-Family Houses	210	56 units	10	30	40	35	20	55	538
Cumulative Trip Generation		123 units	23	69	92	78	46	124	1,258

[1] Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 10th Edition, 2017.

Trip Distribution

The directional distribution of site trips to and from the proposed development was referenced and generally based on the distribution utilized in the *Park Place Annexation TIS* and succeeding addendum. The trip distribution in the TIS was estimated based on locations of likely trip destinations, locations of major transportation facilities in the site vicinity, and existing travel patterns at studied intersections. The following trip distribution is projected:

- Approximately 25 percent of site trips will travel to/from the northeast along I-205;
- Approximately 18 percent of site trips will travel to/from the east along S Holcomb Boulevard;
- Approximately 15 percent of site trips will travel to/from the southwest along I-205;
- Approximately 13 percent of site trips will travel to/from the southwest along Washington Street;
- Approximately 8 percent of site trips will travel to/from the north along OR-99E;
- Approximately 4 percent of site trips will travel to/from the south along OR-213;
- Approximately 3 percent of site trips will travel to/from the southwest along Main Street;
- Approximately 3 percent of site trips will travel to/from the southwest along S Anchor Way;
- Approximately 3 percent of site trips will travel to/from the west along Beavercreek Road;
- Approximately 1 percent of site trips will travel to/from the southwest along OR-99E;
- Approximately 1 percent of site trips will travel to/from the south along S Holly Lane;
- Approximately 1 percent of site trips will travel to/from the east along Beavercreek Road; and
- Approximately 5 percent of site trips will travel to/from locales within the immediate vicinity, including surrounding residential areas, Holcomb Elementary School, and other land-uses.

The trip distribution for site trips generated at studied intersections identified for mitigation in the *Park Place Annexation TIS* are shown in Figure 2. The trip assignment for site trips generated during the morning and evening peak hours at the site access intersections are shown in Figure 3.

No Scale

SITE TRIP DISTRIBUTION

Inbound and Outbound Percentage Impacts

AM & PM Peak Hours

Figure 2

Serres Farm Master Plan

5/19/2021

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SITE TRIP ASSIGNMENT

Proposed Development Plan - Site Trips

AM & PM Peak Hours

Figure 3

Serres Farm Master Plan

5/19/2021

Off-Site Trip Impacts

Per the Park Place Master Plan's draft pre-application meeting notes, dated April 7, 2020, Oregon City staff have identified eight improvement projects where proportionate share impact fees are being collected. No specific methodology was outlined in the pre-application notes which identified how these fees were calculated; therefore, evening peak trip impacts at these transportation facilities were reported on a per development phase basis. Table 4 summarizes these evening peak hour trip impacts.

Table 4: Trip Impact Analysis

Transportation Facility		Project Description	TSP Project	% Impact	Trip Impacts (PM Trips)		
					Phase 1	Phase 2	Total
-	14th Street and 15th Street (between OR-99E & John Adams Street)	Restripe 14th & 15th Street	D7, D8	12%	8	7	15
A	S Redland Road at Holly Lane	Install Roundabout	D36	1%	1	1	2
B	S Holcomb Boulevard at S Holly Lane	Install Roundabout	D43	18%	12	10	22
C	I-205 SB Ramps at OR-99E	Intersection Improvements	D75	8%	6	4	10
D	I-205 NB Ramps at OR-99E	Intersection Improvements	D76	8%	6	4	10
-	OR-213 (near the S Redland Road Undercrossing)	Add/extend travel lanes on OR-213	D79	8%	6	4	10
E	S Holcomb Boulevard at S Redland Road	Intersection Improvements	N/A	77%	53	42	95
F	OR-213 at Beavercreek Road	Intersection Improvements	N/A	8%	6	4	10

Traffic Volumes

2021 Existing Conditions

Due to the ongoing COVID-19 viral pandemic, traffic volumes around Oregon have been depressed relative to normal conditions. A review of available traffic count data yielded 24-hour traffic counts along S Holcomb Boulevard east of S Barlow Drive from November 2, 2017. Given these available counts, the following methodology for data collection and volume adjustment was utilized:

- The historical traffic counts from 2017 were grown to reflect 2021 existing conditions by applying a two percent per year compounded growth rate over a four-year period.
- Since recent/historical traffic counts are not available at the study intersections, current year 2021 morning and evening peak hour counts were collected. These counts were collected on Thursday, April 15, 2021, from 7:00 AM to 9:00 AM and from 4:00 PM to 6:00 PM. Additionally, 24-hour roadway volumes along S Barlow Drive, just north of S Holcomb Boulevard, and peak period intersection counts at S Winston Drive at S Holcomb Boulevard were collected on the same day.
- The 2017 historical count data (grown to reflect 2021 conditions) were compared to the traffic volumes at the intersection of S Barlow Drive at S Holcomb Boulevard, specifically traffic traveling to/from the east of the intersection. Based on the difference in the morning and evening peak period volumes, the following adjustment factors were calculated:
    - Morning Peak Hour: 1.20.
    - Evening Peak Hour: No reduction in volumes determined.
    - Average Daily Traffic: 1.10 (assumed as the average between the morning and evening peak hour adjustment factors).

  These adjustment factors are intended to estimate normal traffic conditions without impacts from the COVID-19 virus (i.e. normal commuter patterns, businesses open, etc).
- The calculated adjustment factors were applied to the traffic counts at all study intersections (plus S Winston Drive at S Holcomb Boulevard) and roadways where 2021 count data was collected.
- Traffic volumes along S Holcomb Boulevard at the site access intersection were determined via volume balancing with the adjusted counts at the intersection of S Winston Drive at S Holcomb Boulevard.

Data was used from each study intersection's respective morning and evening peak hours.

2025 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. It is anticipated that the entire development (Phases 1 and 2) could be constructed by year 2025. In order to approximate future year 2025 traffic volumes at the study intersections, a compounded growth rate of two percent per year for an assumed buildout condition of four years was applied to the measured 2021 existing traffic volumes.

In addition to the traffic growth described above, the nearby Park Place Master Plan project will be developing at a similar time as the proposed project. This in-process development is currently not contributing trips to the transportation system but may potentially be by the assumed 2025 buildout year of the proposed development. Additional trips corresponding to the in-process development, specifically Phase 1, Phase 2, and 50 percent of

Phase 3 of the in-process development, were added to the 2021 existing year traffic volumes in addition to the four years of traffic growth at each of the applicable study intersections.

2025 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 2025 background traffic volumes to obtain the expected 2025 site buildout volumes.

2030 Future Conditions

An additional analysis scenario was prepared to determine operation of the study intersections following full buildout of the nearby in-process Park Place Master Plan project, anticipated to occur by 2030. To estimate future 2030 traffic volumes at the study intersections, a compounded growth rate of two percent per year over nine years was applied to the measured 2021 existing traffic volumes. In-process development trips associated with the Park Place Master Plan project were added to these grown volumes in addition to proposed development trips from the Serres Farm Master Plan project.

Following redevelopment of properties south of S Holcomb Boulevard and near S Barlow Drive (tax lots 800 and 1600), the S Holly Lane extension project may potentially be constructed at a location opposite of S Barlow Drive. The future connection will serve trips associated with the Park Place Master Plan project. Therefore, a second alternative scenario with this connection was evaluated and an estimate of traffic volumes under this scenario was determined for future 2030 conditions.

Figure 4 shows the morning and evening peak hour traffic volumes at the site access intersections under year 2021 existing conditions, 2025 background conditions, 2025 buildout conditions, and 2030 future conditions.

TRAFFIC VOLUMES

Year 2021 Existing, 2025 Background, 2025 Buildout, and 2030 Future Conditions

AM & PM Peak Hours

Figure 4

Serres Farm Master Plan

5/19/2021

Safety Analysis

Crash History

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 intersection of S Barlow Drive at S Holcomb Boulevard (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.

Following a review of the available crash data, no crashes were reported to have occurred at the intersection during the analysis period. Accordingly, no significant trends or crash patterns were identified at the study intersection that are indicative of safety concerns whereby no safety mitigation is recommended per the crash data analysis.

Sight Distance

Sight distances were measured at the proposed public and temporary emergency access locations along S Holcomb Boulevard and evaluated in accordance with the standards established in *A Policy of Geometric Design of Highways and Streets*[2]. According to AASHTO, the driver's eye is assumed to be 15 feet from the near edge of the nearest travel lane of the intersecting street and at a height of 3.5 feet above the minor-street approach pavement. The vehicle driver's eye height along the major-street approach is assumed to be 3.5 feet above the cross-street pavement.

Based on the posted speed of 35 mph along S Holcomb Boulevard, the minimum recommended intersection sight distance is 390 feet to the east and west of each intersection. Provided any obstructing foliage near the access locations (along the north side of S Holcomb Boulevard) are removed or properly maintained, sight distances were measured to be in excess of 450 feet to the east and west of each intersection.

Based on the sight distance measurements and provided any obstructing foliage near the access locations (along the north side of S Holcomb Boulevard) are removed or properly maintained, adequate sight distances can be made available at the proposed public and temporary emergency access intersections to allow safe and efficient operation along S Holcomb Boulevard. No other sight distance related mitigation is necessary or recommended.

Left-turn Lane Warrant Analysis

A left-turn refuge lane is primarily a safety consideration for the major-street, removing left-turning vehicles from the through traffic stream. The left-turn lane warrants used were developed from the *National Cooperative Highway Research Project's* (NCHRP) *Report 457*. Turn lane warrants were evaluated based on the number of advancing and opposing vehicles as well as the number of turning vehicles, the travel speed, and the number of through lanes.

Based on the analysis, left-turn lane warrants are projected to be met at the proposed public access intersection at S Holcomb Boulevard under year 2025 buildout conditions during the evening peak hour. No other new turn lanes are necessary or recommended at the intersection of S Barlow Drive at S Holcomb Boulevard.

Access Spacing

According to Oregon City's Transportation System Plan (TSP) S Holcomb Boulevard operates under the jurisdiction of Oregon City within the City's urban growth boundary (UGB) and is classified as a Minor Arterial.

[2] American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 6th Edition, 2011.

Subsequently the City's spacing standards apply to this section of S Holcomb Boulevard. Per the TSP, the following spacing standards apply along S Holcomb Boulevard:

- Maximum Block Size (Street to Street): 530 feet;
- Minimum Block Size (Street to Street): 150 feet; and
- Minimum Driveway Spacing (between other streets and driveways): 175 feet. Note that single and two-family dwellings are exempt from the driveway to driveway spacing standard.

Regarding the maximum block length standard, there is a provision to allow a longer block length given that a mid-block pedestrian/bicycle accessway is provided intermittently at a spacing no greater than 330 feet (unless the connection is impractical due to existing development, topography, or environmental constraints).

The proposed public access is located approximately 355 feet west of S Winston Drive and approximately 620 feet east of S Oak Tree Terrace (measured near-edge to near-edge). Although spacing between the access and S Oak Tree Terrace is greater than the maximum block length standard, a mid-block pedestrian/bicycle crossing and accessway is planned near the east edge of the site. Additionally, no private driveways that serve land uses other than one to two-family dwellings are located within 175 feet of the proposed public access location. Therefore, spacing standards will be met for the proposed public access intersection. Note when evaluating spacing for the public access intersection, spacing with the proposed temporary emergency access was not considered since the emergency access will be removed following completion of Phase 2.

The proposed temporary emergency access will be located approximately 410 feet west of the proposed public access intersection and 225 feet east of S Oak Tree Terrace (measured near-edge to near-edge). Additionally, no private driveways that serve land uses other than one to two-family dwellings are located within 175 feet of the proposed emergency access location. Therefore, spacing standards will be met for the proposed temporary emergency access intersection.

Pedestrian Crossing

As part of the Serres Farms Master Plan project, the installation of a mid-block pedestrian crossing is proposed along the west edge of the project site across S Holcomb Boulevard. This is to provide for projects C5 (upgraded pedestrian crossing) and S11 (shared-use path) that are identified in the City of Oregon City's Transportation System Plan (TSP). The TSP shows the trail and the crossing on the west leg of the intersection of Oak Tree Terrace at S Holcomb Boulevard. However, due to topography along S Holcomb Boulevard at that location, sight distance is limited.

To find a safer location for the mid-block crossing, sight distance was evaluated on the north and south sides of the roadway at the western edge of the subject property. Consistent with the above *Sight Distance* section, the minimum recommended intersection sight distance standard along the roadway is 390 feet.

At a location near the west edge of the site, sight distance was measured to be in excess of 450 feet to the east and in excess of 450 feet to the west, provided roadway foliage just west of the south end of the pedestrian crossing is removed/properly maintained. Therefore, the proposed location of the mid-block crossing is expected to operate safely with respect to available sight distances, following removal/proper maintenance of the obstructing foliage.

Local Street ADT Impact

To verify the carrying capacity of local street connections along S Holcomb Boulevard, such as S Barlow Drive and the proposed public access, will not be overburdened with traffic relative to their classifications as Local Streets, a review of existing average daily traffic (ADT) along these roadways with full buildout of the proposed development was conducted. As detailed in the *Traffic Volumes* sections, 24-hour roadway counts were collected along S Barlow Drive. After applying the previously calculated COVID-19 adjustment factor, the total ADT along S Barlow Drive was determined to be 656 trips. After applying an additional growth factor of two percent per year over a four-year period, the roadway volumes are projected to be 698 trips by year 2025.

Following full buildout of the Park Place Master Plan project, the proposed use is projected to generate a total of 1,258 daily trips. Of the total daily trips, approximately 45 percent of trips associated with Phase 2 are expected to utilize the S Barlow Drive connection while the remaining trips will utilize the proposed public access. Based on these estimated distribution percentages, the proposed development is projected to add an additional 242 daily trips to S Barlow Drive and will add 1,016 daily trips to the proposed access.

S Barlow Drive with the full buildout of the proposed development is projected to be impacted by 940 total daily trips while the proposed access will be impacted by 1,016 total daily trips. According to Metro's 2018 Regional Transportation Plan (RTP), local streets are generally designed/intended to serve between 200 to 2,000 vehicles per day. Based on the analysis, both roadways are expected to serve daily volumes of traffic within this volume range.

Operation Analysis

Intersection Capacity Analysis

A capacity and delay analysis were conducted for each of the study intersections per the unsignalized intersection analysis methodologies in the *Highway Capacity Manual* (HCM)[3]. 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.

Per Oregon City's Transportation System Plan and Metro's online 2018 Regional Transportation Plan (RTP) Network maps, the study intersections are located outside of the City's regional center and S Holcomb Boulevard is not designated on the arterial and throughway network. Therefore, per Section *16.12.033 – Mobility Standards* of the Oregon City Municipal Code, the following minimum acceptable operation standards apply to the study intersections.

- For intersections outside the boundaries of the regional center and not designated on the arterial and throughway network, as defined in the regional transportation plan, the following mobility standards apply:
    - For signalized intersections:
        - During the first hour, LOS "D" or better will be required for the intersection as a whole and no approach operating at worse than LOS "E" and a v/c ratio not higher than 1.0 for the sum of the critical movements.
        - During the second hour, LOS "D" or better will be required for the intersection as a whole and no approach operating at worse than LOS "E" and a v/c ratio not higher than 1.0 for the sum of the critical movements.
    - For unsignalized intersections outside of the boundaries of the regional center:
        - For unsignalized intersections, during the peak hour, all movements serving more than twenty vehicles shall be maintained at LOS "E" or better. LOS "F" will be tolerated at movements serving no more than twenty vehicles during the peak hour.

The LOS and delay results of the capacity analysis are shown in Table 5 for the evening peak hour. Detailed calculations as well as tables showing the relationship between delay and LOS are included in the appendix to this report.

[3] Transportation Research Board, *Highway Capacity Manual 6th Edition*, 2016.

Table 5: Intersection Capacity Analysis Summary

	PM Peak Hour			PM Peak Hour		
	LOS	Delay (s)	v/c	LOS	Delay (s)	v/c
1. Site Access at S Holcomb Boulevard						
2025 Buildout Conditions	B	12	0.10	B	11	0.06
2030 Future Conditions	B	13	0.13	B	13	0.08
2030 Future Conditions (w/ Holly Lane)	B	13	0.13	B	13	0.08
2. S Barlow Drive at S Holcomb Boulevard						
2021 Existing Conditions	A	9	0.03	A	9	0.04
2025 Background Conditions	B	10	0.03	A	10	0.04
2025 Buildout Conditions	B	10	0.06	B	10	0.06
2030 Future Conditions	B	11	0.06	B	11	0.07
2030 Future Conditions (w/ Holly Lane)	B	14	0.17	C	17	0.13

Table Notes: ***BOLDED*** *text indicates interseciton operation above jurisdictional standards.*

Based on the results of the operational analysis, all study intersections are currently operating acceptably per Oregon City standards and are projected to continue operating acceptably through the 2025 site buildout year and under future year 2030 conditions with the Park Place Master Plan project completed, regardless of whether the S Holly Lane connection to S Holcomb Boulevard is constructed. No operational mitigation is necessary or recommended at these intersections.

Conclusions and Recommendations

No significant trends or crash patterns were identified at the intersection of S Barlow Drive at S Holcomb Boulevard that were indicative of safety concerns. Accordingly, no safety mitigation is recommended per the crash data analysis.

Provided any obstructing foliage near the access locations (along the north side of S Holcomb Boulevard) are removed or properly maintained, adequate sight distances can be made available at the proposed public and temporary emergency access intersections to allow safe and efficient operation along S Holcomb Boulevard. No other sight distance related mitigation is necessary or recommended.

Left-turn lane warrants are projected to be met at the proposed public site access intersection at S Holcomb Boulevard under year 2025 buildout conditions during the evening peak hour.

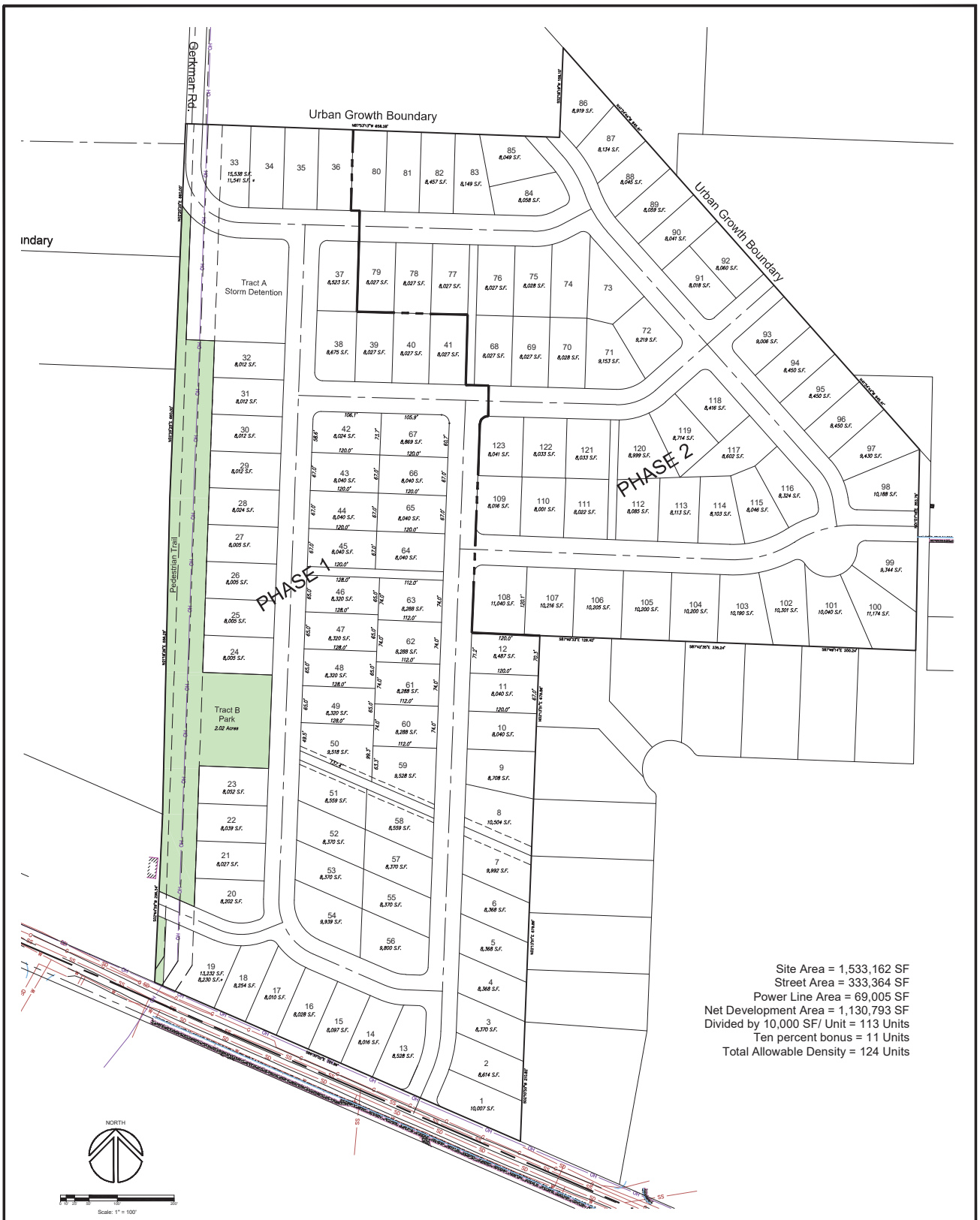
For the proposed public access connection onto S Holcomb Boulevard, spacing standards will be met provided that a mid-block pedestrian/bicycle access between the proposed access and S Oak Tree Terrace is constructed. For the proposed temporary emergency access connection onto S Holcomb Boulevard, spacing standards will be met between the other proposed access and existing driveways/intersecting cross-streets.

As part of the Serres Farms Master Plan project, the installation of a mid-block pedestrian crossing is proposed along the west edge of the project site across S Holcomb Boulevard. The proposed location of the mid-block crossing is expected to operate safely with respect to available sight distances, following removal/proper maintenance of obstructing foliage at the south end of the crossing when viewing to the west.

Per Metro's 2018 Regional Transportation Plan (RTP), both the proposed public access and S Barlow Drive are expected to have sufficient carrying capacity to serve existing daily trips plus trips generated by the proposed Serres Farms Master Plan development.

All study intersections are currently operating acceptably per Oregon City standards and are projected to continue operating acceptably through the 2025 site buildout year and under future year 2030 conditions with the Park Place Master Plan project completed, regardless of whether the S Holly Lane connection to S Holcomb Boulevard is constructed.

If you have any questions regarding this analysis during your review, please don't hesitate to contact us.



DESIGNED: REG DRAWN: REG SCALE: 1" = 100' DATE: March 24, 2021 FILE: 19-ICN-104 DATE REVISION	Richard E. Givens, Planning Consultant 18680 Sunblaze Drive Oregon City, OR 97045 PH: (503) 479-0097	APPLICANT: Icon Construction & Development LLC 1980 Willamette Falls Drive, Suite 200 West Linn, OR 97068 PH: (503) 657-0406	Serres Farms Preliminary Plan R-10 Zoning with 10% Bonus	SHEET 1/1

TRIP GENERATION CALCULATIONS
Phase 1

Land Use: Single-Family Detached Housing
Land Use Code: 210
Setting/Location General Urban/Suburban
Variable: Dwelling Units
Variable Value: 67

AM PEAK HOUR

Trip Equation: T = 0.71(X) +4.80

	Enter	Exit	Total
Directional Distribution	25%	75%	
Trip Ends	13	39	52

PM PEAK HOUR

Trip Equation: Ln(T)=0.96Ln(X)+0.20

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	43	26	69

WEEKDAY

Trip Equation: Ln(T)=0.92Ln(X)+2.71

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	360	360	720

SATURDAY

Trip Equation: Ln(T)=0.94Ln(X)+2.56

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	337	337	674

Source: Trip Generation Manual, Tenth Edition

TRIP GENERATION CALCULATIONS
Phases 1-2

Land Use: Single-Family Detached Housing
Land Use Code: 210
Setting/Location General Urban/Suburban
Variable: Dwelling Units
Variable Value: 123

AM PEAK HOUR

Trip Equation: T = 0.71(X) +4.80

	Enter	Exit	Total
Directional Distribution	25%	75%	
Trip Ends	23	69	92

PM PEAK HOUR

Trip Equation: Ln(T)=0.96Ln(X)+0.20

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	78	46	124

WEEKDAY

Trip Equation: Ln(T)=0.92Ln(X)+2.71

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	629	629	1,258

SATURDAY

Trip Equation: Ln(T)=0.94Ln(X)+2.56

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	596	596	1,192

Source: Trip Generation Manual, Tenth Edition

Quality Counts, LLC
7409 SW Tech Center Drive, Suite B150
Tigard, OR, 97223
www.qualitycounts.net

Oregon City 2017
Volume Traffic Survey

Site Code: 14507995
Station ID: # 89
Holcomb Blvd E of Barlow Dr

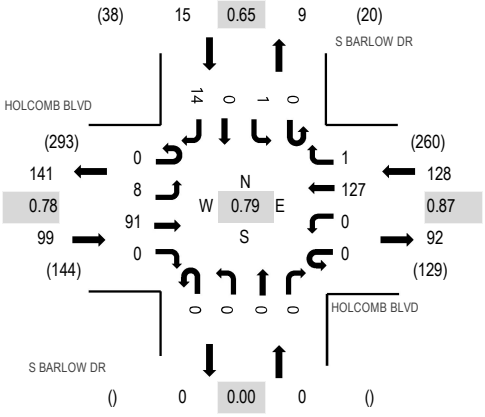
Start Time	02-Nov-17 Thu	EB Morning	EB Afternoon	Hour Totals Morning	Hour Totals Afternoon	WB Morning	WB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		1	18			1	23				
12:15		3	20			1	28				
12:30		1	16			1	24				
12:45		1	25	6	79	3	21	6	96	12	175
01:00		2	25			1	22				
01:15		1	27			0	24				
01:30		1	25			0	20				
01:45		2	29	6	106	0	25	1	91	7	197
02:00		1	26			0	22				
02:15		0	25			1	19				
02:30		0	32			0	22				
02:45		2	20	3	103	1	12	2	75	5	178
03:00		1	40			1	23				
03:15		1	31			2	15				
03:30		0	30			1	27				
03:45		0	36	2	137	0	19	4	84	6	221
04:00		0	45			2	26				
04:15		0	42			10	26				
04:30		1	31			5	21				
04:45		1	36	2	154	7	15	24	88	26	242
05:00		4	49			13	28				
05:15		1	47			15	26				
05:30		1	40			16	21				
05:45		2	21	8	157	30	20	74	95	82	252
06:00		5	35			30	27				
06:15		2	36			33	25				
06:30		8	27			26	17				
06:45		6	22	21	120	24	12	113	81	134	201
07:00		14	20			49	15				
07:15		19	19			55	10				
07:30		14	21			44	12				
07:45		19	16	66	76	37	11	185	48	251	124
08:00		24	17			32	5				
08:15		13	23			19	10				
08:30		14	13			30	8				
08:45		15	18	66	71	33	7	114	30	180	101
09:00		18	13			23	3				
09:15		9	10			25	2				
09:30		10	15			18	5				
09:45		12	8	49	46	16	7	82	17	131	63
10:00		15	8			14	3				
10:15		20	11			22	3				
10:30		18	6			25	3				
10:45		11	7	64	32	21	2	82	11	146	43
11:00		14	4			24	2				
11:15		9	3			22	1				
11:30		28	3			21	1				
11:45		19	2	70	12	23	1	90	5	160	17
Total		363	1093			777	721			1140	1814
Percent		24.9%	75.1%			51.9%	48.1%			38.6%	61.4%
Grand Total		363	1093			777	721			1140	1814
Percent		24.9%	75.1%			51.9%	48.1%			38.6%	61.4%
ADT		ADT 2,953		AADT 2,953							

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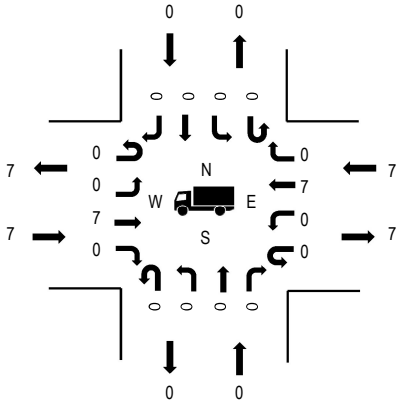
Location: 1 S BARLOW DR & HOLCOMB BLVD AM
Date: Thursday, April 15, 2021
Peak Hour: 08:00 AM - 09:00 AM
Peak 15-Minutes: 08:45 AM - 09:00 AM

Peak Hour

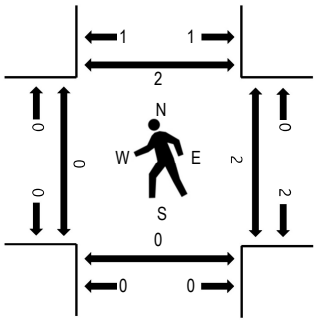
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	7.1%	0.78
WB	5.5%	0.87
NB	0.0%	0.00
SB	0.0%	0.65
All	5.8%	0.79

Traffic Counts - Motorized Vehicles

Interval Start Time	HOLCOMB BLVD Eastbound				HOLCOMB BLVD Westbound				S BARLOW DR Northbound				S BARLOW DR Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
7:00 AM	0	0	1	0	0	0	8	0	0	0	0	0	0	0	0	1	10	200
7:05 AM	0	0	2	0	0	0	8	0	0	0	0	0	0	0	0	2	12	207
7:10 AM	0	2	1	0	0	0	13	0	0	0	0	0	0	0	0	1	17	218
7:15 AM	0	1	2	0	0	0	15	0	0	0	0	0	0	0	0	0	18	217
7:20 AM	0	0	4	0	0	0	8	0	0	0	0	0	0	0	0	2	14	215
7:25 AM	0	0	1	0	0	0	10	1	0	0	0	0	0	0	0	1	13	228
7:30 AM	0	1	4	0	0	0	13	1	0	0	0	0	0	0	0	2	21	233
7:35 AM	0	0	1	0	0	0	8	1	0	0	0	0	0	0	0	2	12	229
7:40 AM	0	0	5	0	0	0	10	0	0	0	0	0	0	0	0	2	17	228
7:45 AM	0	2	6	0	0	0	11	0	0	0	0	0	0	0	0	4	23	231
7:50 AM	0	2	5	0	0	0	18	0	0	0	0	0	0	0	0	4	29	241
7:55 AM	0	0	5	0	0	0	7	0	0	0	0	0	0	0	0	2	14	229
8:00 AM	0	2	4	0	0	0	9	1	0	0	0	0	0	0	0	1	17	242
8:05 AM	0	0	11	0	0	0	9	0	0	0	0	0	0	1	0	2	23	
8:10 AM	0	1	5	0	0	0	9	0	0	0	0	0	0	0	0	1	16	
8:15 AM	0	0	2	0	0	0	12	0	0	0	0	0	0	0	0	2	16	
8:20 AM	0	1	13	0	0	0	12	0	0	0	0	0	0	0	0	1	27	
8:25 AM	0	1	8	0	0	0	9	0	0	0	0	0	0	0	0	0	18	
8:30 AM	0	0	9	0	0	0	8	0	0	0	0	0	0	0	0	0	17	
8:35 AM	0	0	4	0	0	0	7	0	0	0	0	0	0	0	0	0	11	
8:40 AM	0	1	9	0	0	0	8	0	0	0	0	0	0	0	0	2	20	
8:45 AM	0	1	16	0	0	0	14	0	0	0	0	0	0	0	0	2	33	
8:50 AM	0	0	5	0	0	0	10	0	0	0	0	0	0	0	0	2	17	
8:55 AM	0	1	5	0	0	0	20	0	0	0	0	0	0	0	0	1	27	
Count Total	0	16	128	0	0	0	256	4	0	0	0	0	0	1	0	37	442	
Peak Hour	0	8	91	0	0	0	127	1	0	0	0	0	0	1	0	14	242	

Location: 1 S BARLOW DR & HOLCOMB BLVD AM

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

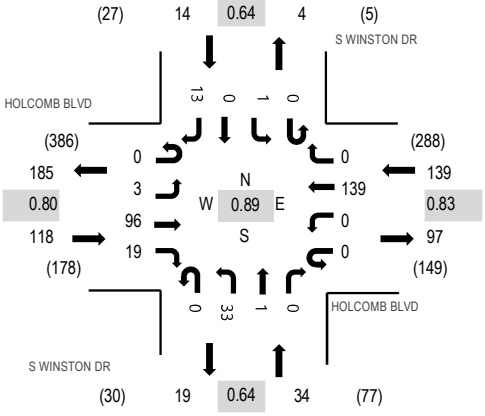
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	1	1
7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	1	0	0	0	1	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	1	0	0	0	1	7:20 AM	0	0	0	0	0	7:20 AM	0	0	1	0	1
7:25 AM	0	0	2	0	2	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	1	1
7:40 AM	0	0	0	0	0	7:40 AM	0	0	2	0	2	7:40 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0	7:45 AM	0	0	0	0	0
7:50 AM	1	0	1	0	2	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	1	0	0	0	1	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	2	0	0	0	2	8:05 AM	0	0	0	0	0	8:05 AM	0	0	1	0	1
8:10 AM	0	0	0	0	0	8:10 AM	2	0	0	0	2	8:10 AM	0	0	0	0	0
8:15 AM	0	0	1	0	1	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	0	0	3	0	3	8:20 AM	0	0	0	0	0	8:20 AM	0	0	1	0	1
8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	1	0	0	0	1	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	1	1
8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	2	0	3	0	5	8:45 AM	0	0	0	0	0	8:45 AM	0	0	0	0	0
8:50 AM	1	0	0	0	1	8:50 AM	0	0	0	0	0	8:50 AM	0	0	0	1	1
8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	10	0	10	0	20	Count Total	2	0	2	0	4	Count Total	0	0	3	4	7
Peak Hour	7	0	7	0	14	Peak Hour	2	0	0	0	2	Peak Hour	0	0	2	2	4

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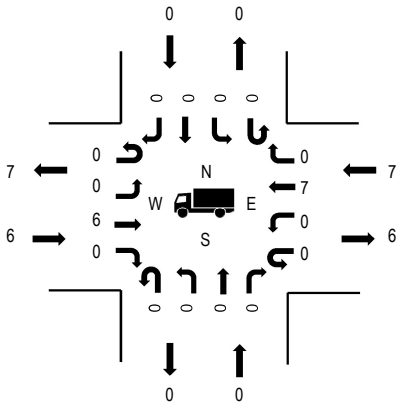
Location: 2 S WINSTON DR & HOLCOMB BLVD AM
Date: Thursday, April 15, 2021
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour

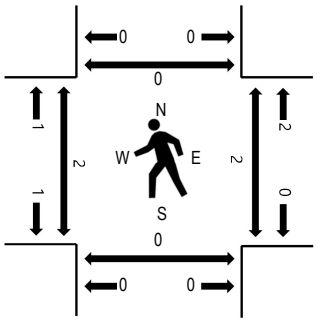
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	5.1%	0.80
WB	5.0%	0.83
NB	0.0%	0.64
SB	0.0%	0.64
All	4.3%	0.89

Traffic Counts - Motorized Vehicles

Interval Start Time	HOLCOMB BLVD Eastbound				HOLCOMB BLVD Westbound				S WINSTON DR Northbound				S WINSTON DR 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	1	1	0	0	9	0	0	3	0	0	0	0	0	1	15	269
7:05 AM	0	0	3	0	0	0	11	0	0	3	0	0	0	0	0	0	17	273
7:10 AM	0	0	3	0	0	0	14	0	0	3	0	0	0	0	0	2	22	283
7:15 AM	0	0	5	0	0	0	14	0	0	5	0	0	0	0	0	2	26	279
7:20 AM	0	0	2	0	0	0	10	0	0	1	0	0	0	0	0	1	14	281
7:25 AM	0	0	2	0	0	0	12	0	0	1	0	0	0	0	0	0	15	298
7:30 AM	0	0	3	0	0	0	17	0	0	3	0	0	0	0	0	1	24	304
7:35 AM	0	0	3	2	0	0	10	0	0	6	0	0	0	0	0	3	24	303
7:40 AM	0	0	3	4	0	0	9	0	0	8	0	0	0	1	0	1	26	302
7:45 AM	0	0	9	0	0	0	17	0	0	2	0	0	0	0	0	2	30	305
7:50 AM	0	0	8	2	0	0	18	0	0	1	0	0	0	0	0	2	31	304
7:55 AM	0	0	5	4	0	0	11	0	0	3	0	0	0	0	0	2	25	300
8:00 AM	0	1	6	1	0	0	8	0	0	2	0	0	0	0	0	1	19	301
8:05 AM	0	0	11	2	0	0	13	0	0	1	0	0	0	0	0	0	27	
8:10 AM	0	0	5	1	0	0	8	0	0	4	0	0	0	0	0	0	18	
8:15 AM	0	0	7	1	0	0	14	0	0	3	1	0	0	0	0	2	28	
8:20 AM	0	1	8	2	0	0	14	0	0	5	0	0	0	1	0	0	31	
8:25 AM	0	0	9	1	0	0	9	0	0	1	0	0	0	0	0	1	21	
8:30 AM	0	0	8	1	0	0	8	0	0	4	0	0	0	0	0	2	23	
8:35 AM	0	0	9	1	0	0	7	0	0	5	0	0	0	0	0	1	23	
8:40 AM	0	1	11	3	0	0	12	0	0	2	0	0	0	0	0	0	29	
8:45 AM	0	0	13	0	0	0	13	0	0	2	0	1	0	0	0	0	29	
8:50 AM	0	0	4	3	0	0	17	0	0	2	0	1	0	0	0	0	27	
8:55 AM	0	0	7	1	0	0	13	0	0	3	1	0	0	0	0	1	26	
Count Total	0	3	145	30	0	0	288	0	0	73	2	2	0	2	0	25	570	
Peak Hour	0	3	96	19	0	0	139	0	0	33	1	0	0	1	0	13	305	

Location: 2 S WINSTON DR & HOLCOMB BLVD AM

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

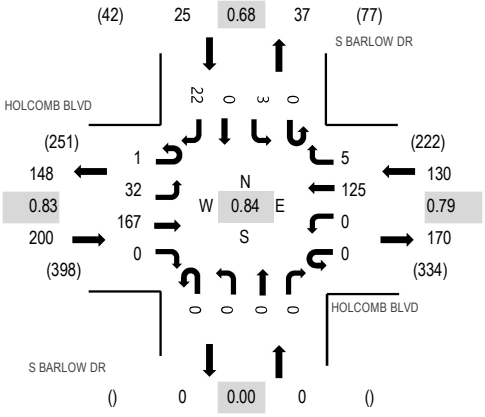
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0	7:00 AM	0	0	0	0	0
7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0	7:05 AM	0	0	0	0	0
7:10 AM	1	0	0	0	1	7:10 AM	0	0	0	0	0	7:10 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0	7:15 AM	0	0	0	0	0
7:20 AM	1	0	0	0	1	7:20 AM	0	0	0	0	0	7:20 AM	0	0	0	0	0
7:25 AM	0	0	2	0	2	7:25 AM	0	0	0	0	0	7:25 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0	7:30 AM	0	0	0	0	0
7:35 AM	1	0	0	0	1	7:35 AM	0	0	0	0	0	7:35 AM	0	0	0	0	0
7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	0	0	7:40 AM	0	0	0	1	1
7:45 AM	2	0	0	0	2	7:45 AM	0	0	0	0	0	7:45 AM	1	0	0	0	1
7:50 AM	0	0	1	0	1	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	1	0	1
8:00 AM	0	0	1	0	1	8:00 AM	0	0	0	0	0	8:00 AM	0	0	0	0	0
8:05 AM	1	0	0	0	1	8:05 AM	0	0	0	0	0	8:05 AM	1	0	0	0	1
8:10 AM	0	0	0	0	0	8:10 AM	2	0	0	0	2	8:10 AM	0	0	1	1	2
8:15 AM	0	0	1	0	1	8:15 AM	0	0	0	0	0	8:15 AM	0	0	0	0	0
8:20 AM	0	0	3	0	3	8:20 AM	0	0	0	0	0	8:20 AM	0	0	0	0	0
8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0	8:25 AM	0	0	0	0	0
8:30 AM	2	0	0	0	2	8:30 AM	0	0	0	0	0	8:30 AM	0	0	0	0	0
8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0	8:35 AM	0	0	0	0	0
8:40 AM	1	0	1	0	2	8:40 AM	0	0	0	0	0	8:40 AM	0	0	0	0	0
8:45 AM	0	0	1	0	1	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	1	0	1
8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0	8:55 AM	0	0	0	0	0
Count Total	9	0	10	0	19	Count Total	2	0	0	0	2	Count Total	2	0	3	2	7
Peak Hour	6	0	7	0	13	Peak Hour	2	0	0	0	2	Peak Hour	2	0	2	1	5

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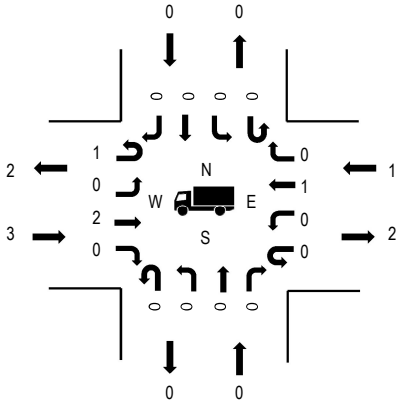
Location: 1 S BARLOW DR & HOLCOMB BLVD PM
Date: Thursday, April 15, 2021
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

Peak Hour

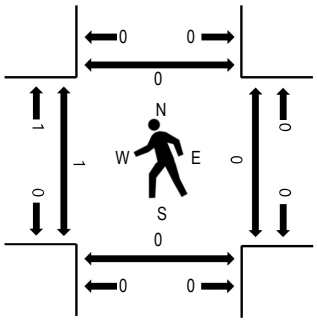
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.5%	0.83
WB	0.8%	0.79
NB	0.0%	0.00
SB	0.0%	0.68
All	1.1%	0.84

Traffic Counts - Motorized Vehicles

Interval Start Time	HOLCOMB BLVD Eastbound				HOLCOMB BLVD Westbound				S BARLOW DR Northbound				S BARLOW DR Southbound					Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	
4:00 PM	0	6	8	0	0	0	7	1	0	0	0	0	0	1	0	4	27	333
4:05 PM	0	4	16	0	0	0	10	1	0	0	0	0	0	0	0	2	33	329
4:10 PM	0	4	13	0	0	0	7	0	0	0	0	0	0	0	0	0	24	327
4:15 PM	0	6	15	0	0	0	6	0	0	0	0	0	0	0	0	1	28	337
4:20 PM	0	1	19	0	0	0	8	1	0	0	0	0	0	0	0	2	31	336
4:25 PM	0	4	17	0	0	0	6	0	0	0	0	0	0	0	0	0	27	322
4:30 PM	0	2	10	0	0	0	8	0	0	0	0	0	0	0	0	0	20	317
4:35 PM	0	4	13	0	0	0	4	0	0	0	0	0	0	0	0	1	22	340
4:40 PM	0	1	11	0	0	0	10	1	0	0	0	0	0	0	0	3	26	349
4:45 PM	0	3	15	0	0	0	11	1	0	0	0	0	0	0	0	0	30	355
4:50 PM	0	1	16	0	0	0	13	1	0	0	0	0	0	0	0	1	32	349
4:55 PM	0	3	13	0	0	0	15	0	0	0	0	0	0	0	0	2	33	334
5:00 PM	0	5	11	0	0	0	5	0	0	0	0	0	0	0	0	2	23	329
5:05 PM	1	4	10	0	0	0	14	1	0	0	0	0	0	0	0	1	31	
5:10 PM	0	2	20	0	0	0	9	0	0	0	0	0	0	0	0	3	34	
5:15 PM	0	4	12	0	0	0	9	0	0	0	0	0	0	0	0	2	27	
5:20 PM	0	2	7	0	0	0	6	0	0	0	0	0	0	1	0	1	17	
5:25 PM	0	1	10	0	0	0	7	0	0	0	0	0	0	1	0	3	22	
5:30 PM	0	3	26	0	0	0	11	1	0	0	0	0	0	0	0	2	43	
5:35 PM	0	2	10	0	0	0	15	0	0	0	0	0	0	0	0	4	31	
5:40 PM	0	2	17	0	0	0	10	1	0	0	0	0	0	1	0	1	32	
5:45 PM	0	1	11	0	0	0	11	0	0	0	0	0	0	1	0	0	24	
5:50 PM	0	2	9	0	0	0	4	0	0	0	0	0	0	0	0	2	17	
5:55 PM	0	1	20	0	0	0	7	0	0	0	0	0	0	0	0	0	28	
Count Total	1	68	329	0	0	0	213	9	0	0	0	0	0	5	0	37	662	
Peak Hour	1	32	167	0	0	0	125	5	0	0	0	0	0	3	0	22	355	

Location: 1 S BARLOW DR & HOLCOMB BLVD PM

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

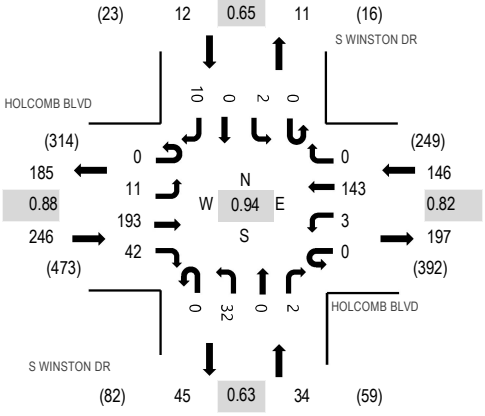
Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	1	1
4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	1	0	1	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	1	1
4:20 PM	1	0	0	0	1	4:20 PM	0	0	0	0	0	4:20 PM	1	0	0	2	3
4:25 PM	0	0	0	0	0	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	1	0	1	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	2	2
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	1	0	0	0	1
5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	1	0	0	0	1	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	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	2	0	0	0	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	1	0	1	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	1	1
5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	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	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	4	0	2	0	6	Count Total	0	0	1	0	1	Count Total	2	0	0	7	9
Peak Hour	3	0	1	0	4	Peak Hour	0	0	0	0	0	Peak Hour	1	0	0	1	2

ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

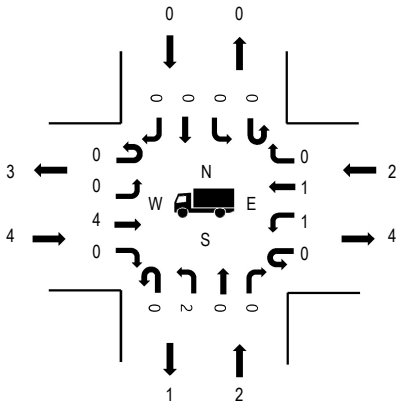
Location: 2 S WINSTON DR & HOLCOMB BLVD PM
Date: Thursday, April 15, 2021
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:25 PM - 05:40 PM

Peak Hour

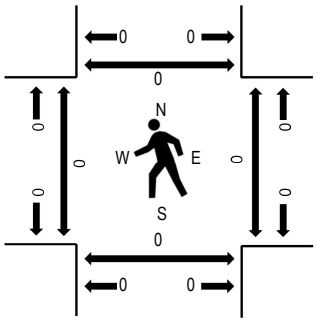
Motorized Vehicles



Heavy Vehicles



Pedestrians



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	1.6%	0.88
WB	1.4%	0.82
NB	5.9%	0.63
SB	0.0%	0.65
All	1.8%	0.94

Traffic Counts - Motorized Vehicles

Interval Start Time	HOLCOMB BLVD Eastbound				HOLCOMB BLVD Westbound				S WINSTON DR Northbound				S WINSTON DR 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	12	3	0	0	13	0	0	2	0	0	0	0	0	2	32	393
4:05 PM	0	0	20	2	0	1	9	0	0	0	1	0	0	0	0	1	34	389
4:10 PM	0	0	15	2	0	0	6	0	0	1	0	1	0	0	0	0	25	397
4:15 PM	0	0	19	4	0	0	9	0	0	2	0	1	0	0	0	0	35	411
4:20 PM	0	0	17	2	0	0	8	0	0	1	0	1	0	1	0	0	30	411
4:25 PM	0	0	23	6	0	0	7	0	0	1	0	0	0	0	0	0	37	412
4:30 PM	0	0	11	3	0	0	7	0	0	4	0	0	0	0	0	0	25	407
4:35 PM	0	1	17	4	0	0	7	0	0	1	0	1	0	1	0	0	32	429
4:40 PM	0	1	9	4	0	0	11	1	0	0	0	0	0	0	0	1	27	435
4:45 PM	0	0	16	1	0	0	14	0	0	4	0	1	0	0	0	1	37	438
4:50 PM	0	0	16	4	0	1	11	0	0	2	0	0	0	1	0	2	37	433
4:55 PM	0	1	21	3	0	0	16	0	0	0	0	0	0	0	0	1	42	422
5:00 PM	0	1	13	5	0	1	8	0	0	0	0	0	0	0	0	0	28	411
5:05 PM	0	3	13	4	0	1	15	0	0	5	0	0	0	0	0	1	42	
5:10 PM	0	3	19	5	0	0	9	0	0	1	0	0	0	1	0	1	39	
5:15 PM	0	0	16	4	0	0	11	0	0	4	0	0	0	0	0	0	35	
5:20 PM	0	0	11	7	0	0	6	0	0	5	0	0	0	0	0	2	31	
5:25 PM	0	0	15	1	0	0	12	0	0	4	0	0	0	0	0	0	32	
5:30 PM	0	0	24	3	0	0	14	0	0	4	0	1	0	0	0	1	47	
5:35 PM	0	1	13	2	0	0	20	0	0	1	0	0	0	0	0	1	38	
5:40 PM	0	2	16	3	0	0	7	0	0	2	0	0	0	0	0	0	30	
5:45 PM	0	0	12	2	0	0	12	0	0	4	0	0	0	0	0	2	32	
5:50 PM	0	1	14	2	0	0	6	0	0	1	0	0	0	0	0	2	26	
5:55 PM	0	0	19	2	0	0	6	0	0	2	0	1	0	0	0	1	31	
Count Total	0	14	381	78	0	4	244	1	0	51	1	7	0	4	0	19	804	
Peak Hour	0	11	193	42	0	3	143	0	0	32	0	2	0	2	0	10	438	

Location: 2 S WINSTON DR & HOLCOMB BLVD 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	0	0	0	0	4:00 PM	0	0	0	0	0	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	0	0	0	0	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	1	0	1	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	1	0	0	0	1	4:20 PM	0	0	0	0	0	4:20 PM	2	1	1	0	4
4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	1	0	0	0	1	4:30 PM	0	0	0	0	0	4:30 PM	1	0	0	0	1
4:35 PM	0	0	0	0	0	4:35 PM	0	0	1	0	1	4:35 PM	0	0	1	0	1
4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0	4:40 PM	0	0	2	0	2
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	1	0	0	1	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	0	1	5:00 PM	0	0	0	0	0	5:00 PM	0	0	0	0	0
5:05 PM	0	0	1	0	1	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	3	0	0	0	3	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	1	0	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	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	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	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	6	2	3	0	11	Count Total	0	0	1	0	1	Count Total	3	1	4	0	8
Peak Hour	4	2	2	0	8	Peak Hour	0	0	0	0	0	Peak Hour	0	0	0	0	0

All Traffic Data Services, LLC
alltrafficdata.net

Date Start: 15-Apr-21
Date End: 15-Apr-21
Barlow Dr North of Holcomb Blvd

Start Time	15-Apr-21 Thu	NB	SB							Total
12:00 AM		2	1							3
01:00		1	1							2
02:00		0	2							2
03:00		0	0							0
04:00		0	2							2
05:00		1	8							9
06:00		4	17							21
07:00		13	22							35
08:00		7	16							23
09:00		10	**23**							33
10:00		13	11							24
11:00		**19**	22							**41**
12:00 PM		26	15							41
01:00		17	23							40
02:00		24	23							47
03:00		23	16							39
04:00		**44**	17							**61**
05:00		31	**26**							57
06:00		29	13							42
07:00		8	9							17
08:00		12	8							20
09:00		12	2							14
10:00		6	5							11
11:00		1	1							2
Total		303	283							586
Percent		51.7%	48.3%							
AM Peak	-	11:00	09:00	-	-	-	-	-	-	11:00
Vol.	-	19	23	-	-	-	-	-	-	41
PM Peak	-	16:00	17:00	-	-	-	-	-	-	16:00
Vol.	-	44	26	-	-	-	-	-	-	61
Total		303	283							586
Percent		51.7%	48.3%							
ADT		ADT 586		AADT 586						

lancaster mobley

SITE TRIP ASSIGNMENT

Proposed Development Plan - Site Trips

AM & PM Peak Hours

Figure 3

Park Place Master Plan

4/26/2021

Left-Turn Lane Warrant Analysis

Project: Serres Farms Master Plan
Intersection: 1. Site Access at S Holcomb Boulevard
Date: 4/28/2021
Scenario: 2030 Future Conditions - AM Peak Hour (EB)

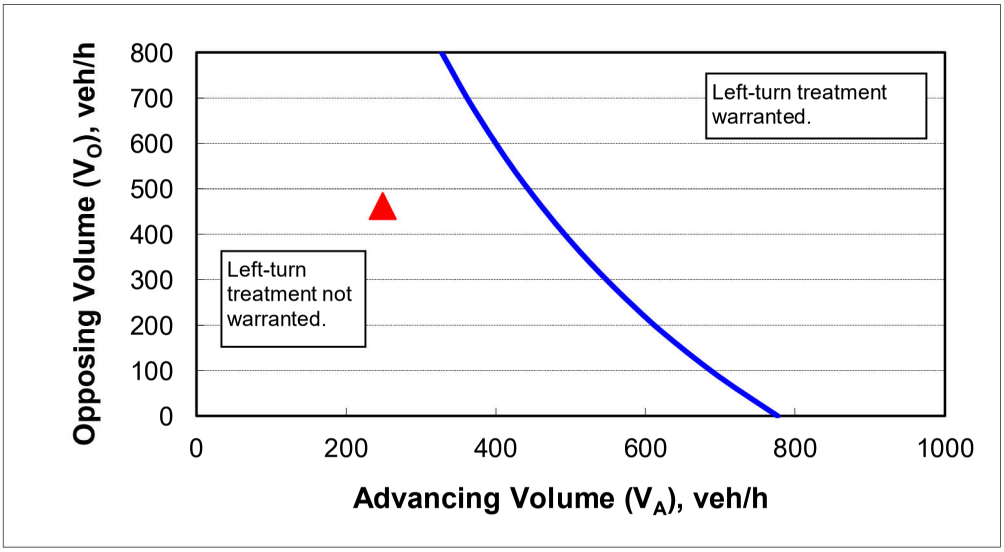
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	6%
Advancing volume (V_A), veh/h:	249
Opposing volume (V_O), veh/h:	462

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	461
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: Serres Farms Master Plan
Intersection: 1. Site Access at S Holcomb Boulevard
Date: 4/28/2021
Scenario: 2025 Buildout Conditions - PM Peak Hour (EB)

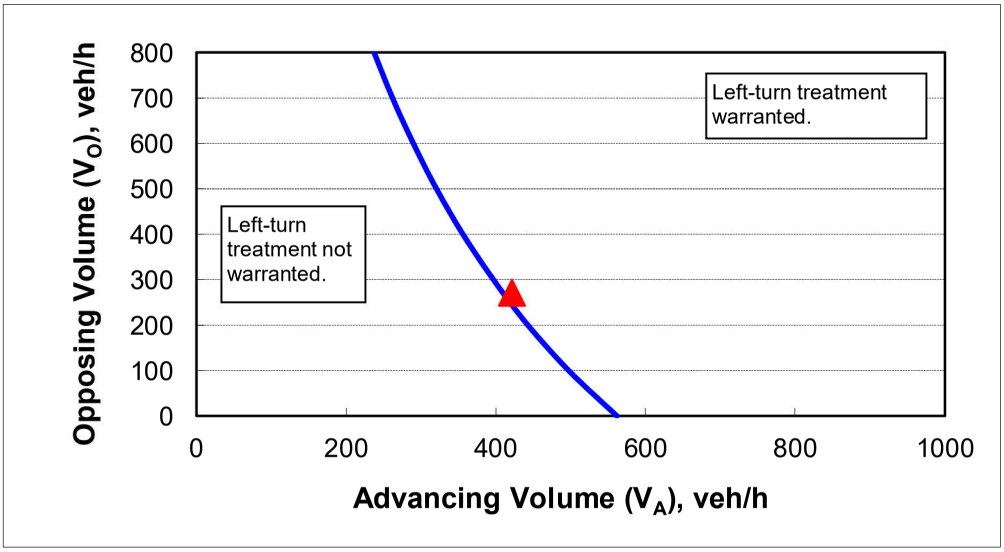
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	12%
Advancing volume (V_A), veh/h:	422
Opposing volume (V_O), veh/h:	271

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	409
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment 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: Serres Farms Master Plan
Intersection: 2. S Barlow Drive at S Holcomb Boulevard
Date: 4/28/2021
Scenario: 2030 Future Conditions - AM Peak Hour (EB)

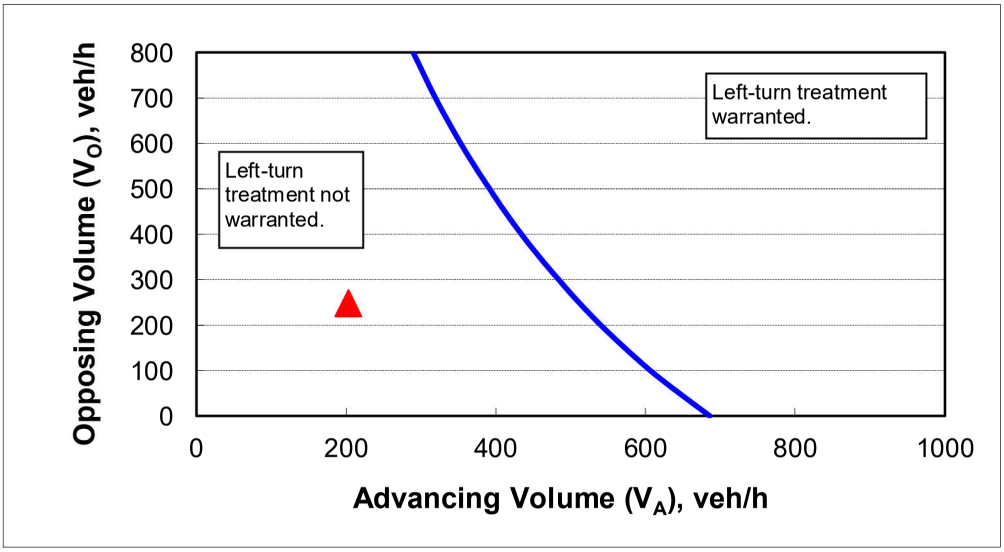
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	8%
Advancing volume (V_A), veh/h:	203
Opposing volume (V_O), veh/h:	248

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	512
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: Serres Farms Master Plan
Intersection: 2. S Barlow Drive at S Holcomb Boulevard
Date: 4/28/2021
Scenario: 2030 Future Conditions - PM Peak Hour (EB)

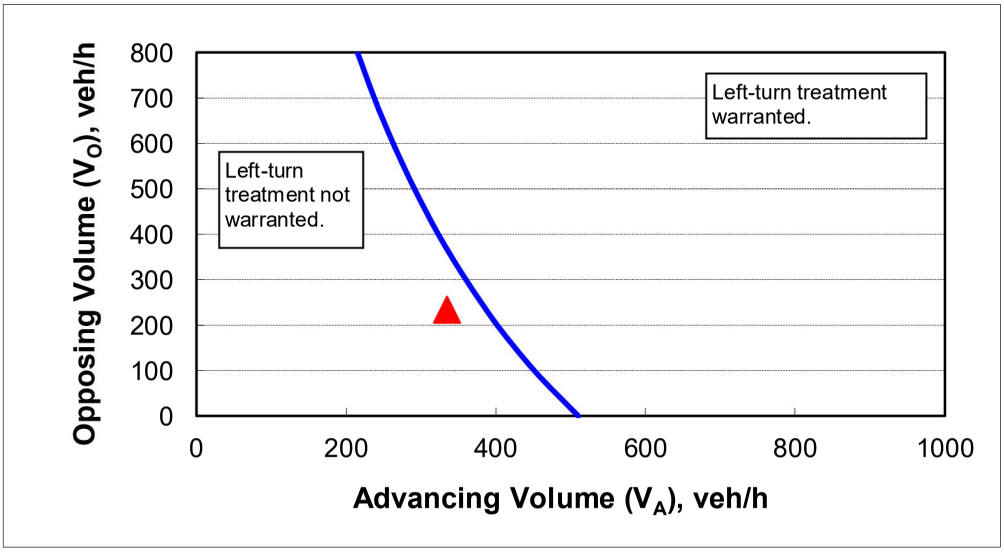
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	16%
Advancing volume (V_A), veh/h:	335
Opposing volume (V_O), veh/h:	234

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	387
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: Serres Farms Master Plan
Intersection: 2. S Barlow Drive at S Holcomb Boulevard
Date: 4/28/2021
Scenario: 2030 Future Conditions - AM Peak Hour (EB)
(with S Holly Lane Connection)

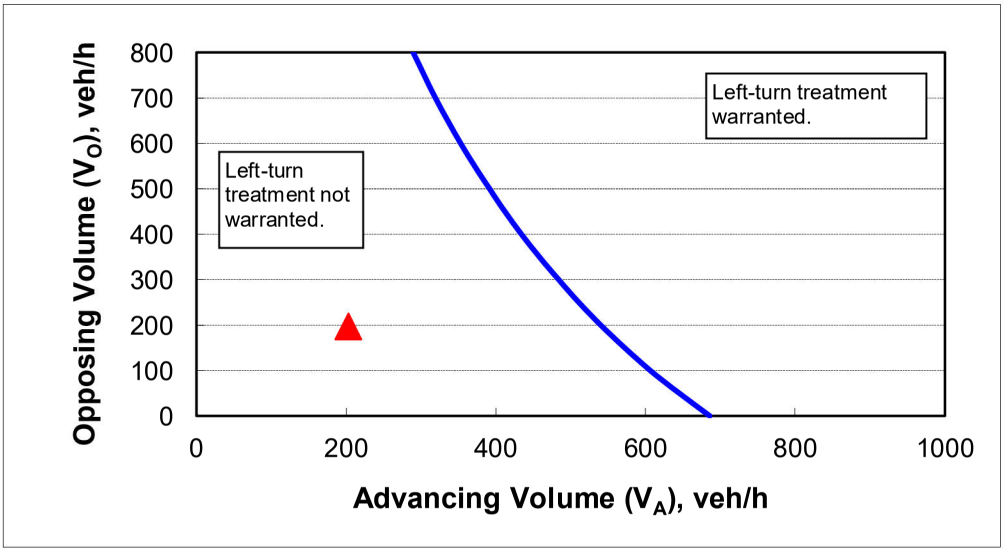
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	8%
Advancing volume (V_A), veh/h:	203
Opposing volume (V_O), veh/h:	197

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	542
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: Serres Farms Master Plan
Intersection: 2. S Barlow Drive at S Holcomb Boulevard
Date: 4/28/2021
Scenario: 2030 Future Conditions - AM Peak Hour (WB)
(with S Holly Lane Connection)

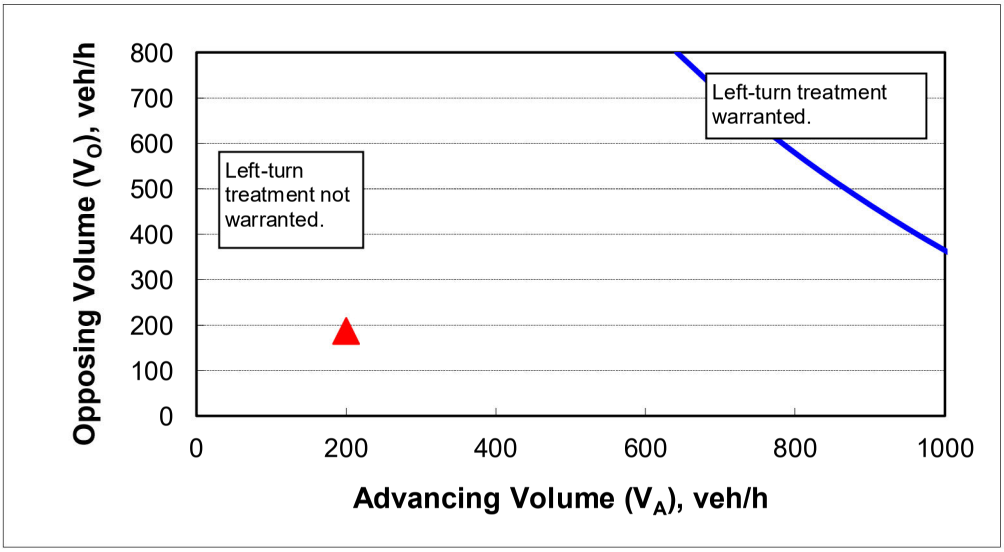
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	2%
Advancing volume (V_A), veh/h:	200
Opposing volume (V_O), veh/h:	187

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	1216
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: Serres Farms Master Plan
Intersection: 2. S Barlow Drive at S Holcomb Boulevard
Date: 4/28/2021
Scenario: 2030 Future Conditions - PM Peak Hour (EB)
(with S Holly Lane Connection)

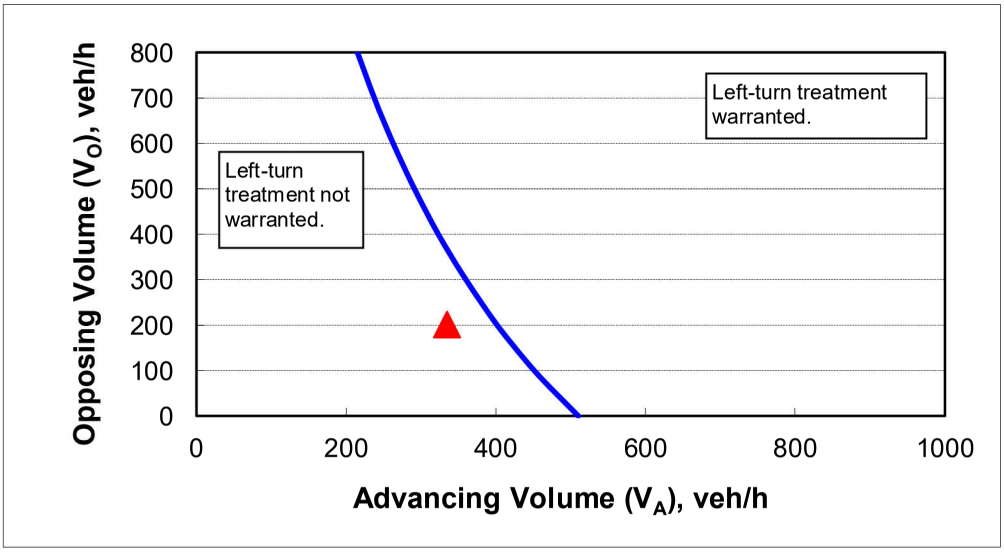
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	16%
Advancing volume (V_A), veh/h:	335
Opposing volume (V_O), veh/h:	201

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	402
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: Serres Farms Master Plan
Intersection: 2. S Barlow Drive at S Holcomb Boulevard
Date: 4/28/2021
Scenario: 2030 Future Conditions - PM Peak Hour (WB)
(with S Holly Lane Connection)

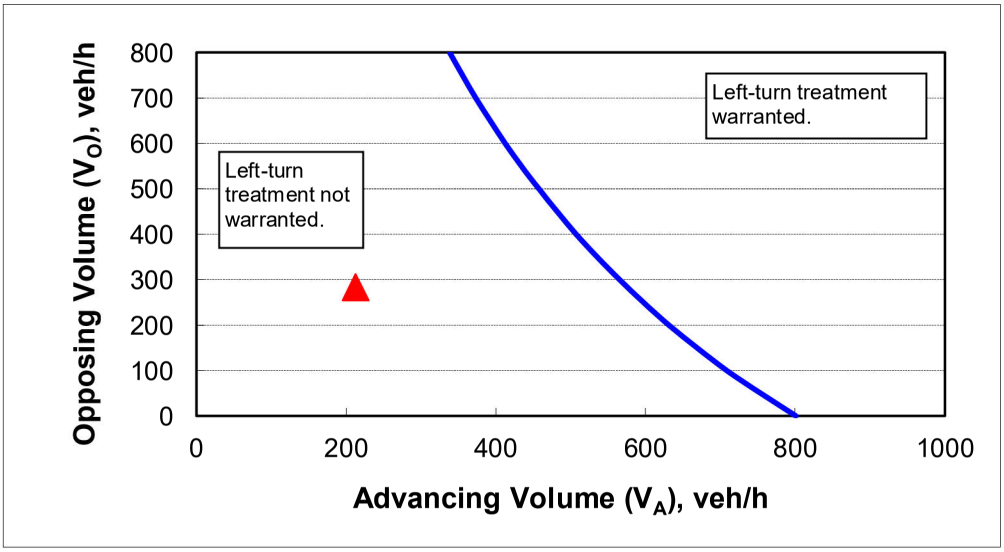
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	35
Percent of left-turns in advancing volume (V_A), %:	6%
Advancing volume (V_A), veh/h:	213
Opposing volume (V_O), veh/h:	283

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	576
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

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

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	109	152	1	1	17
Future Vol, veh/h	10	109	152	1	1	17
Conflicting Peds, #/hr	2	0	0	2	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	7	7	6	6	0	0
Mvmt Flow	13	138	192	1	1	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	195	0	-	0	361	195
Stage 1	-	-	-	-	195	-
Stage 2	-	-	-	-	166	-
Critical Hdwy	4.17	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.263	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1349	-	-	-	642	851
Stage 1	-	-	-	-	843	-
Stage 2	-	-	-	-	868	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1346	-	-	-	633	849
Mov Cap-2 Maneuver	-	-	-	-	633	-
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	866	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1346	-	-	-	833
HCM Lane V/C Ratio	0.009	-	-	-	0.027
HCM Control Delay (s)	7.7	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	33	167	125	5	3	24
Future Vol, veh/h	33	167	125	5	3	24
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	39	199	149	6	4	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	155	0	-	0	429	153
Stage 1	-	-	-	-	152	-
Stage 2	-	-	-	-	277	-
Critical Hdwy	4.12	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.218	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1425	-	-	-	587	898
Stage 1	-	-	-	-	881	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1425	-	-	-	569	897
Mov Cap-2 Maneuver	-	-	-	-	569	-
Stage 1	-	-	-	-	854	-
Stage 2	-	-	-	-	774	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1425	-	-	-	843
HCM Lane V/C Ratio	0.028	-	-	-	0.038
HCM Control Delay (s)	7.6	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	141	217	1	1	18
Future Vol, veh/h	11	141	217	1	1	18
Conflicting Peds, #/hr	2	0	0	2	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	7	7	6	6	0	0
Mvmt Flow	14	178	275	1	1	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	278	0	-	0	486	278
Stage 1	-	-	-	-	278	-
Stage 2	-	-	-	-	208	-
Critical Hdwy	4.17	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.263	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1257	-	-	-	544	766
Stage 1	-	-	-	-	774	-
Stage 2	-	-	-	-	832	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1255	-	-	-	535	765
Mov Cap-2 Maneuver	-	-	-	-	535	-
Stage 1	-	-	-	-	763	-
Stage 2	-	-	-	-	830	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1255	-	-	-	748
HCM Lane V/C Ratio	0.011	-	-	-	0.032
HCM Control Delay (s)	7.9	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	230	171	5	3	24
Future Vol, veh/h	36	230	171	5	3	24
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	43	274	204	6	4	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	210	0	-	0	567	208
Stage 1	-	-	-	-	207	-
Stage 2	-	-	-	-	360	-
Critical Hdwy	4.12	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.218	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1361	-	-	-	488	837
Stage 1	-	-	-	-	832	-
Stage 2	-	-	-	-	710	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1361	-	-	-	470	836
Mov Cap-2 Maneuver	-	-	-	-	470	-
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	710	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1361	-	-	-	769
HCM Lane V/C Ratio	0.031	-	-	-	0.042
HCM Control Delay (s)	7.7	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	185	340	3	10	46
Future Vol, veh/h	15	185	340	3	10	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	5	5	5	2	2
Mvmt Flow	17	208	382	3	11	52

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	385	0	-	0	626	384
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	242	-
Critical Hdwy	4.15	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.245	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1157	-	-	-	448	664
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	798	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1157	-	-	-	440	664
Mov Cap-2 Maneuver	-	-	-	-	440	-
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	798	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1157	-	-	-	609
HCM Lane V/C Ratio	0.015	-	-	-	0.103
HCM Control Delay (s)	8.2	0	-	-	11.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	151	220	2	3	29
Future Vol, veh/h	15	151	220	2	3	29
Conflicting Peds, #/hr	2	0	0	2	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	7	7	6	6	0	0
Mvmt Flow	19	191	278	3	4	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	283	0	-	0	513	282
Stage 1	-	-	-	-	282	-
Stage 2	-	-	-	-	231	-
Critical Hdwy	4.17	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.263	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1251	-	-	-	525	762
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	812	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1249	-	-	-	514	761
Mov Cap-2 Maneuver	-	-	-	-	514	-
Stage 1	-	-	-	-	755	-
Stage 2	-	-	-	-	810	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1249	-	-	-	728
HCM Lane V/C Ratio	0.015	-	-	-	0.056
HCM Control Delay (s)	7.9	0	-	-	10.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	52	370	261	10	7	30
Future Vol, veh/h	52	370	261	10	7	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	1	1	2	2
Mvmt Flow	55	394	278	11	7	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	289	0	-	0	788	284
Stage 1	-	-	-	-	284	-
Stage 2	-	-	-	-	504	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1273	-	-	-	360	755
Stage 1	-	-	-	-	764	-
Stage 2	-	-	-	-	607	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1273	-	-	-	340	755
Mov Cap-2 Maneuver	-	-	-	-	340	-
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	607	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1273	-	-	-	613
HCM Lane V/C Ratio	0.043	-	-	-	0.064
HCM Control Delay (s)	8	0	-	-	11.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	49	237	181	8	5	31
Future Vol, veh/h	49	237	181	8	5	31
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	58	282	215	10	6	37

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	225	0	-	0	618	221
Stage 1	-	-	-	-	220	-
Stage 2	-	-	-	-	398	-
Critical Hdwy	4.12	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.218	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1344	-	-	-	456	824
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	683	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1344	-	-	-	433	823
Mov Cap-2 Maneuver	-	-	-	-	433	-
Stage 1	-	-	-	-	779	-
Stage 2	-	-	-	-	683	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1344	-	-	-	731
HCM Lane V/C Ratio	0.043	-	-	-	0.059
HCM Control Delay (s)	7.8	0	-	-	10.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	234	459	3	10	46
Future Vol, veh/h	15	234	459	3	10	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	5	5	5	2	2
Mvmt Flow	17	263	516	3	11	52

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	519	0	-	0	815	518
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	297	-
Critical Hdwy	4.15	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.245	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1032	-	-	-	347	558
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	754	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1032	-	-	-	340	558
Mov Cap-2 Maneuver	-	-	-	-	340	-
Stage 1	-	-	-	-	587	-
Stage 2	-	-	-	-	754	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1032	-	-	-	501
HCM Lane V/C Ratio	0.016	-	-	-	0.126
HCM Control Delay (s)	8.5	0	-	-	13.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	187	246	2	3	31
Future Vol, veh/h	16	187	246	2	3	31
Conflicting Peds, #/hr	2	0	0	2	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	7	7	6	6	0	0
Mvmt Flow	20	237	311	3	4	39

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	316	0	-	0	594	315
Stage 1	-	-	-	-	315	-
Stage 2	-	-	-	-	279	-
Critical Hdwy	4.17	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.263	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1216	-	-	-	471	730
Stage 1	-	-	-	-	744	-
Stage 2	-	-	-	-	773	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1214	-	-	-	460	729
Mov Cap-2 Maneuver	-	-	-	-	460	-
Stage 1	-	-	-	-	728	-
Stage 2	-	-	-	-	771	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1214	-	-	-	693
HCM Lane V/C Ratio	0.017	-	-	-	0.062
HCM Control Delay (s)	8	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	52	510	348	10	7	30
Future Vol, veh/h	52	510	348	10	7	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	1	1	2	2
Mvmt Flow	55	543	370	11	7	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	381	0	-	0	1029	376
Stage 1	-	-	-	-	376	-
Stage 2	-	-	-	-	653	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1177	-	-	-	259	670
Stage 1	-	-	-	-	694	-
Stage 2	-	-	-	-	518	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1177	-	-	-	242	670
Mov Cap-2 Maneuver	-	-	-	-	242	-
Stage 1	-	-	-	-	648	-
Stage 2	-	-	-	-	518	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1177	-	-	-	502
HCM Lane V/C Ratio	0.047	-	-	-	0.078
HCM Control Delay (s)	8.2	0	-	-	12.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	52	283	225	9	6	33
Future Vol, veh/h	52	283	225	9	6	33
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	62	337	268	11	7	39

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	279	0	-	0	735	275
Stage 1	-	-	-	-	274	-
Stage 2	-	-	-	-	461	-
Critical Hdwy	4.12	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.218	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1284	-	-	-	390	769
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	639	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1284	-	-	-	367	768
Mov Cap-2 Maneuver	-	-	-	-	367	-
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	639	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1284	-	-	-	657
HCM Lane V/C Ratio	0.048	-	-	-	0.071
HCM Control Delay (s)	7.9	0	-	-	10.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	234	459	3	10	46
Future Vol, veh/h	15	234	459	3	10	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	5	5	5	5	2	2
Mvmt Flow	17	263	516	3	11	52

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	519	0	-	0	815	518
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	297	-
Critical Hdwy	4.15	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.245	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1032	-	-	-	347	558
Stage 1	-	-	-	-	598	-
Stage 2	-	-	-	-	754	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1032	-	-	-	340	558
Mov Cap-2 Maneuver	-	-	-	-	340	-
Stage 1	-	-	-	-	587	-
Stage 2	-	-	-	-	754	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1032	-	-	-	501
HCM Lane V/C Ratio	0.016	-	-	-	0.126
HCM Control Delay (s)	8.5	0	-	-	13.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	169	18	3	195	2	51	0	11	3	0	31
Future Vol, veh/h	16	169	18	3	195	2	51	0	11	3	0	31
Conflicting Peds, #/hr	2	0	0	0	0	2	0	0	2	2	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	7	7	7	6	6	6	0	0	0	0	0	0
Mvmt Flow	20	214	23	4	247	3	65	0	14	4	0	39

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	252	0	0	237	0	0	542	526	228	534	536	251
Stage 1	-	-	-	-	-	-	266	266	-	259	259	-
Stage 2	-	-	-	-	-	-	276	260	-	275	277	-
Critical Hdwy	4.17	-	-	4.16	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.263	-	-	2.254	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1285	-	-	1307	-	-	454	460	816	460	454	793
Stage 1	-	-	-	-	-	-	744	692	-	750	697	-
Stage 2	-	-	-	-	-	-	735	697	-	736	685	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1283	-	-	1307	-	-	424	449	814	443	443	791
Mov Cap-2 Maneuver	-	-	-	-	-	-	424	449	-	443	443	-
Stage 1	-	-	-	-	-	-	731	680	-	735	693	-
Stage 2	-	-	-	-	-	-	696	693	-	709	673	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.1	14.4	10.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	463	1283	-	-	1307	-	-	740
HCM Lane V/C Ratio	0.17	0.016	-	-	0.003	-	-	0.058
HCM Control Delay (s)	14.4	7.9	0	-	7.8	0	-	10.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	52	510	348	10	7	30
Future Vol, veh/h	52	510	348	10	7	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	1	1	2	2
Mvmt Flow	55	543	370	11	7	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	381	0	-	0	1029	376
Stage 1	-	-	-	-	376	-
Stage 2	-	-	-	-	653	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1177	-	-	-	259	670
Stage 1	-	-	-	-	694	-
Stage 2	-	-	-	-	518	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1177	-	-	-	242	670
Mov Cap-2 Maneuver	-	-	-	-	242	-
Stage 1	-	-	-	-	648	-
Stage 2	-	-	-	-	518	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1177	-	-	-	502
HCM Lane V/C Ratio	0.047	-	-	-	0.078
HCM Control Delay (s)	8.2	0	-	-	12.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	52	226	57	12	192	9	33	0	6	6	0	33
Future Vol, veh/h	52	226	57	12	192	9	33	0	6	6	0	33
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	2	2	2	1	1	1	0	0	0	0	0	0
Mvmt Flow	62	269	68	14	229	11	39	0	7	7	0	39

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	240	0	0	337	0	0	710	695	303	694	724	236
Stage 1	-	-	-	-	-	-	427	427	-	263	263	-
Stage 2	-	-	-	-	-	-	283	268	-	431	461	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1327	-	-	1228	-	-	351	368	741	360	354	808
Stage 1	-	-	-	-	-	-	610	589	-	747	694	-
Stage 2	-	-	-	-	-	-	728	691	-	607	569	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1327	-	-	1228	-	-	316	342	741	337	329	807
Mov Cap-2 Maneuver	-	-	-	-	-	-	316	342	-	337	329	-
Stage 1	-	-	-	-	-	-	575	555	-	704	685	-
Stage 2	-	-	-	-	-	-	683	682	-	566	536	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0.4	17	10.8
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	347	1327	-	-	1228	-	-	664
HCM Lane V/C Ratio	0.134	0.047	-	-	0.012	-	-	0.07
HCM Control Delay (s)	17	7.8	0	-	8	0	-	10.8
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	0.2

REPLINGER & ASSOCIATES LLC
TRANSPORTATION ENGINEERING

October 8, 2021

Ms. Kelly Reid
City of Oregon City
PO Box 3040
Oregon City, OR 97045

SUBJECT: REVIEW OF TRAFFIC IMPACT STUDY – SERRES FARM SUBDIVISION – GLUA21-29

Dear Ms. Reid:

In response to your request, I have reviewed the materials submitted in support of the proposed Serres Farm Subdivision. The relevant materials consisted of the Traffic Impact Study (TIS), dated May 19, 2021, and a Transportation Analysis Addendum dated September 15, 2021. The both the TIS and Addendum were prepared under the direction of Daniel Stumpf, PE of Lancaster Mobley.

The proposed subdivision totaling approximately 35 acres is located to the north of Holcomb Boulevard between S Oak Tree Terrace and S Winston Drive. The proposed subdivision involves the creation of 124 individual lots. Of these lots, 18 will be duplex lots, capable of accommodating two dwelling units. The TIS assumes development of 142 single-family dwellings. Rezoning of the properties was accomplished in a prior land use action.

The TIS and Addendum provide a basis upon which the transportation impact of the subdivision can be evaluated.

Comments

1. ***Study Area.*** The study addresses the appropriate intersections. The engineer evaluated traffic patterns and traffic volumes and evaluated five locations. The key intersections were:

    - Holcomb Boulevard/S Barlow Drive
    - Holcomb Boulevard/Serres Farm Way (proposed site access)
    - Holcomb Boulevard/Holly Lane (proposed)
    - Highway 213/Redland Road
    - Redland Road/Holcomb Boulevard/Abernethy Road

The latter two intersections were addressed in the Transportation Analysis Addendum.

2. ***Traffic Counts.*** The traffic counts were conducted in July 2021 at the intersections in #1, above. Traffic counts were conducted during the AM and PM peak periods.

   Adjustments to existing and historical counts were used to account for unusual traffic volumes associated with the COVID pandemic and reduced travel. The intersections of Highway 213/Redland Road and Redland/Holcomb/Abernethy were the focus of these efforts. The engineer used a variety of data to develop traffic volumes. He multiplied July 2011 counts by his COVID adjustment factor of 1.0765 to reflect traffic volumes that might reasonably be expected without the pandemic.

   Another piece of evidence used by the engineer to assess the impact of the pandemic on traffic was data was obtained through StreetLight Insight, which is a "big data" company that utilizes primarily cell phone data to derive traffic volumes. The engineer describes this approach as being based "on millions of data points across a broad range of time, rather than just a single count on a single day over a few hours of time." The Addendum provided July data on Highway 213 for weekdays for the last four years (2017 through 2021). The data suggests that July 2020 volumes were depressed but that the 2021 volumes had returned to near normal conditions. The engineer concludes that the July 2021 counts are reliable and that "the calculated adjustment factor described in the previous section provides a reasonable high-end estimate of evening peak conditions." I found the engineer's analysis and conclusions to be compelling even though his COVID adjustment factors are lower than some previous analyses used in previous studies for the same intersections.

   The engineer's data sources, approach and application of adjustment factors as documented in the Addendum appear valid and his base year traffic volumes appear reasonable.

3. ***Trip Generation.*** The TIS presents information on trip generation from the construction of 142 new single-family dwellings. The trip generation rates were taken from the Institute of Transportation Engineers' *Trip Generation Manual – 10th Edition.* The engineer calculated that 142 homes would produce 92 morning peak hour trips, 124 evening peak hour trips, and 1,258 average weekday trips.

Slightly more than half would be generated by the first phase and the remainder during the second phase.

4. ***Trip Distribution.*** The engineer's trip distribution shows 18 percent going to and from the east on Holcomb Boulevard and 82 percent of traffic going to and from the west on Holcomb Boulevard through the intersection of Redland/Holcomb/Abernethy. The largest percentage (25 percent) is expected to travel to and from the northeast on I-205. Fifteen percent is expected to travel to and from the southwest on I-205; 25 percent is expected to travel to and from the west on Abernethy Road with those splitting off to Washington Street, OR 99E and other streets. Eight percent is expected to travel to and from the south on Highway 213. Various roads are predicted to carry one to four percent of the subdivision's traffic. The trip distribution seems reasonable.

   The trip distribution was used to calculate the impact at eight locations where proportionate share for improvements is to be collected including the intersection of Highway 213 and Beavercreek Road.

5. ***Traffic Growth.*** The engineer calculated 2025 traffic volumes for background conditions using several factors. For Holcomb Boulevard an annual rate of two percent was applied. ODOT's Future Volume Tables were used to calculate increases in traffic on Highway 213. AM and PM peak hour traffic volumes for the intersection of Highway 213 and Redland Road were increased by 0.31 percent per year; at the intersection of Redland Road/Holcomb Boulevard/Abernethy Road the annual increase was 1.15 percent. For the 2025 background conditions, the engineer also accounted for the vested trips from first phase of the North End Development (the old landfill site adjacent to Home Depot).

6. ***Analysis.*** Traffic volumes were calculated for the intersections described in #1, above. At each location, the level of service (LOS), delay calculations, and the volume-to-capacity ratio (v/c) were provided to assess operations relative to the ODOT and city's operational standards. The analysis was undertaken for the AM and PM peak hours and included year 2021 existing conditions, 2025 background conditions, and year 2025 with the Serres Farm Subdivision. For the intersections on Holcomb Boulevard near the project site, there was additional analysis for 2030 as discussed below.

   As discussed above, the subdivision is to be implemented in two phases. The first phase comprising 67 units will have a single point of access on Holcomb

Boulevard at a new intersection (Holcomb Boulevard/Serres Farm Way). The second phase will include additional local road connections, including streets that will allow residents to connect to adjacent development to the east and to S Barlow Drive by which access can be gained to Holcomb Boulevard.

According to the analysis, the new intersection of Holcomb Boulevard/Serres Farm Way and the intersection of S Barlow Drive with Holcomb Boulevard will operate at LOS B under with full buildout of the subdivision in 2025.

The TIS also provides an analysis of 2030 conditions with and without the Holly Lane extension from Holcomb Boulevard to Redland Road. Holly Lane and a new connection at Holcomb Boulevard/Holly Lane are listed in the Transportation System Plan (TSP). Holly Lane is expected to be implemented in connection with the Park Place development, a development also being planned in a similar timeframe, but which has not yet been approved. The analysis of 2030 conditions with and without Holly Lane also predicts an acceptable LOS for the intersection of Holcomb Boulevard with Serres Farm Way and S Barlow Road. LOS C is predicted in 2030 for the intersection of Holcomb Boulevard/Barlow Drive with the Holly Lane extension. This also meets adopted city performance standards.

The Addendum provides an analysis of the intersection of OR 213/Redland Road and the intersection of Redland Road/Holcomb Boulevard/Abernethy Road. A new analysis of these intersections was a requirement of the annexation and rezoning of the property (AN16-04).

Using adjusted 2021 traffic volumes, the engineer calculates that the intersection of Highway 213/Redland Road operates at a v/c of 0.91 during the AM peak hour and 0.97 during the PM peak hour. With growth in the region, the performance of the intersection is predicted to degrade. The TIS predicts that by year 2025, the v/c would degrade to 0.93 during the AM peak hour and 1.02 during the PM peak hour with background growth.

In year 2025, adding predicted trips from the development of the Serres Farm property would cause slight additional degradation to v/c of 0.94 during the AM peak hour and 1.03 during the PM peak hour. These values meet the operational standard for the peak hour (v/c 1.10 or lower). For the second highest hour during the PM peak period, the engineer calculated the 2025 background volumes would result in a v/c of 0.98, rising to 0.99 with the addition of traffic from the Serres

Subdivision. This also meets operational standards that specify a v/c of 0.99 or lower.

It is important to note that the TSP as well as the September 2017 TIA undertaken for the annexation of the Serres Farm property (AN16-04), predicted failure of the Highway 213/Redland Road intersection by 2035, the TSP's planning horizon. The TSP proposed a solution for the predicted failure to achieve operational standards at the intersection of Highway 213/Redland Road. The project, identified in the TSP as project D79 and also known as The Jughandle Phase 2, was listed among the "not likely to be funded" category. The principal capacity-increasing feature of this project was increasing the number of through lanes on Highway 213 in both the northbound and southbound directions. Interim projects for Highway 213/Redland Road that increase the capacity of the intersection and which are compatible with TSP project D97 have been investigated. One concept includes the addition of a single southbound lane on 213. Another concept involves the implementation of a triple left-turn lane from Redland Road in combination with an additional receiving lane. Implementing any of these interim or partial projects would require approvals of the Oregon Department of Transportation as would the implementation of TSP project D97.

Under 2021 conditions, the intersection of Redland Road/Holcomb Boulevard/Abernethy Road is calculated to operate at a v/c of 0.56 during the AM peak hour and 0.73 during the PM peak hour. With growth in the region, the performance of the intersection is predicted to degrade. By 2025, the TIS predicts that the v/c would degrade to 0.61 during the AM peak hour and 0.78 during the PM peak hour with background growth. Adding traffic from the proposed development of the Serres Farm property would cause slight additional degradation to v/c of 0.64 during the AM peak hour and 0.83 during the PM peak hour.

Like the intersection of Highway 213/Redland Road, the intersection of Redland Road/Holcomb Boulevard/Abernethy Road was calculated to fail by 2035 according to the September 2017 TIA undertaken for the annexation of the Serres Farm property (AN16-04). The TSP did not specify a project at this intersection to increase capacity, though two projects indicate this intersection as a terminus – project D79, discussed above, and D91, the proposed upgrading of Redland Road from Holcomb Boulevard to Holly Lane. Like project D79, D91 was included in the TSP's "not likely to be funded" category.

In the 2017 TIS for the annexation of the Serres Farm property, the engineer explored mitigation concepts that could be used to improve the performance of the Redland Road/Holcomb Boulevard/Abernethy Road intersection. He concludes that adding an eastbound right turn lane to the Abernethy Road approach would improve the intersection's performance. Another concept explored for this intersection in a TIS for a different development proposed a different turn lane and the use of a different signal timing and phasing plan. Numerous options offer solutions that would allow the intersection to meet adopted performance standards in the TSP's planning horizon (year 2035).

Although both the intersection of Highway 213/Redland Road and the intersection of Redland Road/Holcomb Boulevard/Abernethy Road are calculated to operate acceptably with regard to the v/c ratio, queuing issues were identified in the analysis.

At the intersection of Highway 213/Redland Road, queues are predicted to exceed available storage length for the northbound left-turn lane and for the innermost eastbound left-turn lane. Ultimately, this can only be mitigated by increasing the capacity of the intersection either by implementing TSP project D97 or some interim solution as discussed above.

At the intersection of Redland Road/Holcomb Boulevard/Abernethy Road, queues are predicted to exceed available storage by one or two car lengths for the northbound left-turn lane and the eastbound left-turn lane. In both cases, the engineer indicates sufficient space is available to extend the queue storage. Altering the pavement to extend the queue storage would be a worthwhile modification to the intersection.

7. ***Crash Information.*** The TIS provides crash information for the five-year period from 2014 through 2018. No crashes were reported at the intersection of Holcomb Road/Barlow Drive or in the immediate vicinity along Holcomb Boulevard.

   Crash history for a broader area was conducted in connection with the property's annexation and rezoning. No safety mitigation measures were recommended at that time. The additional information presented in this TIS provides no justification for mitigation for safety issues.

8. ***Sight Distance.*** Sight distance was measured by the engineer at the primary access point (Serres Farm Way) and at a temporary, emergency access near the

west boundary of the property. This secondary access will be removed with Phase 2 of the development when local streets are connected to the subdivisions to the east. At both locations, the engineer measured sight distance in excess of 450 feet to the east and to the west at both locations. This exceeds the minimum recommended sight distance of 390 feet associated with 35 mph, the posted speed of Holcomb Boulevard.

9. ***Holcomb Boulevard Pedestrian Crossing.*** The subdivision also includes a provision for a pedestrian crossing of Holcomb Boulevard to support the TSP projects C5 (upgraded pedestrian crossing) and S11 (shared-use path). The TSP shows the trail and the crossing on the west leg of the intersection of Oak Tree Terrace at S Holcomb Boulevard. However, due to topography along S Holcomb Boulevard at that location, sight distance is limited. To find a safer location for the mid-block crossing, the engineer evaluated sight distance at the western edge of the subject property. Consistent with the above Sight Distance section, the minimum recommended intersection sight distance standard along the roadway is 390 feet. At a location near the west edge of the site, sight distance was measured to be in excess of 450 feet to the east and to the west, provided roadway foliage just west of the south end of the pedestrian crossing is removed/properly maintained.

   According to the engineer, the proposed location of the mid-block crossing is expected to operate safely with respect to available sight distances, following removal/proper maintenance of the obstructing foliage. I concur.

10. ***Turn Lane at Proposed Site Access.*** The engineer evaluated the need for an eastbound left-turn lane at Serres Farm Way (the proposed new site access) on Holcomb Boulevard. Based on the traffic volumes of eastbound and westbound traffic at this location, he determined that a left-turn lane is warranted. Based on this, a left-turn lane is shown as part of the frontage improvements for the site.

11. ***Intersection Spacing.*** As described above, a new access to Holcomb Boulevard is proposed to serve the subdivision. Serres Farm Way is proposed to be located approximately 355 feet west of S Winston Drive and about 620 feet east of Oaktree Terrace. The spacing is appropriate for Holcomb Boulevard, which is classified as a minor arterial. Topographic constraints, sight distance, and existing development limit the options. The proposed site access appears appropriate.

12. ***Local Street Impacts.*** The engineer also evaluated the effect of the subdivision on local streets including the proposed new access to the subdivision and S Barlow Drive, to which the Serres Farm Subdivision will be connected by cross-connected local streets in the north part of the subdivision. Based on the anticipated trips generated by the subdivision, the engineer calculates that the subdivision's main access (Serres Farm Way) will carry about 1100 daily trips. Because of the connections to the Barlow Crest Subdivision, the engineer calculates about 240 daily trips will ultimately be added to Barlow Drive, resulting in about 940 daily trips on that street. The city does not have a standard for traffic volumes on local streets, but Metro's Regional Transportation Plan indicates that local streets are generally designed/intended to serve between 200 to 2,000 vehicles per day. This suggests the volumes are consistent with the intended function of local streets.

13. ***Proportional Share for System Impacts.*** Consistent with the conditions associated with the annexation and rezoning action, the engineer provided calculations of the traffic generated by the subdivision that would impact key transportation facilities for which a proportional share is being collected.

    Proportional share calculations for projects use the following inputs: the project cost as listed in the most recent Transportation System Development Charge project list; the predicted 2035 intersection traffic volumes from the TSP or a TIA showing 2035 traffic volumes; and the calculated intersection volumes using the subject intersections from the proposed development. The per trip cost is derived by dividing the project cost by the total 2035 PM peak hour intersection volumes.

    The following table lists the estimated proportional share attributable to the Serres Subdivision for each phase.

Project	Cost ($000)	Total PM Peak Entering Volume	$/trip	Phase 1 Trips	Phase 1 Share $	Phase 2 Trips	Phase 2 Share $
Redland/Holly D36	1,040	688	1512	1	1512	1	1512
Holcomb/Holly D43	1,040	1899	548	12	6576	10	5480
I-205 SB Ramps/ OR 99E D75	2,990	5690	525	6	4725	4	3150
I-205 NB Ramps/ OR 99E D76	1,970	6155	320	6	1920	4	1280
Hwy213/Redland D97	10,105	6540	1545	37	57,165	31	47,895

Redland/ Holcomb/ Abernethy	na	2273	na	60	na	49	na
Hwy213/Beaver-creek D94	2,800	6935	404	6	2424	4	1616

The proportional share calculation estimates are based on the latest available information. The cost may be adjusted based on a change in the scope of the project or other information.

14. ***Conclusions and Recommendations.*** The engineer identified no adverse crash history along Holcomb Boulevard near the site and indicates adequate sight distance is available at the proposed site access, including the temporary access, and the proposed pedestrian trail crossing near the west boundary of the site. He concludes that a left-turn lane is warranted on Redland Road at Serres Farm Way, the proposed site access. He concludes that Serres Farm Way and S Barlow Drive, an existing local street to which the Serres Subdivision will connect, have sufficient capacity to serve existing local traffic and the proposed subdivision.

    The engineer concludes that study area intersections on Holcomb Boulevard, including the new site access at Serres Farm Way, the intersection with S Barlow Drive, and the planned intersection with Holly Lane, will meet the city's operational standards. All are calculated to operate at LOS C or better under all scenarios. He concludes that of Highway 213/Redland Road and Redland Road/Holcomb Boulevard/Abernethy Road will meet the regional center v/c standard during the first and second hours in year 2025 with the development. He recommends no mitigation.

Conclusion and Recommendations

I find that the TIS provides an adequate basis upon which to assess the impacts of the proposed subdivision. I concur with the engineer's analysis concluding that study area intersections will meet adopted performance standards in 2025 with the subdivision. With the buildout of the Serres Subdivision and other approved developments, the intersections of Highway 213/Redland Road and Redland Road/Holcomb Boulevard/Abernethy Road will be approaching the maximum v/c applicable to intersections in the regional center and may experience operational issues such as queues that extend beyond the available storage capacity.

For the proposed subdivision, I recommend the following conditions of approval:

The applicant construct frontage improvements along Holcomb Boulevard to city standards and construct a left-turn lane at the proposed site access.

The applicant coordinate with the county and, if approved, pay the costs to alter the pavement markings to increase queue storage at the intersection of Redland Road/ Holcomb Boulevard/Abernethy Road.

The applicant pay a proportional share for intersections impacted by his development as follows:

Project/ TSP Project #	Cost ($000)	Total PM Peak Entering Volume	$/trip	Phase 1 Trips	Phase 1 Share $	Phase 2 Trips	Phase 2 Share $
Redland/Holly D36	1,040	688	1512	1	1512	1	1512
Holcomb/Holly D43	1,040	1899	548	12	6576	10	5480
I-205 SB Ramps/ OR 99E D75	2,990	5690	525	6	4725	4	3150
I-205 NB Ramps/ OR 99E D76	1,970	6155	320	6	1920	4	1280
Hwy213/Redland D97	10,105	6540	1545	37	57,165	31	47,895
Redland/ Holcomb/ Abernethy	na	2273	na	60	na	49	na
Hwy213/Beaver-creek D94	2,800	6935	404	6	2424	4	1616

The proportional share estimates in the table above are subject to adjustment based on revised project costs or other variables.

That the developer pay a proportional share of a not-yet-identified project to improve the capacity and operations of the intersection of Redland Road/ Holcomb Boulevard/Abernethy Road based on the ratio of trips generated by his development and the predicted 2035 intersection volumes.

If you have any questions or need any further information concerning this review, please contact me at replinger-associates@comcast.net.

Sincerely,



John Replinger, PE
Principal

Oregon City\2021\GLUA21-29TIA1

From: Kelly Reid
To: Kelly Reid
Subject: FW: Serres Property
Date: Monday, October 18, 2021 10:45:49 PM
Attachments: image002.png
image003.png
image004.png

From: Tim Pfeiffer <tjp@foundationengr.com>
Sent: Wednesday, September 22, 2021 2:17 PM
To: Josh Wheeler <jwheeler@orcity.org>
Subject: RE: Serres Property

Josh,

I reviewed the geotechnical report and the slopes addendum. They are proposing excavation in the area where the slope exceeds 25%. It appears the slopes will be as steep or steeper following proposed excavation and I don't see any provisions in the code for removing a slope hazard. Therefore, it does appear that the conditions of the geologic hazard code apply and Chapter 17.44 would need to be included in the land use conditions.

Their exploration showed residual soil over weathered basalt and no indications of slope instability were observed, so their conclusions regarding slope stability are reasonable. The geotechnical report and the slope addendum appear to cover the applicable requirements for the Geologic Assessment and Geotechnical Report.

Let us know if you have any questions.

Thank you,

Tim Pfeiffer, P.E., G.E. | Senior Geotechnical Engineer | tjp@foundationengr.com
Foundation Engineering, Inc. | 7857 SW Cirrus Drive, Bldg 24, Beaverton, Oregon 97008
Beaverton Office - 503-643-1541, Mobile - 503-407-8604
www.foundationengr.com



From: Josh Wheeler <jwheeler@orcity.org>
Sent: Tuesday, September 21, 2021 8:22 AM
To: Tim Pfeiffer <tjp@foundationengr.com>
Subject: Serres Property

I'm using Mimecast to share large files with you. Please see the attached instructions.

Hello Tim,

The consultant ultimately could not prove that the topography showed a slope less than 25%; therefore, they submitted their original Geotech report, a preliminary engineering plan set, and a slopes addendum.

Please review and determine if they are removing the slopes in such a way that we do not need to condition any geologic hazard conditions in land use. Their goal was that they would have nothing they need to do by removing the steep slopes.

Josh Wheeler, PE
Assistant City Engineer
Public Works Department
City of Oregon City
625 Center Street
Oregon City, Oregon 97045
Email: jwheeler@orcity.org
503.496.1548 Office
971.322.9745 Cell

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From: Kelly Reid
To: Kelly Reid
Subject: FW: Serres Farm development fire access lane
Date: Monday, October 18, 2021 7:47:41 PM
Attachments: image003.png

From: Boumann, Mike <mike.boumann@ClackamasFire.com>
Sent: Wednesday, October 13, 2021 12:09 PM
To: Kelly Reid <kreid@orcity.org>; Sang Pau <spau@orcity.org>
Subject: Re: Serres Farm development fire access lane

That design triggers section D107 of the Oregon Fire Code which with the access shown means all new homes would require fire sprinklers. Here's the section below.

Oregon Fire Code SECTION D107

ONE- OR TWO-FAMILY
RESIDENTIAL DEVELOPMENTS

D107.1 One- or two-family dwelling residential developments.
Developments of one- or two-family dwellings where the number of dwelling units exceeds 30 shall be provided with two separate and approved fire apparatus access roads.

Exceptions:
1. Where there are more than 30 dwelling units on a single public or private fire apparatus access road and all dwelling units are equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, access from two directions shall not be required.
2. The number of dwelling units on a single fire apparatus access road shall not be increased unless fire apparatus access roads will connect with future development, as determined by the fire code official.

D107.2 Remoteness. Where two fire apparatus access roads are required, they shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal

dimension of the property or area to be served, measured
in a straight line between accesses.

From: Kelly Reid <kreid@orcity.org>
Sent: Wednesday, October 13, 2021 10:01 AM
To: Boumann, Mike <mike.boumann@ClackamasFire.com>; Sang Pau <spau@orcity.org>
Subject: RE: Serres Farm development fire access lane

Thanks Mike. There will not be an access from the North at all. The street in the NW corner of the property will actually be a dead end and will remain that way for a while, until there is a UGB expansion and development to the north.

The only access to the development in Phase 1 will be from Holcomb and the temporary fire access. When Phase 2 is built, there will be a connection via Kaylyn Drive and the temporary fire access will be eliminated. Can you please confirm if this is acceptable?

Thanks,

Kelly Reid

She/her/hers

Planner

Community Development Department, City of Oregon City

695 Warner Parrott Rd, Oregon City, OR 97045

kreid@orcity.org

(503) 496-1540 Direct

(503) 722-3789 Main

Website

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From: Boumann, Mike <mike.boumann@ClackamasFire.com>
Sent: Wednesday, October 13, 2021 7:54 AM
To: Sang Pau <spau@orcity.org>; Kelly Reid <kreid@orcity.org>
Subject: Re: Serres Farm development fire access lane

Good morning Kelly and Sang,

Yes Kelly, the temporary fire access as shown will work for us until phase 2 is started. Will there be an access coming from the north prior to start of phase 2 construction? This would be our recommendation based on the size of the project and more in line with our secondary fire access requirements.

Sang, we would not need a FD turnaround at that location. We could use the shown temp access if needed. Also, for this situation, instead of bollards we would prefer a chain or gate with one operation for fire access.

Conditions from CFD#1:

1. A Fire Access and Water Supply plan for subdivisions and commercial buildings over 1000 square feet in size or when required by Clackamas Fire District #1. The plan shall show fire apparatus access, fire lanes, fire hydrants, fire lines, available fire flow, FDC location (if applicable), building square footage, type of construction, and shall provide

fire flow tests per NFPA 291 or hydraulic model when applicable and shall be no older than 12 months. Work to be completed by experienced and responsible persons and coordinated with the local water authority. Submit PDF directly to the Clackamas Fire District website at clackamasfire.com once complete. Call with any questions regarding design requirements 503-742-2673.

2. Prior to the start of combustible construction required fire hydrants shall be operational and accessible.

3. Prior to the start of combustible construction, fire access roads shall be required with the ability to support 75,000 lbs during all weather conditions.

Hope that helps, thanks for asking.

Respectfully,

Mike Boumann
Captain Deputy Fire Marshal | Fire Prevention
direct: 503.742.2673

main: 503.742.2600

To Safely Protect & Preserve Life & Property

CLACKAMAS FIRE DISTRICT #1
www.clackamasfire.com

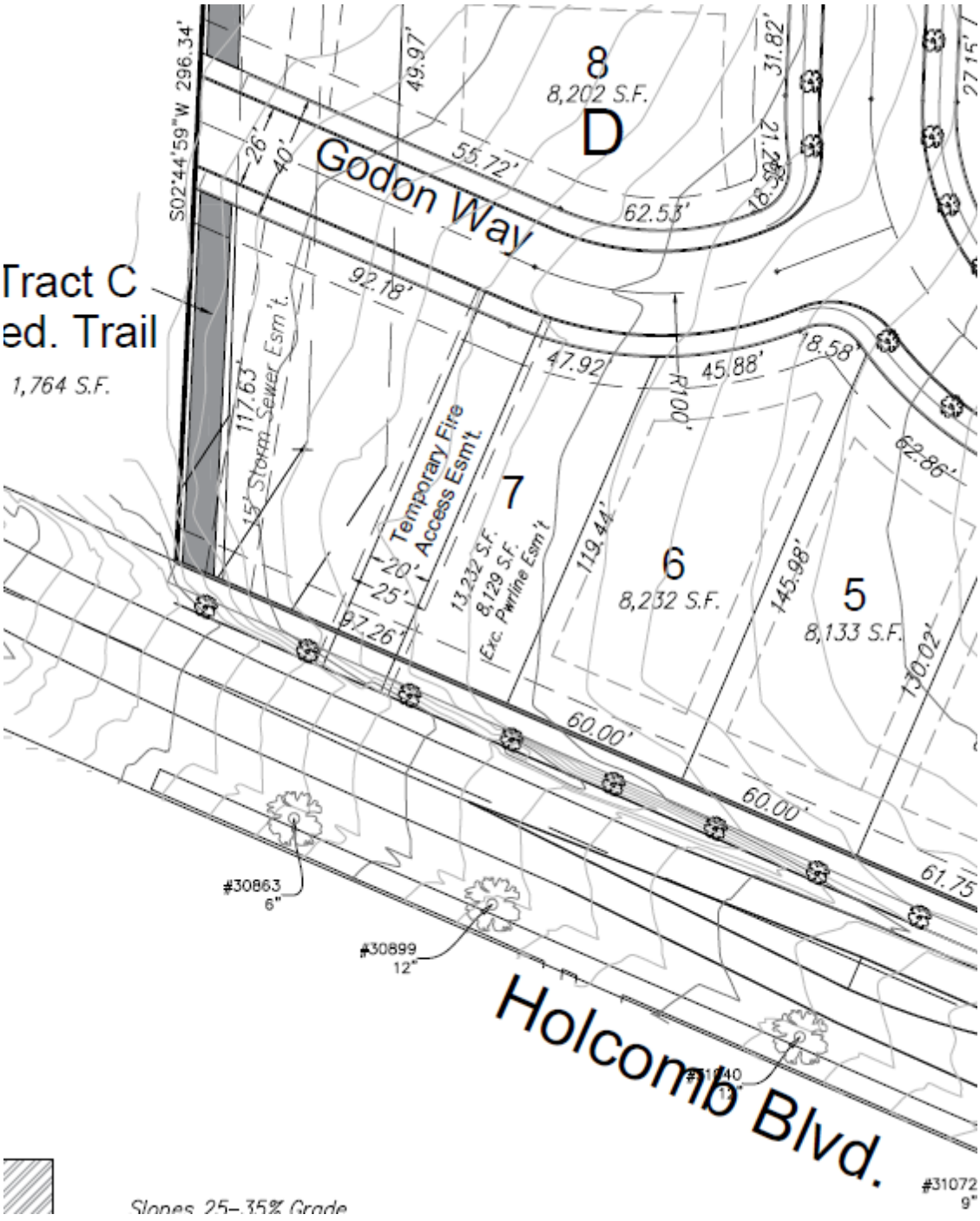
From: Kelly Reid <kreid@orcity.org>
Sent: Tuesday, October 12, 2021 2:52 PM
To: Mike Boumann <mike.boumann@ClackamasFire.com>
Cc: Sang Pau <spau@orcity.org>
Subject: Serres Farm development fire access lane

Hi Mike,

I'm reaching out for comments on the proposed 123-lot subdivision (Serres Farm, GLUA-21-00029) – there is a proposed emergency access lane for temporary access before Phase 2 is built. Can you confirm whether this will meet the needs of CCFD and if you have any recommended conditions of approval? We are hoping to have a final staff report done this week. Let me know if you need more information and thank you!!

Below is language from the applicant's narrative and the plan set is attached.
Note that a temporary emergency vehicle access is provided onto Holcomb Blvd. This access will be gated or have bollards to Fire District specifications to restrict vehicular use to emergency vehicles

only. This access will cease to be used when other access to the surrounding street system is available with future development.



Kelly Reid
She/her/hers
Planner
Community Development Department, City of Oregon City

695 Warner Parrott Rd, Oregon City, OR 97045
kreid@orcity.org
(503) 496-1540 Direct
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From: Kelly Reid
To: Kelly Reid
Subject: FW: Serres Farm development fire access lane
Date: Monday, October 18, 2021 7:47:04 PM
Attachments: image004.png

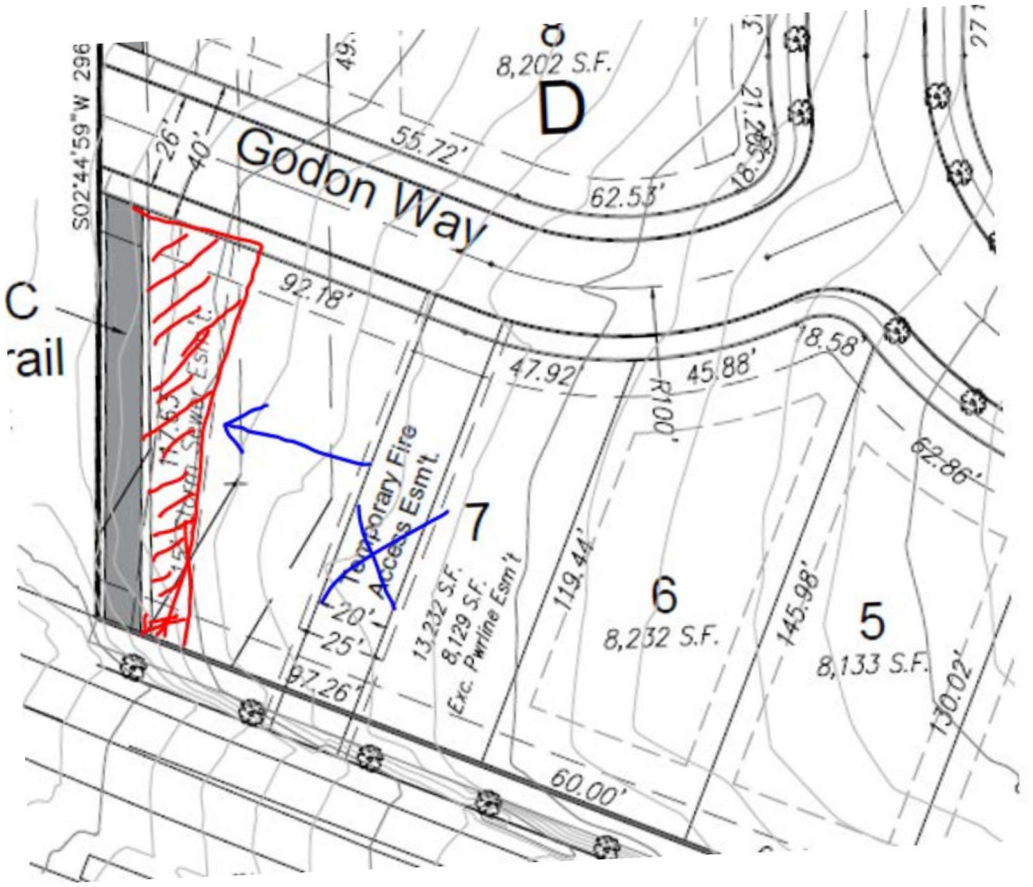
From: Boumann, Mike <mike.boumann@ClackamasFire.com>
Sent: Wednesday, October 13, 2021 12:46 PM
To: Sang Pau <spau@orcity.org>; Kelly Reid <kreid@orcity.org>
Subject: Re: Serres Farm development fire access lane

Oh, yes they can do that. If it's 20' wide, can support 75,000lbs, meets our turning radius requirements, and it's a single action unlocking (gate/chain) or removal in the case of bollards.

From: Sang Pau <spau@orcity.org>
Sent: Wednesday, October 13, 2021 12:37 PM
To: Boumann, Mike <mike.boumann@ClackamasFire.com>; Kelly Reid <kreid@orcity.org>
Subject: RE: Serres Farm development fire access lane

Mike,

Just to clarify. They can widen the shared use path to serve as the emergency path instead of creating a completely spare ate one (see image below).



Thank you,

Sang Pau

Development Engineering Associate

Oregon City Public Works

625 Center Street
Oregon City, Oregon 97045

PO BOX 3040

spau@orcity.org

503-974-5503

Website: www.orcity.org | www.orcity.org/maps

Think **GREEN** *before you print.*

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OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

NOTICE OF DECISION

DATE OF MAILING OF NOTICE OF DECISION: May 8th, 2017

FILE #.: AN-16-0004 / ZC-16-0001

ORDINANCE #: 17-1005
17-1006

APPLICATION TYPE: Annexation and Zone Change

HEARING DATES: City Commission First Reading: April 19th, 2017
Second Reading: May 3rd, 2017

PETIONERS: Serres Family H, LLC, 15207 S Forsythe Rd, Oregon City, OR 97045

REQUEST: Annexation and Zone Change of six properties north of Holcomb Blvd and west of Winston Drive totaling 35.65 acres into Oregon City. The subject territory is within the Oregon City Urban Growth Boundary, and has a Comprehensive Plan designation of LR – Low Density Residential. Applicant requested a Zone Change to R-10 Single Family Residential.

LOCATION: Clackamas APN 2-2E-28A, TL 500 (3.3 ac), TL 580 (9.7 ac), and TL 590 (4.9 ac)
Clackamas APN 2-2E-21D, TL 2100 (5.0 ac), TL 2190 (5.0 ac), and TL 2200 (7.2 ac)

DECISION: On May 3rd, 2017, after reviewing all of the evidence in the record, and considering the Planning Commission's recommendation and the testimony of the applicant, staff and interested citizens, the City Commission determined by a vote of 3-0 that the application demonstrated a positive balance of the factors set forth in section 14.04.060 of the Oregon City Municipal Code. Accordingly, the City Commission approved Annexation AN-16-0004 and Zone Change ZC-16-0001, and adopted as its own Ordinances 17-1005, adopting the Findings of Fact and approving the Zoning Map Amendment and Annexation application, and Ordinance 17-1006, changing the City Boundary and Annexing the Property. The ordinances, along with the full record for these files are available for review at the Planning Division.

PROCESS: This decision was issued pursuant to OCMC 17.50. Please be advised that any issue that is intended to provide a basis for appeal must have been raised before the close of the City Commission hearing, in person or by letter, with sufficient specificity to afford the City Commission and the parties an opportunity to respond to the issue. Failure to raise an issue with sufficient specificity will preclude any appeal on that issue.

The city commission decision is the city's final decision and is appealable to the land use board of appeals (LUBA) within twenty-one days of when this notice of decision is mailed.

BEFORE THE CITY COMMISSION

FOR THE CITY OF OREGON CITY, OREGON

In the matter of a request for annexation of 35.65 acres located north of South Holcomb Boulevard within the Portland Metropolitan Urban Growth Boundary (the "UGB") and a zoning map amendment from the Clackamas County FU-10 zone to the City R-10 zone implementing the City Comprehensive Plan (the "Plan") map designation of Low-Density Residential ("LDR")	**FINDINGS OF FACT AND CONCLUSIONS OF LAW APPROVING THE ZONING MAP AMENDMENT AND ANNEXATION APPLICATION** **CITY OF OREGON CITY FILE NUMBERS AN-16-0004 AND ZC-16-0001**

I. INTRODUCTION.

A. Decision with condition of approval.

This decision **APPROVES** the annexation and rezoning map application with a condition of approval satisfying the Oregon Transportation Planning Rule ("TPR"). These findings constitute the Oregon City City Commission's (the "City Commission") final, written decision.

B. Incorporation.

The City Commission's decision incorporates the following documents by reference. Where these letters or staff documents conflict with these findings, these findings shall control.

1. Three (3) letters from the Applicant's representative, Michael C. Robinson.

The three (3) incorporated letters are as follows:

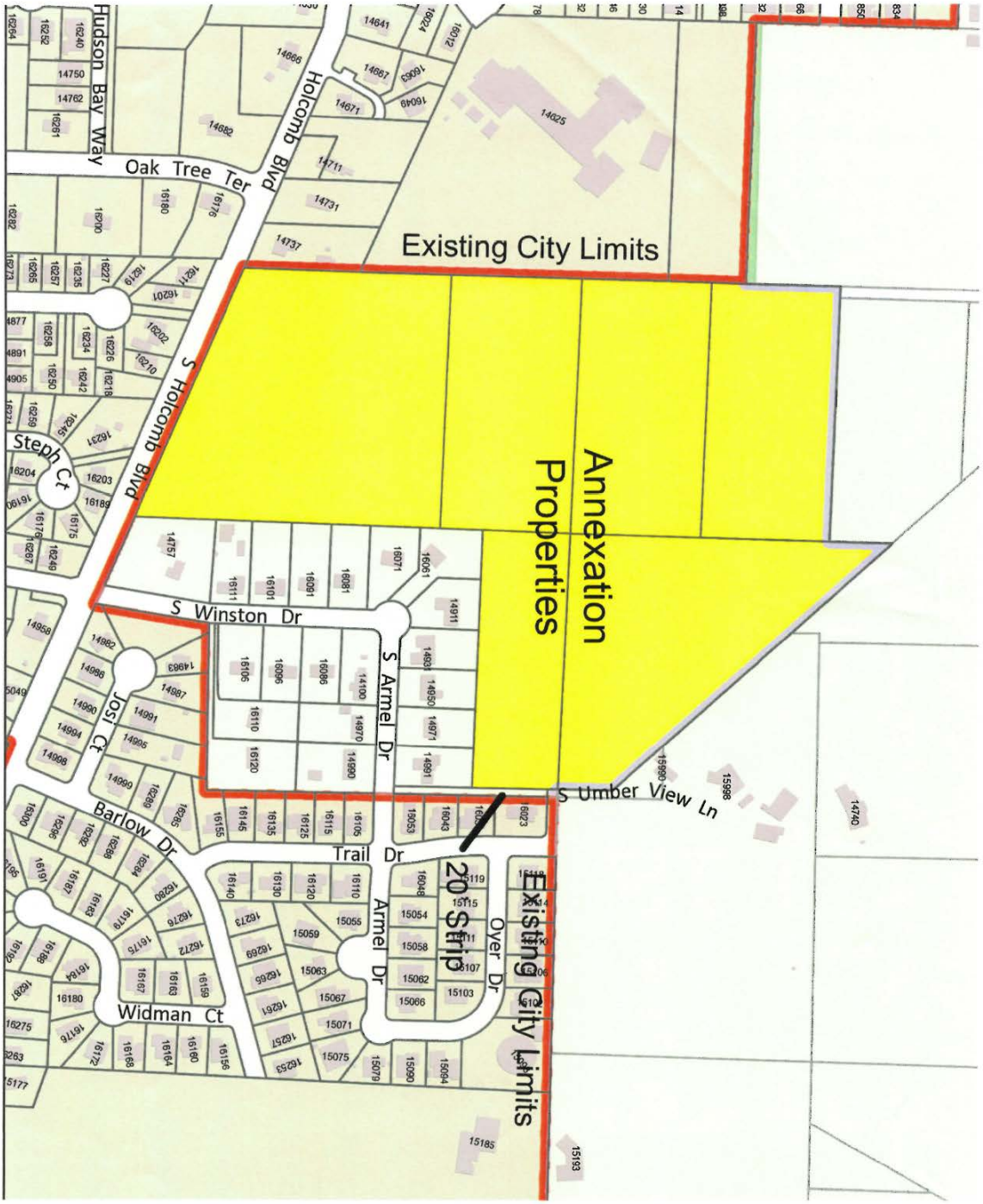
- February 27, 2017 four (4) page letter with five (5) exhibits;
- March 13, 2017 nine (9) page letter with seven (7) exhibits; and
- March 27, 2017 four (4) page letter with two (2) exhibits.

2. Staff reports.

The City Commission's decision incorporates the staff report titled "STAFF REPORT WITH FINDINGS AND RECOMMENDATION" that was presented to the Planning Commission and City Commission. This decision also incorporates the three (3) page memorandum from the City Engineer dated March 9, 2017.

C. Procedure.

The Applicant submitted an application for an annexation of 35.65 acres located North of Holcomb Boulevard within the UGB and a zoning map amendment from the Clackamas County FU-10 zone to the City R-10 zone implementing the City Plan map designation of LDR (**Exhibit 1**).



The City provided timely notice of the initial Planning Commission hearing on November 14, 2016. The Planning Commission opened that public hearing and continued the hearing to a date time and certain through the final Planning Commission hearing on March 13, 2017. The City

also provided required notice of the post-acknowledgment amendment of the City's acknowledged land use regulations by the zoning map amendment to Metro and the Oregon Department of Land Conservation and Development ("DLCD") thirty-five (35) days prior to the initial evidentiary hearing.

The Planning Commission on March 13, 2017 with a quorum present recommended by a vote of 3-2 that the City Commission approve the annexation application and zoning map amendment.

The City Commission held its hearing on April 5, 2017. Four (4) of the five (5) City Commission members constituting a quorum were present, with Commissioner O'Donnell absent.

No party objected to the City Commission's jurisdiction to hear the applications. No City Commission member disclosed any bias or conflict of interest. Each City Commission member acknowledged that he or she had visited the site. When offered an opportunity to rebut the substance of the site visits, no party requested an opportunity to do so.

The whole Planning Department record for files AN-16-0004 / ZC-16-0001 was physically before the City Commission at the hearing.

The City Commission caused the announcements required by ORS 197.763(5) to be read. The City Commission conducted an "on the record" hearing and no party introduced new evidence into the record of the *quasi-judicial* hearing.

Following the staff report with slides, the City Council provided an opportunity for testimony by the public. Following testimony by the public, the Applicant provided rebuttal.

The City Commission closed the public hearing and record and deliberated to a tentative decision. On a motion by Commissioner Ide, seconded by Commissioner Mengelberg, the City Commission voted 4-0 to tentatively approve the annexation and zoning map amendment, directing staff to return with proposed findings at the April 19, 2017 City Commission meeting at which no new testimony or evidence would be accepted.

D. Relevant facts.

The site that is the subject of the annexation and zoning map amendment is located within the UGB north of South Holcomb Boulevard. The site contains 35.65 acres. The site is designated LDR on the City's acknowledged Plan map. The site is currently zoned Clackamas County FU-10 and the zoning map amendment is proposed to change the site to City R-10, the City's lowest density residential zone. The site to be annexed and rezoned consists of six (6) tax lots. The site is adjacent to the City limits on two (2) sides. A 20-foot wide strip known as South Umber View Lane is adjacent to the site and is within Clackamas County but is not proposed to be annexed.

II. FINDINGS OF FACT ADDRESSING RELEVANT APPROVAL CRITERIA.

The findings that address the annexation and zoning map amendment application are set forth below.

A. The zoning map amendment from the Clackamas County FU-10 zone to the City R-10 zone.

The applicant requested a zoning map amendment consistent with the acknowledged Plan, as explained above. The sole criterion for a zoning map amendment concurrent with an annexation where a Plan map designation is present on the property is Oregon City Municipal Code ("OCMC") 17.68.025.A. The City Commission finds that the Plan designation for the property is LDR. Pursuant to the table in OCMC 17.68.025.A, the City Commission finds that the R-10 zoning district is required to be applied to the property. The City Commission further finds that no other discretionary approval criteria in the OCMC or the Plan are required to be addressed.

The City Commission finds that the TPR must be satisfied pursuant to OAR 660-012-0060(1) because the zoning map amendment is an amendment to the City's acknowledged land use regulations. Based on substantial evidence in the whole record, including a letter dated March 6, 2017 from the Oregon Department of Transportation ("ODOT") agreeing that the condition of approval #14 below satisfies the TPR, the City Commission agrees with the relevant incorporated staff report that the "significant affect" is mitigated pursuant to OAR 660-012-0060(2)(e) through the condition of approval recommended by the Planning Commission. The recommended condition of approval #14 is as follows:

> **"In accordance with City, County and State Transportation requirements, no development, except that permitted under the County's Future Urban FU-10 zoning designation, in effect as of the date of this application's submittal, shall be allowed until the following occurs and the Applicant demonstrates compliance with these requirements:**
>
> **a. Highway 213 at Redland Road intersection (an Oregon Highway intersection) is forecasted to fall below adopted performance standards prior to year 2035. As a result, a new Refinement Plan, shall be adopted and acknowledged.**
>
> **b. Redland Road at Holcomb Boulevard/Abernethy Road (a non-Oregon Highway intersection) is forecasted to fall below adopted performance standards prior to year 2035. As a result, the City must do one of the following:**
>
> **(1) Adopt amendments to the City's Transportation System Plan and OCMC Chapter 12.04 to include projects that satisfy the then-applicable performance standards and these standards must be acknowledged; or**
>
> **(2) Condition of approval of a land division application that satisfies then-applicable OCMC Chapter 12.04**

by including proportional mitigation of the application's impacts on that intersection, or such other mitigation measure(s) as may be approved which assure(s) that the intersection will either meet, or perform no words than, the then-applicable performance standards."

For the reasons contained herein, the City Commission finds that the Applicant has satisfied the relevant approval criteria for a zoning map amendment implementing the City's acknowledged Plan and that the TPR is satisfied by adopting the above condition of approval.

B. Annexation application.

The annexation of property within the UGB is subject to OCMC 14.04.060.(A).1.-7., relevant Plan policies, Metro Code Chapter 3.09 and ORS Chapter 222. The City Commission finds that based on the incorporated staff reports, the applicant's incorporated letters and other substantial evidence in the whole record, the relevant annexation approval criteria are satisfied for the annexation.

The City Commission notes the Oregon City Public School District's letter dated March 13, 2017 from Mr. Wes Rogers, Director of Operations for the school district, in which the school district states that it has adequate secondary school enrollment capacity to accommodate the expected number of students from development of the property to be annexed and that forecast enrollment for 2026-2027 for Holcomb Elementary School would exceed the 2016 forecasted capacity by five (5) students. However, the school district did not object to the annexation on this basis and noted that Holcomb Elementary School had yet to enroll any students from the almost completed Sunny Brook Ridge development from the west of the school. The City Commission finds that school facilities will be adequate to serve the site based on the letter.

The City Commission also relies upon the incorporated March 9, 2017 memorandum from the City Engineer regarding stormwater design standards and low impact development and the Applicant's available public facilities and services narrative explaining why there is, or will be, sufficient water, sanitary sewer, stormwater, and park facilities to serve the site in concluding that OCMC 14.04.060.A.3 (adequacy and availability of public facilities and services to service potential development) is satisfied.

The City Commission also adopts findings addressing the following four (4) other issues:

1. The approval of the annexation application will not create an island.

Several persons argued that the annexation would result in the creation of an "island". An island is an area of unincorporated Clackamas County completely surrounded by the City. The City Commission finds based on substantial evidence in the whole record that the annexation will not create an island. Since the City Commission found that this proposed annexation did not create an island, Plan Policy 14.4.3 is satisfied.

2. The Barlow Trail on the property will be preserved.

While not an approval criterion, the City Commission notes that several persons raised the issue of preservation of the Barlow Trail on the site. The Applicant committed to complying with

relevant OCMC land division requirements that require preservation of the Barlow Trail.

3. Land division issues do not apply to the annexation application.

Several persons raised issues concerning how the property would develop following annexation. The City Commission finds that issues related to future development are irrelevant to the annexation application. The City Commission relies on a statement in the Plan, Section 14, "Urbanization", at page 118 as follows for support for this finding:

> **"The Planning Commission and City Commission should not consider issues related to annexations that are better suited to development reviews. The City should consider its ability to adequately provide public facilities and services to an area and leave development plans and related issues to the site development/design review process. . . . Applications for annexation, whether initiated by the City or individuals, are based on specific criteria contained in the *City of Oregon City Municipal Code*." (Emphasis in original).**

4. Senate Bill ("SB") 1573.

Several persons argued that the City Commission should require a vote of the electorate on the annexation application as required by the Oregon City City Charter despite SB 1573. The City Commission finds that SB 1573 provides that, notwithstanding a contrary provision of the City Charter, upon receipt of an annexation petition submitted by all owners of land in the territory, the legislative body of a City shall annex the territory without submitting a proposal to the electors if certain criteria are satisfied. SB 1573, Section 2(2). The City Commission finds that substantial evidence in the whole record demonstrates that all of the owners of the land proposed to be annexed have signed the annexation petition.

The City Commission further finds that the requirements of SB 1573 for dispensing with an election to approve the annexation are satisfied. First, the City Commission finds that the territory proposed to be annexed is included within the UGB adopted by Metro. SB 1573, Section 2(2)(a). Second, the City Commission finds that the area proposed to be annexed is subject to the City's acknowledged Comprehensive Plan. SB 1573, Section 2(2)(b). Third, the City finds that the area proposed to be annexed is contiguous to the City limits. SB 1573, Section 2(2)(c). Fourth, the City Commission finds, as explained elsewhere in this decision that the proposed annexation conforms to all of the requirements of the City's ordinances. SB 1573, Section 2(2)(d).

Pursuant to SB 1573 Section 2(4), the City Commission has determined that the criteria in subsection (2) apply and may, therefore, annex the proposed territory by ordinance without submitting the annexation to the electors of the City.

III. FINDINGS AND DECISION.

For the reasons explained in this decision, the City Commission **APPROVES** the zoning map amendment and annexation application and specifically includes the recommended condition of approval demonstrating that the zoning map amendment is consistent with the TPR in the decision.

ORDINANCE NO. 17-1005

AN ORDINANCE OF THE CITY OF OREGON CITY APPROVING AN ANNEXATION AND REZONING PROPOSAL (PLANNING FILES NO. AN-16-0004 / ZC-16-0001) FOR 35.65 ACRES OF PROPERTY LOCATED NORTH OF HOLCOMB BOULEVARD

WHEREAS, the owners of certain real property adjacent to the City of Oregon City, Owners identified as SERRES EDWARD J TRUSTEE, proposed in Annexation Proposal No. AN-16-0004 that their 35.65 acre properties consisting of six tax lots identified as Clackamas County Map 2-2E-28A, Tax Lots 500, 580, and 590 and Clackamas County Map 2-2E-21D, Tax Lots 2100, 2190 & 2100, more fully identified in Exhibit 'A' to this Ordinance, be annexed to the City; and

WHEREAS, the City finds that the proposal complies with all applicable legal requirements, as detailed in the findings attached hereto and made a part of this ordinance as Exhibit 'B'; and

WHEREAS, the proposal includes a request for the automatic rezoning of said property pursuant to OCMC 17.06.030 - *Zoning of annexed areas*, wherein all lands within the urban growth boundary of Oregon City have been classified according to the appropriate city land use designation as noted on the comprehensive plan map (per the city/county urban growth management area agreement); and

WHEREAS, the zoning map amendment to R-10 is consistent with the acknowledged Oregon City Comprehensive Plan designation of Low Density Residential LDR; and

WHEREAS, the City finds that the application, planning file no. ZC-16-0001, for rezoning to R-10 Single Family Residential meets the City's requirements and includes appropriate conditions for compliance with the Statewide Transportation Planning Rule OAR 660-12 which has been agreed to by the City and the Oregon Department of Transportation.

NOW, THEREFORE, OREGON CITY ORDAINS AS FOLLOWS:

Section 1. That the Findings of Fact and Conclusions of Law Approving the Zoning Map Amendment and Annexation Application are hereby adopted.

Read for the first time at a regular meeting of the City Commission held on the 19th day of April 2017, and the City Commission finally enacted the foregoing ordinance this 3rd day of May 2017.

BRIAN SHAW, Commission President

Attested to this 3rd day of May 2017,

Kattie Riggs, City Recorder

Approved as to legal sufficiency:

City Attorney

Attachments:
Exhibit A - Legal Description and Map of Proposed Annexation.
Exhibit B – Findings of Fact and Conclusions of Law Approving the Zoning Map Amendment and Annexation Application.

ORDINANCE NO. 17-1006

AN ORDINANCE OF THE CITY OF OREGON CITY ANNEXING 35.65 ACRES OF PROPERTY LOCATED NORTH OF HOLCOMB BOULEVARD TO THE CITY OF OREGON CITY

WHEREAS, the owners of certain real property adjacent to the City of Oregon City, Owners identified as SERRES EDWARD J TRUSTEE, proposed in Annexation Proposal No. AN-16-0004 that their 35.65 acre properties consisting of six tax lots identified as Clackamas County Map 2-2E-28A, Tax Lots 500, 580, and 590 and Clackamas County Map 2-2E-21D, Tax Lots 2100, 2190 & 2100, more fully identified in Exhibit 'A' to this Ordinance, be annexed to the City; and

WHEREAS, the City found through the adoption and enactment of Ordinance 17-1005 that the proposal complies with all applicable legal requirements to approve this annexation, as detailed in the findings attached hereto and made a part of this ordinance as Exhibit 'B; and

WHEREAS, Senate Bill 1573, adopted in 2016, requires annexation of territory without a vote by the people, notwithstanding city charter and regulations to the contrary, and the City finds that the annexed area is within the urban growth boundary, is subject to an acknowledged comprehensive plan, is contiguous to the city limits and conforms with all other city requirements; thus meeting the requirements of Senate Bill 1573; and

WHEREAS, the identified property is currently in Clackamas Fire District # 1 (CFD#1); and CFD#1 will continue to provide fire protection service to the identified property when annexed; and

WHEREAS, the identified property is currently within the Clackamas County Service District for Enhanced Law Enforcement; and the Oregon City Police Department will be responsible for police services to the identified property when annexed; and

WHEREAS, the identified property is currently within and served by the Clackamas River Water (CRW) District service area; and the property will continue to be served by CRW when annexed; and

WHEREAS, the identified property is not currently within the Tri-City Service District and must petition for annexation into said District with the concurrence of the City; and

WHEREAS, the City Commission concurs that the Tri-City Service District can annex the identified properties into their sewer district.

NOW, THEREFORE, OREGON CITY ORDAINS AS FOLLOWS:

Section 1. That the area further identified in the legal description attached hereto as Exhibit "A", is hereby annexed to and made a part of the City of Oregon City.

Section 2. That the territory identified in Exhibit "A" shall hereby remain within Clackamas County Fire District # 1.

Section 3. That the territory identified in Exhibit "A" is hereby withdrawn from Clackamas County Service District for Enhanced Law Enforcement, and henceforth, the Oregon City Police Department will be responsible for police services to the identified property.

Section 4. That the territory identified in Exhibit "A" shall remain within Clackamas River Water District pursuant to the existing Holcomb-Outlook-Park Place (HOPP) intergovernmental agreement.

Section 5. The City hereby concurs with and supports the annexation of the territory identified in Exhibit "A" into the Tri-City Sewer Service District by the Clackamas County Board of Commissioners, to the extent allowed by law.

Section 6. That the effective date for this annexation is the date this ordinance is submitted to the Secretary of State, as provided in ORS 222.180.

Read for the first time at a regular meeting of the City Commission held on the 19th day of April 2017, and the City Commission finally enacted the foregoing ordinance this 3rd day of May 2017.

BRIAN SHAW, Commission President

Attested to this 3rd day of May 2017,

Kattie Riggs, City Recorder

Approved as to legal sufficiency:

City Attorney

Attachments:
Exhibit A - Legal Description and Map of Proposed Annexation.
Exhibit B – Findings of Fact and Conclusions of Law Approving the Zoning Map Amendment and Annexation Application.

OREGON CITY

Community Development – Planning

695 Warner Parrott Road | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

TYPE I STAFF REPORT AND DECISION
12/10/2020

FILE NUMBER: NROD-20-00019: Verification of Natural Resources Overlay District

APPLICANT: The Holt Group, Inc.
PO Box 61426, Vancouver, WA 98666

Submitted: 9/25/2020
NOD: 12/10/2020

REPRESENTATIVE: AKS Engineering & Forestry, LLC
12965 SW Herman Road, Suite 100, Tualatin, OR 97062
Contact: Chris Goodell

OWNER: Serres Family H, LLC
14703 S Forstythe Road, Oregon City, OR 97045

REQUEST: Type I NROD Verification

SITE LOCATION: North of Holcomb Boulevard, South of Forsythe Road
Clackamas County Assessor's Map:
Map 2 2 E 28A; Tax Lots 500, 2200, and 2300
Map 2 2E 21D; Tax Lots 2100, 2200, and 2300

REVIEWER: Pete Walter, AICP, Senior Planner

DECISION: Approval as Proposed.

PROCESS: Type I decisions do not require interpretation or the exercise of policy or legal judgment in evaluating approval criteria. Because no discretion is involved, Type I decisions do not qualify as a land use, or limited land use, decision. The decision-making process requires no notice to any party other than the applicant. The community development director's decision is final and not appealable by any party through the normal city land use process. IF YOU HAVE ANY QUESTIONS ABOUT THIS APPLICATION, PLEASE CONTACT THE PLANNING DIVISION OFFICE AT (503) 722-3789.

I. BACKGROUND:

1. Existing Conditions

The City's NROD map includes a protected feature designation along Holcomb Boulevard as well as along the site's northern boundary (associated with an off-site feature).

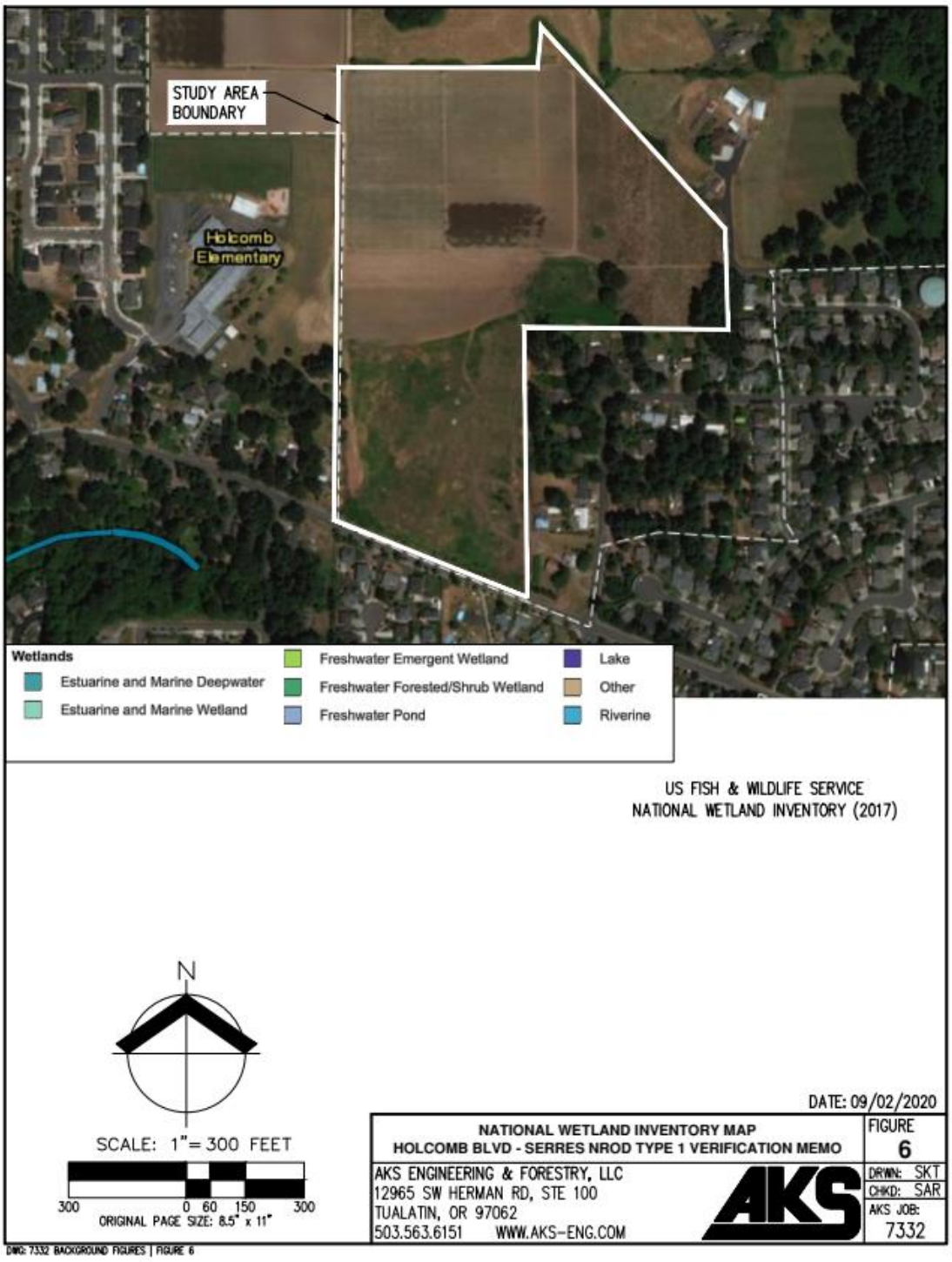


Figure 1. Vicinity Map / Aerial

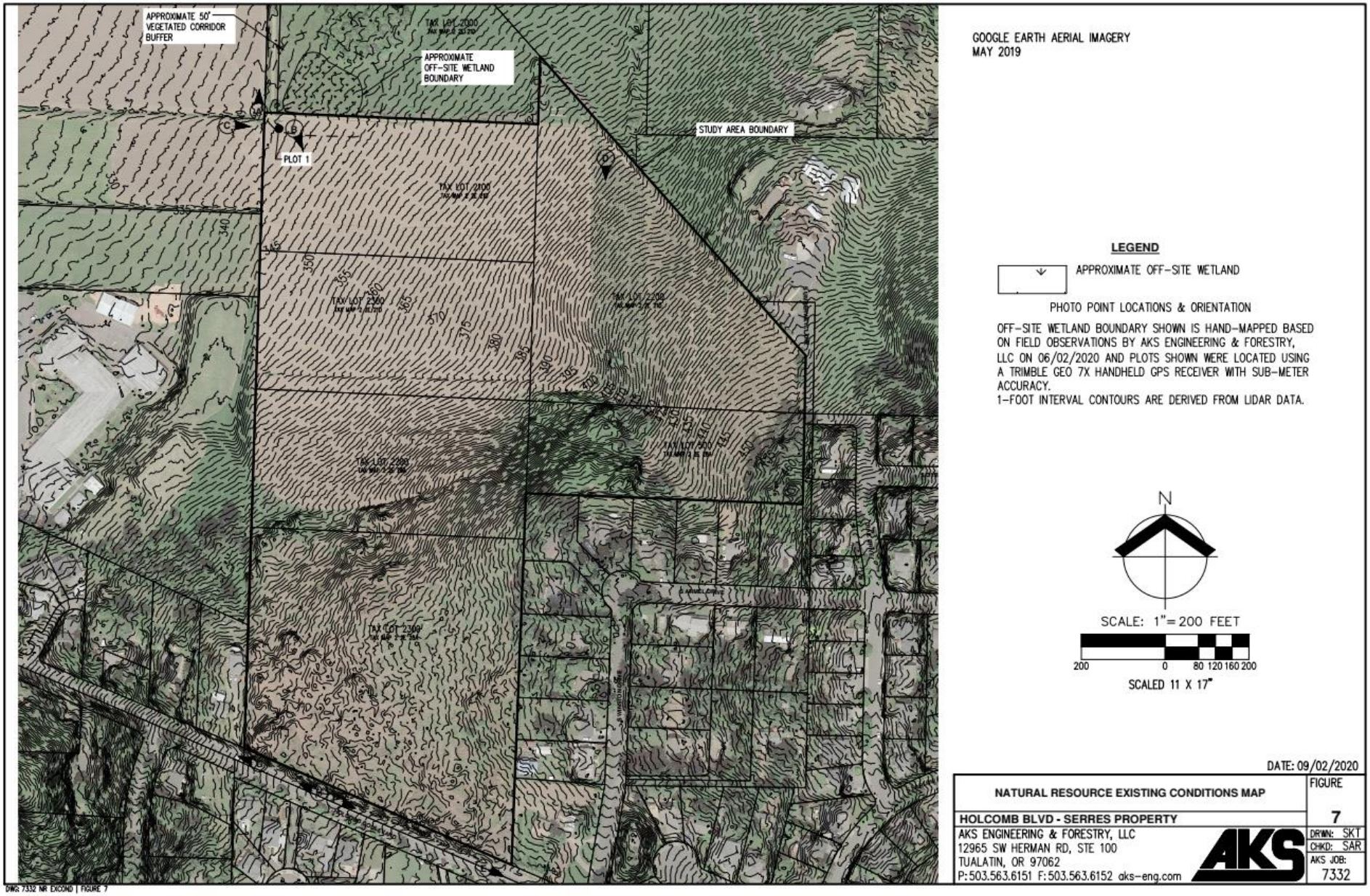


Figure 2 (Applicant's Figure 7): Existing Conditions

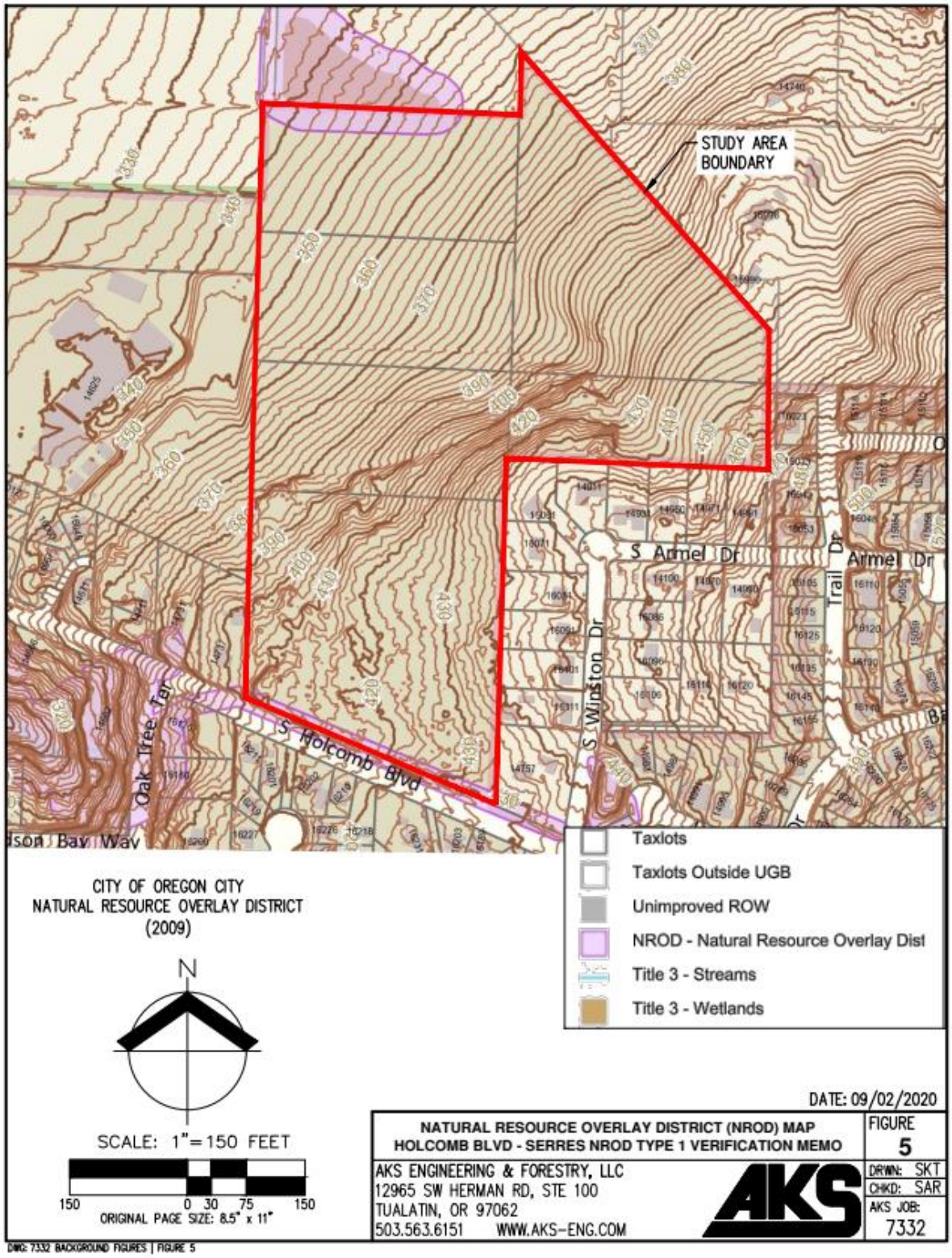


Figure 3 – Current Adopted NROD Map.

2. Project Description

The purpose of the application is to demonstrate via the Type I process, that the protected feature designation along Holcomb Boulevard does not meet the definition of a protected water or habitat feature. This applicant submitted a report pursuant to OCMC 17.49.250 which states;

"The NROD boundary may have to be verified occasionally to determine the true location of a resource and its functional values on a site. This may be through a site specific environmental survey or a simple site visit in those cases where existing information demonstrates that the NROD significance rating does not apply to a site-specific area. Applications for development on a site located in the NROD area may request a determination that the subject site is not in an NROD area and therefore is not subject to the standards of OCMC 17.49.100. Verifications shall be processed as either a Type I or Type II process."

The application includes the City application form, applicable code responses, an NROD Type I Verification Memo and various other exhibits prepared by Sonya Templeton, Natural Resource Specialist, and Stacey Reed, PWS, Senior Wetland Scientist of AKS Engineering and Forestry, dated 9/2/2020.

The materials submitted are sufficient for City staff to review and determine that the mapped NROD along Holcomb Boulevard does not meet the definition of a protected water feature and is not subject to the requirements and/or standards in Chapter 17.49. The application also verifies the presence of the mapped protected water feature to the north and the extent that the vegetated corridor extends onto the subject property.

In response to Planning staff's request for additional information, the applicant provided the following information via email on 10/23/2020.

"Below are existing data sources which documents Tour/Livesay Creek originating off-site to the south. The City's GIS mapping is the only map source illustrating Tour/Livesay Creek extending along the northern side of Holcomb Blvd. Based on the information below, it appears Tour/Livesay Creek never originated north of Holcomb Blvd. That City mapping is incorrect."
"

- *USGS Gladstone Topo Map (clearly shows contours supporting headwaters off-site to south)*
- *1999 DSL Approved Oregon City Local Wetland Inventory (LWI) Map*
- *Metromap online stream GIS layer*
- *NRCS online soil mapping*
- *USFWS National Wetland Inventory (NWI) map*
- *DSL delineation concurrence WD#2003-0699*

"

"According to Metro online mapping, Class I and II Riparian Corridor extends onto the site. However, the site is located >200 feet from the headwaters of Tour/Livesay Creek; therefore, there is no riparian corridor/vegetated corridor that extends onto the project site."

"According to Metro mapping, Class A and B Upland Habitat (HCA) also extends onto the site. Metro HCA mapping was done using 2002 aerial imagery. Per Google earth, the subdivision south of Holcomb Blvd was constructed sometime between 8/2003 and 7/2004, removing the tree canopy that historically connected the project site to Livesay/Tour Creek. In addition, according to Google Earth the project site

was logged sometime between 7/2014 and 4/2015; therefore, there is no longer Class A or B upland habitat on the site."

The City agrees the above statements support nondiscretionary (Type I) documentation why the site lacks Riparian and HCA habitat.

3. **Permits and Approvals:** The applicant is responsible for obtaining approval and permits from each applicable governmental agency and department at Oregon City including but not limited to the Engineering and Building Divisions.

II. ANALYSIS AND FINDINGS:

Municipal Code Standards and Requirements: The following sections of the Oregon City Municipal Code are applicable to this land use approval:

CHAPTER 17.49 NATURAL RESOURCES OVERLAY DISTRICT

17.49.030 - Map as reference.
1. This chapter applies to all development within the natural resources overlay district as shown on the NROD Map, which is a regulatory boundary mapped ten feet beyond the required vegetated corridor width specified in OCMC 17.49.110. The mapped NROD boundary is based on a GIS-supported application of the adopted documents, plans and maps listed in OCMC 17.49.020.A.1—17.49.020.A.8, however the adopted map may not indicate the true location of protected features.
2. Notwithstanding changing field conditions or updated mapping approved by the city (and processed as a Type I Verification per OCMC 17.49.255), the applicant may choose to either accept the adopted NROD boundary or provide a verifiable delineation of the true location of the natural resource feature pursuant to the Type I or Type II procedure in accordance with this chapter.
3. The NROD boundary shall be shown on all development permit applications.
4. The official NROD map can only be amended by the city commission.
5. Verification of the map shall be processed pursuant to OCMC 17.49.250.
Finding: Complies as proposed. This application is for verification of the NROD map pursuant to OCMC 17.49.250. The project site is indicated as affected by the NROD in two locations. One is located along the site's Holcomb Boulevard frontage and is associated with a roadside drainage ditch. The other NROD location is along the northern property line and is associated with a verified off-site wetland feature. AKS Engineering & Forestry, LLC prepared a Type I NROD Verification Memo, dated September 2, 2020, concluding that natural intermittent or perennial streams are not present along Holcomb Boulevard, nor is there a water body meeting the definition of a Protected Water Feature. Therefore, the applicant is proposing that the vegetated corridor buffer should not extend onto the project site. Furthermore, the applicant provided a memo and maps to refine and delineate the actual on-site boundary for the vegetated corridor associated with the verified off-site wetland to the north. See applicant's Verification Memo in Exhibit D for additional information.

17.49.040 - NROD permit and review process.
An NROD permit is required for those uses regulated under OCMC 17.49.090, Uses Allowed under Prescribed Conditions. An NROD permit shall be processed under the Type II development permit procedure, unless an adjustment of standards pursuant to OCMC 17.49.200 is requested or the application is being processed in conjunction with a concurrent application or action requiring a Type III or Type IV development permit.

Finding: Not Applicable. This application is for a Type I verification of the NROD map pursuant to OCMC 17.49.250.

17.49.050 - Emergencies.
The provisions of this ordinance do not apply to work necessary to protect, repair, maintain, or replace existing structures, utility facilities, roadways, driveways, accessory uses and exterior improvements in response to emergencies. After the emergency has passed, any disturbed native vegetation areas shall be replanted with similar vegetation found in the Oregon City Native Plant List pursuant to the mitigation standards of OCMC 17.49.180. For purposes of this section emergency shall mean any man-made or natural event or circumstance causing or threatening loss of life, injury to person or property, and includes, but is not limited to fire, explosion, flood, severe weather, drought, earthquake, volcanic activity, spills or releases of oil or hazardous material, contamination, utility or transportation disruptions, and disease.
Finding: Not Applicable. No emergency has been identified.

17.49.110 - Width of vegetated corridor.
A. Calculation of Vegetated Corridor Width within City Limits. The NROD consists of a vegetated corridor measured from the top of bank or edge of a protected habitat or water feature. The minimum required width is the amount of buffer required on each side of a stream, or on all sides of a feature if non-linear. The width of the vegetated corridor necessary to adequately protect the habitat or water feature is specified in Table 17.49.110.

Table 17.49.110

Protected Water Feature Type (see definitions)	*Slope Adjacent to Protected Water Feature*	*Starting Point for Measurements from Water Feature*	*Width of Vegetated Corridor (see Note 1)*
Anadromous fish-bearing streams	*Any slope*	*• Edge of bankfull flow*	*200 feet*
Intermittent streams with slopes less than 25 percent and which drain less than 100 acres	*< 25 percent*	*• Edge of bankfull flow*	*15 feet*
All other protected water features	*< 25 percent*	*•Edge of bankfull flow • Delineated edge of Title 3 wetland*	*50 feet*
	≥25 percent for 150 feet or more (see Note 2)		*200 feet*
	≥25 percent for less than 150 feet (see Note 2)		*Distance from starting point of measurement to top of ravine (break in ≥25 percent slope) (See Note 3) plus 50 feet.*

Notes:
1. Required width (measured horizontally) of vegetated corridor unless reduced pursuant to the provisions of OCMC 17.49.120.
2. Vegetated corridors in excess of fifty feet apply on steep slopes only in the uphill direction from the protected water feature.

3. Where the protected water feature is confined by a ravine or gully, the top of the ravine is the break in the ≥25 percent slope.

Finding: Complies as proposed. AKS Engineering & Forestry, LLC prepared a Type I NROD Verification Memo, dated September 2, 2020, concluding that natural intermittent or perennial streams are not present along Holcomb Boulevard, nor is there a water body meeting the definition of a Protected Water Feature. Therefore, a vegetated corridor should not extend onto the southern project boundary. Furthermore, the memo and supporting maps refine and delineate the precise on-site boundary for the fifty-foot vegetated corridor buffer associated with the off-site wetland to the north. Please refer to the Type I NROD Verification Memo in Exhibit D for additional information**.**

17.49.130 - Existing development standards.
In addition to the General Development Standards of OCMC 17.49.100, the following standards apply to alterations and additions to existing development within the NROD, except for trails, rights of way, utility lines, land divisions and mitigation projects. As of June 1, 2010, applicants for alterations and additions to existing development that are not exempt pursuant to OCMC 17.49.080.J. shall submit a Type II or Type III application pursuant to this section.
Mitigation is required, subject to OCMC 17.49.180 or 17.49.190.
Finding: Not applicable. The applicant has not proposed any changes to existing development within the NROD.

17.49.220 - Required site plans.
Site plans showing the following required items shall be part of the application:
A. For the entire subject property (NROD and non-NROD areas):
1. The NROD district boundary. This may be scaled in relation to property lines from the NROD Map;
2. One hundred-year floodplain and floodway boundary (if determined by FEMA);
3. Creeks and other waterbodies;
4. Any wetlands, with the boundary of the wetland that will be adjacent to the proposed development determined in a wetlands delineation report prepared by a professional wetland specialist and following the Oregon Division of State Lands wetlands delineation procedures;
5. Topography shown by contour lines of two or one foot intervals for slopes less than fifteen percent and by ten foot intervals for slopes fifteen percent or greater;
6. Existing improvements such as structures or buildings, utility lines, fences, driveways, parking areas, etc.
7. Extent of the required Vegetated Corridor required by Table 17.49.110.
B. Within the NROD area of the subject property:
1. The distribution outline of shrubs and ground covers, with a list of most abundant species;
2. Trees six inches or greater in diameter, identified by species. When trees are located in clusters they may be described by the approximate number of trees, the diameter range, and a listing of dominant species;
3. An outline of the disturbance area that identifies the vegetation that will be removed. All trees to be removed with a diameter of six inches or greater shall be specifically identified as to number, trunk diameters and species;
4. If grading will occur within the NROD, a grading plan showing the proposed alteration of the ground at two foot vertical contours in areas of slopes less than fifteen percent and at five foot vertical contours of slopes fifteen percent or greater.
C. A construction management plan including:
1. Location of site access and egress that construction equipment will use;
2. Equipment and material staging and stockpile areas;
3. Erosion control measures that conform to City of Oregon City erosion control standards;
4. Measures to protect trees and other vegetation located outside the disturbance area.
D. A mitigation site plan demonstrating compliance with OCMC 17.49.180 or 17.49.190, including:
1. Dams, weirs or other in-water features;

2. *Distribution, species composition, and percent cover of ground covers to be planted or seeded;*
3. *Distribution, species composition, size, and spacing of shrubs to be planted;*
4. *Location, species and size of each tree to be planted;*
5. *Stormwater management features, including retention, infiltration, detention, discharges and outfalls;*
6. *Water bodies or wetlands to be created, including depth;*
7. *Water sources to be used for irrigation of plantings or for a water source for a proposed wetland.*

Finding: Complies as proposed. No development is planned with this application; however, the applicant has provided the necessary site plan details and features, as applicable, in the text and attached figures of the Type I NROD Verification Memo (Exhibit D) and Existing Conditions Plan (Exhibit A).

17.49.250 - Verification of NROD boundary.
The NROD boundary may have to be verified occasionally to determine the true location of a resource and its functional values on a site. This may be through a site specific environmental survey or a simple site visit in those cases where existing information demonstrates that the NROD significance rating does not apply to a site-specific area. Applications for development on a site located in the NROD area may request a determination that the subject site is not in an NROD area and therefore is not subject to the standards of OCMC 17.49.100. Verifications shall be processed as either a Type I or Type II process.
Finding: Complies as proposed. This application is for verification of the NROD map pursuant to OCMC 17.49.250. The project site is indicated as affected by the NROD in two locations. One is located along the site's Holcomb Boulevard frontage and is associated with a roadside drainage ditch. The other NROD location is along the northern property line and is associated with a verified off-site wetland feature. AKS Engineering & Forestry, LLC prepared a Type I NROD Verification Memo, dated September 2, 2020, concluding that natural intermittent or perennial streams are not present along Holcomb Boulevard, nor is there a water body meeting the definition of a Protected Water Feature. Therefore, the applicant is proposing that the vegetated corridor buffer should not extend onto the project site. Furthermore, the applicant provided a memo and maps to refine and delineate the actual on-site boundary for the vegetated corridor associated with the verified off-site wetland to the north. See applicant's Verification Memo in Exhibit D for additional information.

17.49.255 - Type I verification.
A. Applicants for a determination under this section shall submit a site plan meeting the requirements of OCMC 17.49.220, as applicable.
Finding: Complies as proposed. The applicable requirement is met, per the responses to OCMC 17.49.220 above.

B. An applicant may request a Type I Verification determination by the Community Development Director. Such requests may be approved provided that there is evidence substantiating that all the requirements of this chapter relative to the proposed use are satisfied and demonstrates that the property also satisfies the following criteria, as applicable:
1. *No soil, vegetation, hydrologic features have been disturbed;*
2. *No hydrologic features have been changed;*
3. *There are no man-made drainage features, water marks, swash lines, drift lines present on trees or shrubs, sediment deposits on plants, or any other evidence of sustained inundation.*
4. *The property does not contain a wetland as identified by the City's Local Wetland Inventory or Water Quality and Flood Management Areas map.*
5. *There is no evidence of a perennial or intermittent stream system or other protected water feature. This does not include established irrigation ditches currently under active farm use, canals or manmade storm or surface water runoff structures or artificial water collection devices.*

6. Evidence of prior land use approvals that conform to the Natural Resource Overlay District, or which conformed to the Water Quality Resources Area Overlay District that was in effect prior to the current adopted NROD (Ord. 99-1013).
7. There is an existing physical barrier between the site and a protected water feature, including:
a. Streets, driveways, alleys, parking lots or other approved impervious areas wider than fifteen feet and which includes drainage improvements that are connected to the City storm sewer system, as approved by the City.
b. Walls, buildings, drainages, culverts, topographic features or other structures which form a physical barrier between the site and the protected water features, as approved by the City.
C. If the City is not able to clearly determine, through the Type I verification process that the applicable criteria subsection B.1.—B.7 above are met, the verification application shall be denied. An applicant may then opt to apply for a verification through the Type II process defined below.

Finding: Complies as proposed. The Type I NROD Verification Memo (Exhibit D) dated September 1, 2020 includes site plans and conclusions that there is no evidence that characteristics found in criteria B.1 – B.6 exist within the on-site NROD along the Holcomb Boulevard frontage.

Furthermore, there are several existing data sources which document that Tour/Livesay Creek originates off-site to the south. These include:

- USGS Gladstone Topo Map (clearly shows contours supporting headwaters off-site to south)
- 1999 DSL Approved Oregon City Local Wetland Inventory (LWI) Map
- Metromap online stream GIS layer
- NRCS online soil mapping
- USFWS National Wetland Inventory (NWI) map
- DSL delineation concurrence WD#2003-0699

The City's GIS mapping is the only map source illustrating Tour/Livesay Creek extending along the northern side of Holcomb Blvd. Based on the information cited above and provided in the application, it appears Tour/Livesay Creek never originated north of Holcomb Blvd.

According to Metro online mapping, Class I and II Riparian Corridor extends onto the site. However, the site is located >200 feet from the headwaters of Tour/Livesay Creek; therefore, there is no riparian corridor/vegetated corridor that extends onto the project site.

According to Metro mapping, Class A and B Upland Habitat (HCA) also extends onto the site. Metro HCA mapping was done using 2002 aerial imagery. Per Google earth, the subdivision south of Holcomb Blvd was constructed sometime between 8/2003 and 7/2004, removing the tree canopy that historically connected the project site to Livesay/Tour Creek. In addition, according to Google Earth the project site was logged sometime between 7/2014 and 4/2015; therefore, there is no longer Class A or B upland habitat on the site.

The applicant's memo does support the refinement and delineation of the northern on-site vegetated corridor associated with the off-site wetland.

Please refer to the Type I NROD Verification Memo included in this application for additional information.

CONCLUSION AND DECISION:

Based on the analysis and findings as described above, staff concludes that the proposed Natural Resources Overlay District Verification located North of Holcomb Boulevard, South of Forsythe Road, and identified as Clackamas County Assessor's Map 2-2E-28A; Tax Lots 500, 2200, and 2300, and Map 2-2E-21D; Tax Lots 2100, 2200, meet the requirements for verification as described in the Oregon City Municipal Code. Therefore, the Community Development Director approves file NROD-20-00018 based upon the findings and exhibits contained in this staff report.

EXHIBITS (On File):

1. Vicinity Map
2. Application
   Land Use Application for Type I NROD Verification
   i. Executive Summary
   ii. Applicable Review Criteria
   iii. Conclusion
   Exhibits:
   - Exhibit A: Existing Conditions Plan
   - Exhibit B: City Land Use Application Form and Checklist
   - Exhibit C: Property Ownership Information
   - Exhibit D: NROD Type I Verification Memo
   - Exhibit E: City Pre-Application Conference Notes
   - Exhibit F: Clackamas County Assessor's Map
   - Exhibit G: Verification of Taxes Paid
3. Email from Stacey Reed, PWS, Sr. Wetland Scientist, AKS Engineering and Forestry, 10/23/2020 (On File), citing data sources indicating off-site origination of Tour/Livesay Creek.

OREGON CITY

Community Development – Planning

695 Warner Parrott Rd, | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

STAFF REPORT AND DECISION
HISTORIC REVIEW BOARD
June 23, 2021

FILE NO.:	GLUA 21-00034/HR-21-00013: Historic Review
HEARING DATE:	**June 22, 2021**
APPLICANT:	Mark Handris ICON Construction and Development LLC 1969 Willamette Falls Dr. Suite 260 West Linn, OR 97068
OWNER:	Serres Family H LLC by Daniel Serres 14620 S Forsythe Rd Oregon City, OR 97045
REQUEST:	The applicant is seeking approval through Historic Review for the realignment of the Barlow Trail Corridor as part of a residential development – Serres Farm PUD.
LOCATION:	Clackamas County Map 2-2E-28A Taxlots 500, 2200, 2300 Clackamas County Map 2-2E-21D Taxlots 2100, 2200, 2300 No site address Oregon City, OR 97045
DECISION:	On June 22, 2021, after reviewing all of the evidence in the record and considering all of the arguments made by the applicant, opposing and interested parties, the Oregon City Historic Review Board voted 3-0 to approve the proposal with conditions. The Oregon City Historic Review Board adopted as its own the Staff Report with findings and Conditions of Approval for File Number HR 21-00013. The complete record for the Historic Review Board decision is on file at the Planning Division.
CRITERIA:	Administration and Procedures are set forth in Chapter 17.50, Chapter 17.40, Historic Overlay District in Chapter 17.40, of the Oregon City Municipal Code. The City Code Book is available on-line at www.orcity.org.

This application is subject to the Administration and Procedures section of the Oregon City Code set forth in Chapter 17.50. The application and all supporting documents submitted by or on behalf of the applicant are available for inspection at no cost at the Oregon City Planning Division, 698 Warner Parrott Road, during regular

business days (9 am- 4pm). Copies of these materials may be obtained for a reasonable cost. The staff report, with all the applicable approval criteria, will also be available for inspection seven days prior to the hearing. Copies of these materials may be obtained for a reasonable cost in advance. Any interested party may testify at the public hearing and/or submit written testimony at or prior to the close of the record by the Historic Review Board. Notice of the Historic Review Board's decision shall be sent to the applicant and to those persons submitting comments and providing a return address. Any party who participated in the Historic Review Board proceedings may appeal the Historic Review Board's decision by filing a notice of appeal as required by OCMC 17.50.190. Any issue that is intended to provide a basis for appeal must be raised before the close of the Historic Review Board's proceeding, in person or by letter, with sufficient specificity to afford the City Commission and the parties an opportunity to respond to the issue. Failure to raise an issue with sufficient specificity will preclude any review of that issue. Parties with standing may appeal the decision of the City Commission to the Land Use Board of Appeals. The procedures that govern the hearing will be posted at the hearing and are found in OCMC Chapter 17.50 and ORS 197.763.

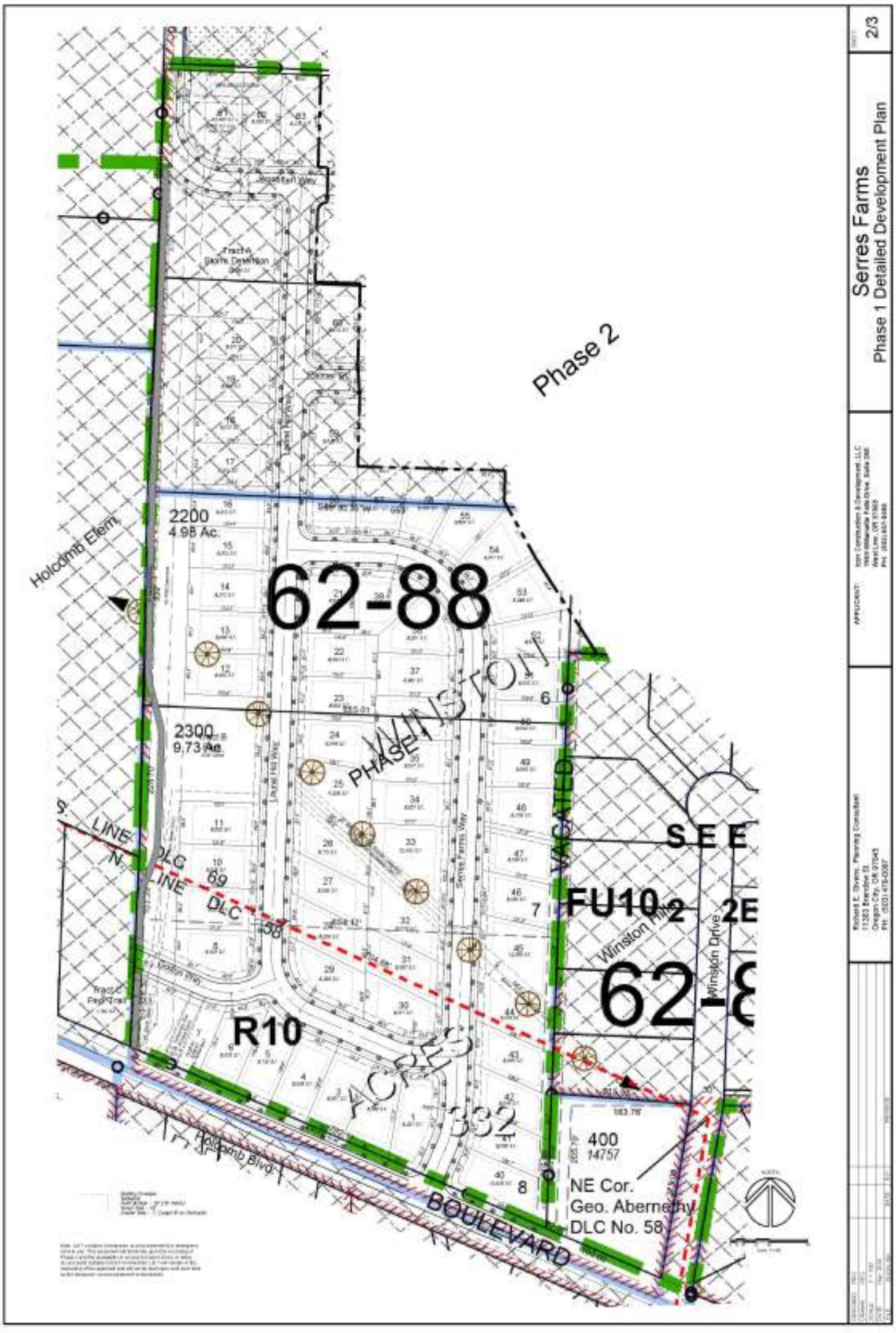
Historic Review Board Findings and Conditions of Approval

The Board found that the site does not contain any physical evidence of the trail, therefore a slight adjustment to the alignment was found to be appropriate. The Board found that the alignment should follow the east portion of the corridor more closely in order to provide continuity with other segments of the trail through other subdivisions to the east. On the west side of the property next to the Holcomb school property, the Board found that a larger deviation as shown in the applicant's revised layout ("Option 2") was appropriate, given the lack of easement on the school property and the location of the school building. The Board also found that the interpretive kiosk and open space proposed in the development was a mitigating factor for adjustment of the corridor on the west side of the property.

1. A plat restriction shall be placed on the subdivision indicating the requirements of *OCMC 17.40.060-G - Oregon Trail-Barlow Road Historic Corridor* and the location of the Barlow Road easement.

2. The applicant shall coordinate with planning and parks staff on interpretive signage design and content, and shall submit final language and content for the signage for staff approval before constructing the signage. The HRB will not require future HRB review of the signage but may provide informal review and assistance with signage content.

3. The Board approves the proposed alignment in Option 2 submitted by the applicant as shown below:


Serres Farms
Phase 1 Detailed Development Plan
2/3
Phase 2
2200
4.98 Ac.
62-88
2300
9.73 Ac.
PHASE 1
WINSTON
VACATED
SEE
FU10
62-8
R10
Holcomb Elem.
Holcomb Blvd.
BOULEVARD
Winston Drive
Serres Farms Way
400
14757
NE Cor.
Geo. Abernethy
DLC No. 58
S. LINE
N. DLC LINE
DLC 69
DLC 58
ACRES
332

Issues Matrix for GLUA-21-00029: Serres Farm Planned Unit Development – 12.6.21 Version

Issue Number	Issue/Comment/Concern	Staff analysis/response	Has this been addressed? How?
1	Stormwater drainage issue - how are off-site ditches to be managed? How will downstream properties be affected?	The City does not control or become involved with private property disputes such as drainage impacts offsite. City standards require that stormwater outflows from the storm pond be designed so they are the same as pre-development flows. Further discussions with both Oregon City and the County have taken place since the hearing. The plan now under discussion is to install storm sewer within the public rights-of-way from the site to the drainageway, thus eliminating the major concern about maintenance. As with any other storm sewer in public roadways, Clackamas County would be responsible for maintenance of the storm sewer system within the rights-of-way outside of the city limits. Both the City and the County have indicated a preference for this proposal. See Exhibit 12 for applicant's full response.	Findings in Chapter 13.12 have been revised to describe this proposal. Condition #25 has been updated to include a requirement for approval from other jurisdictions.
2	PGE easement – what are the allowable uses under this easement? Storm ponds?	It is the applicant's responsibility to ensure PGE easement requirements are met. The applicant has had discussions with PGE's project manager regarding placement of the stormwater detention facility in the easement area and has received preliminary concurrence. See Exhibit 14 for applicant's full response.	No revisions required.
3	County approval needed for sewer line extension	Clackamas County has recently amended its Comprehensive Plan policies to conform to State statutes that allow such urban facilities to cross rural lands when deemed necessary for the efficient servicing of urban lands. See Exhibit 14 for applicant's full response. Condition of approval #21 requires, "The applicant shall obtain all required permits and approvals from all affected jurisdictions prior to final plan approval."	No revisions required. Condition #21 to remain as written.
4	Easement on west property line (Winston Hills owner's comment)	The City does not enforce or become involved in private easement disputes. See Exhibit 14 for applicant's response.	No revisions required.
5	Timing of sidewalk and street tree installation	The Planning Commission indicated support for sidewalk and street tree installation at the time of house construction rather than before house construction, if the City's Commission's goals	Conditions #8 and #35 have been revised.

		regarding street trees can be met. The applicant and staff discussed various options and settled on a revised condition that allows for sidewalk and street tree installation prior to occupancy, with assurances provided through additional arborist review and documentation.	
6	Can we condition that the left turn lane on Holcomb Blvd. be added before construction so that construction vehicles can use it?	See attached response from the applicant (Exhibit 14) indicating that construction traffic is planned to access via the north, from Forsythe Road. There are no standards in the municipal code regarding construction traffic access, and the City's transportation consultant John Replinger finds that the impacts of construction traffic do not rise to the level requiring mitigation.	No revisions required.
7	Dedication of the open space as a City Park – why can't Parks Department take the space and maintain it as a City Park? Alternatively, why include open space if maintenance is challenging?	See attached email from Kendall Reid, Parks Director, explaining why the size of the open space does not meet the City's adopted Parks Master Plan. Staff recommends that the HOA maintain the open space as an amenity for the neighborhood and as mitigation for the proposed density adjustment. The applicant has agreed that the HOA can do so in the applicant's response to comments, Exhibit 14. Staff has also revised condition language to ensure future maintenance of open space.	The recommended conditions of approval do not require park dedication or public access easement. Additional findings have been added in Chapter 17.65 to explain the mitigating effects of the open space. Condition #68 has been revised to ensure maintenance by the HOA.
8	Number of driveways for corner duplexes	Applicant did not specify which lots would require more than one driveway. Findings had assumed the development did not propose corner duplexes and only one driveway per lot. Conditions of approval written did not limit or provide guidance regarding the number of driveways per lot.	Findings in Chapter 16.12 have been revised account for the possibility of corner duplexes. Driveways will be reviewed for compliance at the time of building permit application for each lot.
9	Will the Planning Commission support a flag lot in the subdivision if revisions are made to meet the block length standards?	The applicant submitted a revised layout that meets block length standards but includes a flag lot. Flag lots are permitted only in specific circumstances in subdivisions. The Planning Commission indicated support for the revised layout at the first hearing.	Condition of approval #41 has been revised to reflect an allowance for one flag lot.

10	What is the design of the shared use path? Will it have lighting? Who will own and maintain it?	The shared use path is proposed to be 10 feet in width. Final design details of the pathway will be determined by the applicant and be part of the final construction drawings. The City has agreed to own and maintain the path, and requires that it be paved. City code does not require lighting. Condition of approval #44 includes pedestrian scaled lighting as one of the options for mitigation. As written, this condition does not require lighting but does make it an option among several mitigation options.	Condition of approval #50 has been revised to require that the path be paved, that the City will own and maintain it.
11	Planning Commission desires more trees in the open space as mitigation	Condition #44 requires mitigation in the form of additional open space amenities. As written, it includes a list of six options and requires that two of the six be provided. One of the options is planting more trees in the open space. The previous condition language required four additional trees.	Condition of Approval #44 has been revised to require 8 trees in the open space, if the tree option is selected by the applicant.
12	Obstructions in the right of way related to the temporary emergency access	Any temporary emergency lane for fire access will be on private property. The City does not consider these accesses to be obstructions.	No changes required.
13	Pedestrian scale lighting in the accessways	Accessway lighting is in fact required. This is a condition of approval (#14).	No changes required.
14	County approval needed for street extension	The applicant provided documentation showing the area where Kaylyn Drive is to be connected is County right of Way. Condition of approval #5 has been revised to reflect this.	Condition of approval #5 has been revised.
15 - NEW	Curb extensions/bulb-outs would be great to have where the Barlow Trail Accessway crosses the local streets	Commissioner Mike Mitchell proposed curb extensions on some of the local streets within the development, where the Barlow Trail pedestrian accessway crosses through the site. The applicant indicated this would be acceptable, and staff agrees that it would be an effective way to slow traffic and minimize pedestrian crossing distances.	Staff has added a condition of approval (#17) to require the curb extensions in those two locations.
16 - NEW	There is no alternate route out of Park Place; Holcomb Boulevard is congested and traffic was backed up for hours during the 2020 wildfires.	Holly Lane and Swan Avenue extensions are planned as new connections into the Park Place neighborhood as part of the Park Place Concept Plan. Testimony from the Park Place Neighborhood Association proposed that the Planning Commission could stop any new development until such time these “alternate routes” are constructed. The City’s Transportation System Plan includes these routes as necessary	No changes made.

		connections with future buildout of the Concept Plan area. The applicant's traffic study indicates that the current street system has the necessary capacity for the project to meet mobility standards in 16.12.033. No additional street connections are needed in order for the development to meet the standards. Staff has included a memo in the record to address the concerns about the wildfire evacuations, including a discussion of efforts by the Clackamas County disaster management division.	
17- NEW	Holcomb Boulevard still has only two travel lanes and missing sidewalks on a large portion of the street, even with hundreds of new residential units in the neighborhood built in the last several years.	Testimony from the Park Place Neighborhood indicated that sidewalk gaps and other deficiencies on Holcomb Blvd should be addressed. The City's transportation system plan includes several projects for sidewalk infill and other improvements on Holcomb. The City also recently installed two flashing pedestrian crossings on Holcomb Blvd. City code requires street improvements and widening along the development's street frontage and not beyond it. The applicant has proposed street improvements along the property's frontage on Holcomb Blvd. In addition, the applicant has proposed to finance and construct a pedestrian crossing of Holcomb at the western edge of the site. Requiring additional improvements of Holcomb on areas not along the property's frontage is not standard practice in Oregon City and is not recommended.	No changes made.
18- NEW	Proposed construction access road off-site means the project footprint has increased	Public testimony indicated that the project has been extended into rural Clackamas County due to the proposed construction access from Forsythe Rd. The proposed access is a 20-foot wide dirt road that is a public right-of-way within Clackamas County. City code does not regulate construction access and does not have any standards for how construction access is provided. The reason for this is that construction phases are temporary and the traffic volumes associated with construction are limited; they do not rise to the threshold for traffic review. Clackamas County will review any work within their jurisdiction and they may or may not have public notice provisions for that review. Construction access is not considered urban development and	No changes made.

		thus the footprint of the project has not increased from a City regulatory standpoint.	
19 - NEW	Notices not mailed to properties outside the Urban Growth Boundary	The City's mailing labels generator was flawed; it did not incorporate properties outside of the Urban Growth Boundary (UGB), so a few properties within 300 feet of the subject property were not properly noticed. City Staff mailed another notice on November 10th and included the properties outside the UGB. The City's GIS department is correcting the flaw in the mailing labels program.	Notice mailed November 10th to ALL property owners within 300 feet.
20 - NEW	Revisions discussed by Development Services staff at the 11/8 hearing	Josh Wheeler, Assistant City Engineer, discussed a number of proposed new revisions to the staff report during the 11/8 hearing. The revised staff report in the agenda packet includes many of the revisions discussed and represents staff's final recommendation. The revisions include slight changes to the required frontage improvements on Holcomb Blvd, a requirement for review and permitting by other jurisdictions where needed, timing of sidewalk construction, design details for pedestrian crosswalks, and street tree conditions.	Revised conditions include #4, #8, #13, #34, and #38.

OREGON CITY

Community Development – Planning

695 Warner Parrott Road | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

December 6, 2021

To: Oregon City Planning Commission
From: Kelly Reid, AICP, Planner
Re: Emergency Evacuation in Park Place

Purpose

The purpose of this memo is to provide the Planning Commission with additional information regarding emergency evacuation concerns in Park Place, as it relates to the land use File No. GLUA-21-00029, Serres Farm Planned Unit Development.

Background

A number of people have raised concerns about what occurred in Park Place during the 2020 Wildfire evacuation. Holcomb Boulevard was used by many people at once to attempt to evacuate, and traffic was at a standstill for hours due to the amount and timing of people leaving their homes. Everyone headed to HWY 213 – including areas to the south and east of Oregon City. This was not necessarily expected, and the effect was that streets leading to HWY 213, like Holcomb, Redland, and Forsythe, were backed up for many hours.



HWY 213 Northbound during the 2020 wildfire evacuation. Source: https://www.cnbc.com/2020/09/14/in-photos-oregon-wildfires-devastate-communities-as-fires-rage-on.html

Holcomb Blvd is a two-lane street, which connects to Redland Rd, which leads to HWY 213 and I-205 (see map showing Holcomb connect to Redland and HWY 213 below). During the wildfires, some people were heading to I-205 to get to other urban locations. Others were heading from Holcomb Blvd into Oregon City to emergency shelter evacuation sites such as Clackamette Park.

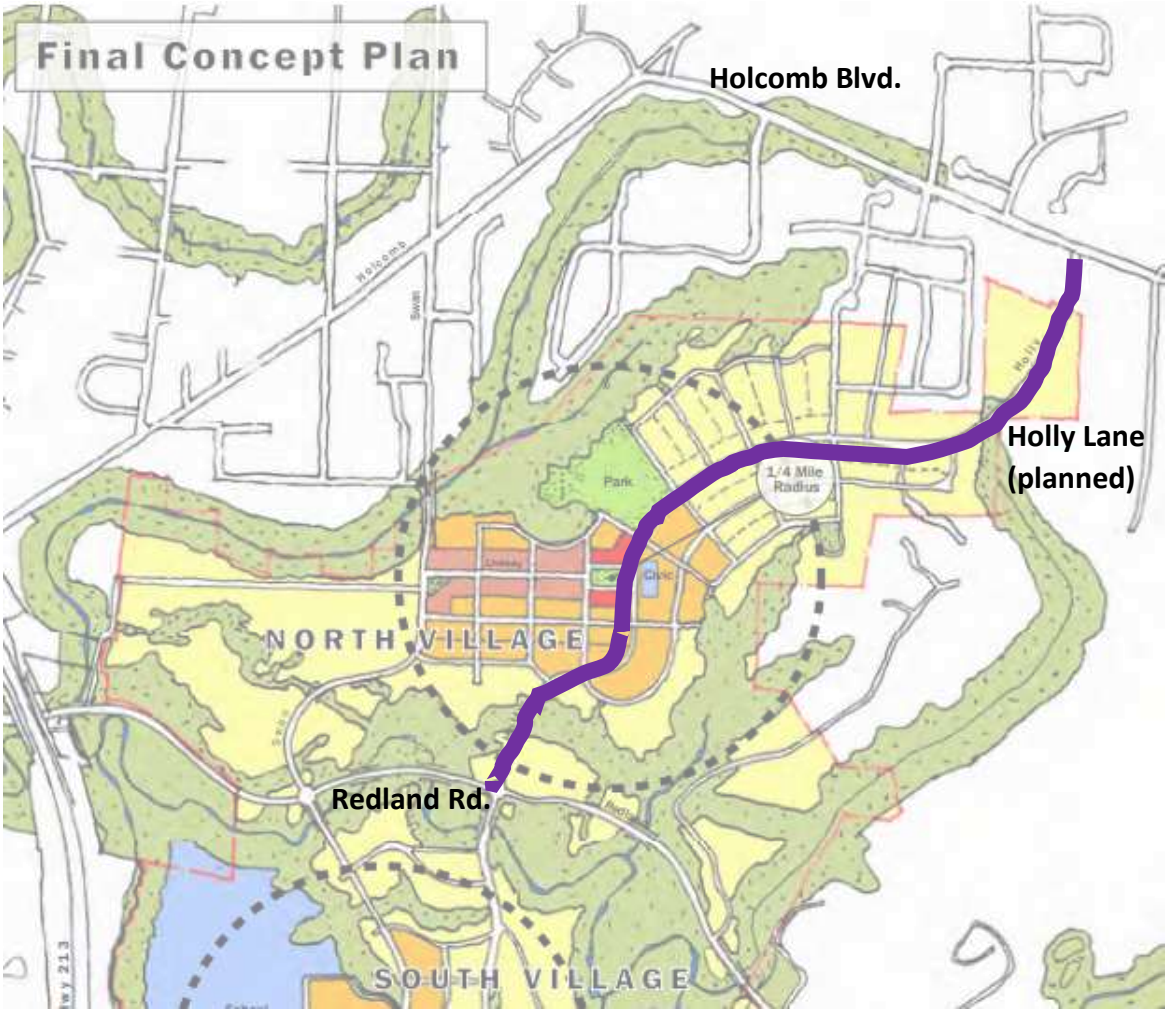


Most common route taken during 2020 Wildfire evacuations – Holcomb to Redland to HWY 213

Constraints of the Street Network

While the fact that Holcomb Blvd only has two lanes has been brought up as a concern for future evacuations, the actual constraint is the capacity of HWY 213, Redland Rd, and the intersections leading to them, including the HWY 213/ Redland intersection and the Abernethy/Holcomb/Redland intersection. The backups on HWY 213 were the reason why the Holcomb traffic was not moving. Widening Holcomb Blvd would make the line of traffic shorter and wider, rather than narrow and long, but would not make it move any faster, due to the backups on HWY 213.

Park Place is in a unique geographic setting, with streams and canyons to the South (Livesay creek) limiting street connectivity. One of the means to reducing congestion on Holcomb is planned for in the Transportation System Plan - the Holly Lane extension to Redland Road. The connection will be constructed as development occurs within the Park Place Concept Plan area occurs. This connection has been identified as necessary for a full-build-out scenario, to provide alternate routes for the significant additional development planned in the Park Place Concept Plan area. When the Holly Lane connection is constructed, an emergency evacuation-related backup may be somewhat alleviated, although, if the ultimate destination is Highway 213, a similar issue to the 2020 wildfires may still occur. The Serres Farm development traffic study indicates that the current street system has the necessary capacity for the project to meet mobility standards in 16.12.033. No additional street connections are needed in order for the development to meet the standards.



Park Place Concept Plan Map showing the Holly Lane Extension from Holcomb to Redland, in purple

Disaster Management Efforts

Clackamas County emergency management officials are working on plans to better manage the logistics of the evacuation efforts to avoid a similar problem in the future. Below are notes from Daniel Nibouar about the County's upcoming efforts to address emergency evacuation plans:

> *The County is seeking consultants and contractors to begin work on a project in early 2022 to perform evacuation zone planning and create a mapping system.*
>
> *Clackamas County is currently split into disaster zones. The plan would further divide those into evacuation zones. The County plans to work with municipalities, ODOT, and law enforcement to create evacuation zones for different types of disasters. The zones will take into account the available infrastructure and roads, will consider how long it will take to evacuate the areas, as well as what special needs are in each area (farm animals, medical facilities, etc). Primary and secondary evacuation routes will also be determined for each zone.*
>
> *The County will also work with municipalities to figure out how to maximize traffic flow during an incident. This could include contraflow in some cases if that is determined to be the best strategy. The new plan will emphasize other routes, so people east of Oregon City will be directed to go north or south in many cases, instead of all heading towards*

Oregon City via HWY 213. The County hopes to also implement a more strategic evacuation procedure that would adjust timing, to ensure Level 3 areas are mostly cleared before issuing level 2 orders, for example. The map system will include a publicly accessible map that includes real time emergency information as well as real-time traffic data so that people can plan their routes. One example is the City of Medford's map found here:
https://medford.maps.arcgis.com/apps/instant/lookup/index.html?appid=2fd35c4b17d14ff1bbfb12d620ff907d&findSource=1&find=MD-21

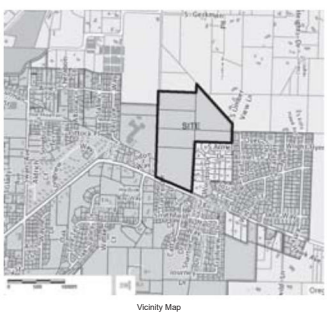
Clackamas County is also setting up an Emergency Preparedness Council that will advise the County and take on disaster planning and public education projects. Once the evacuation planning is finished, the County plans to provide information to community members by sending a flyer to each household about their evacuation zone and routes. More public education and information about what the evacuation levels 1 through 3 mean is also planned. In general, the county encourages everyone to sign up for emergency alerts at publicalters.org.

The County's efforts will begin in 2022 and are expected to be in place before the construction of the Serres Farm development would be finished. Phase 1 would begin utilities and grading work in 2022, with construction of homes expected to begin in 2023, at the earliest. Phase 2 is expected to be constructed between 2023 and 2025.

Staff Recommendation

The applicant's traffic study indicates that the current street system has the necessary capacity for the project to meet mobility standards in 16.12.033. No additional street connections are needed in order for the development to meet the standards. Staff does not recommend additional conditions related to the emergency evacuation concerns.





Vicinity Map

DESIGNED: REG				
DRAWN: REG				
SCALE: 1" = 80'				
DATE: June 2021				
FILE: 19-ICN-102	DATE	NO.	REVISION	

Richard E. Givens, Planning Consultant
18680 Sunblaze Dr.
Oregon City, OR 97045
PH: (503) 479-0097

APPLICANT: Icon Construction & Development, LLC
1969 Willamette Falls Drive, Suite 260
West Linn, OR 97068
PH: (503) 657-0406

Serres Farms
General Development Plan

SHEET: 1/4

Rick Givens
Planning Consultant
18680 Sunblaze Dr.
Oregon City, Oregon 97045

November 1, 2021

Ms. Kelly Reid, Planner
City of Oregon City Community Development Dept.
695 Warner Parrott Rd,
Oregon City, OR 97045

RE: Serres Farms, File No: GLUA-20-00029, MAS-21-00003 – Master Plan, MAS-21-00004 – Detailed Development Plan – Phase I, MAS-21-00005 - Detailed Development Plan – Phase II, SUB-21-00001 – Subdivision – 123 lots, & NROD-21-00006 – Natural Resources Overlay District

Dear Kelly,

I am writing to provide the applicant's response to issues raised at the October 25, 2021 Planning Commission hearing on the Serres Farms project. Please include this letter in the record for the November 8, 2021 continued hearing. The following lists the conditions of approval or issues that we felt, based upon public testimony and Planning Commission discussion, needed further clarification or input from the applicant:

- Condition of Approval #8 – Sidewalks
  We appreciated the comments from the Planning Commission recognizing the impracticability of installing the sidewalks at the site development stage rather than at the normal home construction phase prior to the issuance of a Certificate of Occupancy. We suggest that the condition be amended as follows:

  8. All sidewalks onsite and offsite shall be constructed with the public improvements prior to platting, ***excepting all lot frontages and corner frontages where driveways will be placed in the future.***

- Condition of Approval #37 – Shadow Plat/Flag Lot
  As discussed at the hearing and presented in the revised site plan layout, adjustment of the location of street stubs would be needed in order to best meet the City's maximum block length standard. This will result in the need for one flag lot. OCMC 16.08.050.A restricts flag lots in subdivisions except where certain conditions exist. One of the listed conditions is where the existing parcel configuration restricts access such that normal street frontage cannot be provided. That is the case in the northernmost corner of the property, which comes to a point that makes providing street access, in conjunction with meeting block length standards, impracticable. Further, the provisions of OCMC 17.65.070.C.5 allow adjustments to the land division standards of OCMC Chapter 16.08. We request that COA #37 be amended as follows to allow one flag lot:

  37. The applicant shall provide a shadow plat demonstrating how street patterns within the proposed land division will extend into adjacent properties in compliance with block length standards in 16.12.030 and how adjacent properties can be developed. ***The site***

plan may include up to one flag lot to allow for compliance with block length standards.

- Condition of Approval #31 – Street Trees
  In order to address the concerns about street trees being planted correctly as required by the street tree plan, we propose the following replacement for COA #31:

  31. ***All street trees, consistent with the approved Street Tree Plan, shall be planted by the Developer, at the Developer's expense. The trees may be planted at any time during the course of site development or vertical (housing) construction. The Developer shall provide the city of Oregon City a financial guarantee for all street tree planting, as outlined in OCMC 17.50.140, prior to approval and release of the final plat. All street tree planting will be inspected and signed off by a City-approved licensed arborist and the engineer of record, to be paid for at the Developer's expense. Once all street trees have been installed and approved by the licensed arborist and the engineer of record, the City shall release the financial guarantee".***

- Condition of Approval #40 - Public Park vs. HOA owned/maintained).
  The applicant does not object to increasing from 4 to 8 the number of trees to be planted in the park.

  Regarding ownership of the park, the applicant's preference is to keep this as privately owned tract that is maintained by the HOA. This is preferred for two reasons:
  1. The HOA would have full control over the maintenance, and not be reliant on the city to keep it weeded, fertilized, mowed, etc. If the city is already stating they are understaffed to maintain parks of this size, we are concerned it will not be maintained per the community's standards.
  2. If owned by the Parks Department, we have concerns that were voiced in the hearing of controlling camping/occupants. As we've all seen these last few years, it is much more challenging to control this issue on public property vs. private.

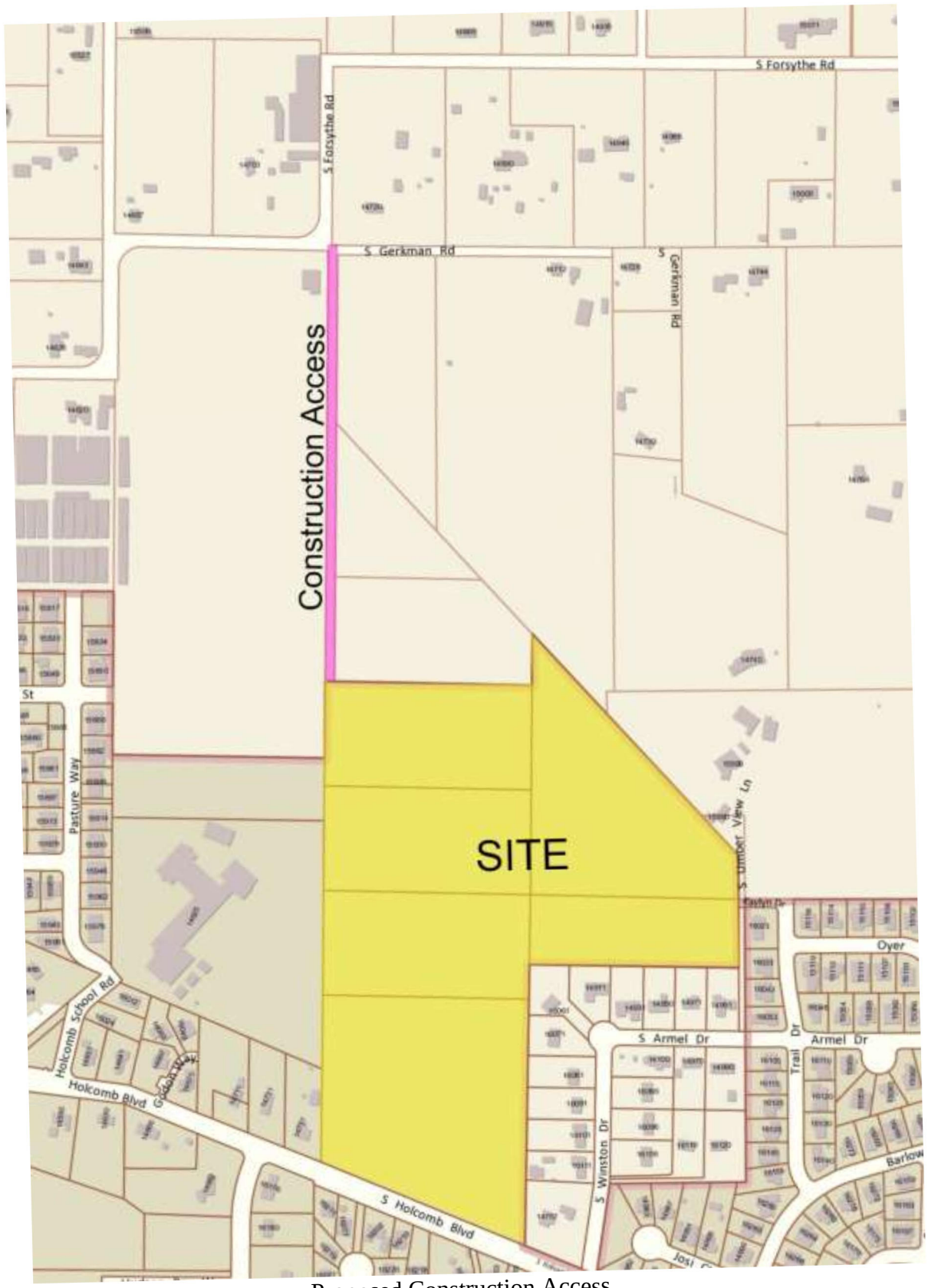
  To mitigate the Commission's concerns that the park could someday be gated off from the public, we could put in our CCR's/bylaws a provision that states that this pocket park cannot be closed off and locked at any point in the future. If the city DOES want it dedicated for park purposes, that would be okay with the applicant too, but we need assurance that the City has the capacity to keep it maintained year-round. In addition, if this goes public, we would request that the City take ownership of the pedestrian pathways as well. Forming an HOA is challenging and expensive. Forming an HOA to maintain the ped paths only, makes little sense without the park.

- Construction access during site development.
  A concern was raised about the need to manage construction traffic during site development so as to limit traffic impacts on Holcomb Blvd. It was suggested that the left turn lane improvements on Holcomb Blvd. should be completed prior to other site work. Construction of the left turn lane on Holcomb Blvd. is not a practicable solution for the construction access because there is considerable work that needs to be done before a left turn lane could be constructed (undergrounding of the existing powerlines, installation of storm sewer & filling of the ditch along the frontage). The existing street width (before these improvements are made), is too narrow to squeeze in a temporary turn lane. In addition, the existing power

lines that have yet to be undergrounded, do not provide the clearance needed to access this project through this entrance for any heavy machinery, material deliveries, dirt/rock trucks, etc., as shown in the photo below:



Because of the constraints existing on Holcomb Blvd., the applicant plans to provide a construction access for site development from the north via Forsythe Rd., Gerkman Rd. and the public roadway that extends to the northwest corner of the site. The public roadway and Gerkman Road will have rock installed to accommodate the construction traffic. The proposed construction access is shown on the map on the following page.



Proposed Construction Access

- Storm Detention Facility Within PGE Easement and Offsite Storm Drainage Maintenance
  Planning Commission members questioned whether the storm detention facility is permitted within the PGE powerline easement. The applicant has had discussions with PGE's project manager regarding placement of the stormwater detention facility in the easement area and has received preliminary concurrence.

  Planning Commission discussion regarding stormwater involved two other issues. The first relates to the conveyance of stormwater to the drainageway to the north of Forsythe Road. The preliminary proposal was for open ditches across property owned by the Serres family. Planning Commission members questioned who would maintain these ditches. Further discussions with both Oregon City and the County have taken place since the hearing. The plan now under discussion is to install storm sewer within the public rights-of-way from the site to the drainageway, thus eliminating the major concern about maintenance. As with any other storm sewer in public roadways, Clackamas County would be responsible for maintenance of the storm sewer line within the rights-of-way outside of the city limits. Both the City and the County have indicated a preference for this proposal.

  The other storm drainage concern discussed by the Planning Commission relates to the testimony of the owner of property at 14720 S Forsythe Rd. regarding potential impacts upon water in his crawlspace. The proposed storm detention and storm sewer system will route runoff from this site to the natural drainageway to the north of Forsythe Road. This will ensure that downstream properties are not negatively impacted by runoff from the property. It should also be noted that the property in question is more than a quarter of a mile away from the Serres Farms project site and that surface drainage from the Serres Farms property flows to the northwest, not to the north towards the property at 14720 Forsythe Road.

- County approvals needed for street extension and sewer line extension
  The current plan for sanitary sewer service involves extending the existing sewer in Ames Street across intervening property owned by the Serres family to the subject property. Clackamas County has recently amended its Comprehensive Plan policies to conform to State statutes that allow such urban facilities to cross rural lands when deemed necessary for the efficient servicing of urban lands. The ordinance adopting this change became effective October 23, 2021. The applicant has been in contact with County Planning and, as demonstrated by the attached email exchange with the County Planning Director Jennifer Hughes, a Type II (staff review with public notice) land use approval is required. The applicant will be filing this application shortly. A backup option of extending sewer across Holcomb Elementary School property has been discussed with Mr. Wes Rogers of Oregon City School District and given preliminary approval. Condition of approval #18 requires, "The applicant shall obtain all required permits and approvals from all affected jurisdictions (Clackamas County or the Oregon City School District) prior to final plan approval." The applicant has no objection to this requirement.

- Easement on west property line, Winston Hills owners concern
  It was stated by Mr. Spreadborough, the owner of adjoining property within the Winston Hills subdivision, that adjacent land owners had easement rights to a 15-foot-wide strip of land that was a part of a prior street vacation process. A review of the street vacation documents by the applicant's surveyor, Centerline Concepts, Inc., indicates that that street vacation resulted in one-half of the vacated 30-foot-wide right-of-way going to the adjacent

properties and the other one-half going to the Serres family. The street vacation in question occurred in 1951, well before the Winston Hills subdivision was platted in 1971. There are no easement rights to either party regarding use of the other half of the vacated strip.

- County approvals needed for street extension
  As stated at the public hearing, there is a 20' x 20' section of road right-of-way that separates the subject property from the terminus of Kaylyn Drive along the eastern border of Serres Farms. A copy of a deed dedicating that land to Clackamas County for roadway purposes has been entered into the record of this application. Prior to construction of this section of roadway, a Development Permit from Clackamas County will be required. The County will need to review and approve the construction plans for this section of roadway prior to issuing the permit. This will be accomplished at the same time as Oregon City is reviewing the construction plans for the rest of the project.

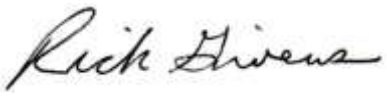
- Relationship Between OCMC Chapter 16.08 and adjustments permitted under OCMC 17.65.070.
  There was discussion by the Planning Commission regarding apparent conflicts between the Land Division Standards set forth in OCMC Chapter 16.08 and adjustments allowed under OCMC 17.65.070. Additionally, testimony was presented by Mr. Bob LaSalle regarding the apparent failure of the application to comply with the lot size reduction provisions of OCMC 16.08.065. This section of the Municipal Code limits reduction of lot sizes to no less than 10% below the zoning district minimum lot area standard, sets a limit on reduced lots to no more than 25 percent of the lots in the subdivision, and further says that the average lot size for the subdivision must be no less than the minimum lot area for the applicable zone.

  Serres Farms, while certainly a land division, is also a Planned Unit Development/Master Plan subject to the provisions of OCMC 17.65. The purpose statement under OCMC 17.65.010 states in part: "The master plan or planned unit development process is intended to facilitate an efficient and flexible review process for major developments, support innovative and creative land development, and to provide long-term assurance to plan for and execute developments in a phased manner." To implement this purpose, provisions are included that allow for mixed use development, density adjustments, and adjustments to a variety of other standards that would otherwise be applicable to standard subdivisions. The adjustment provisions set forth in OCMC 17.65.070 include, among other things, the ability under OCMC 17.65.070.C.5 for the Planning Commission to allow adjustment to any and all standards for land division approval. This includes all of the standards listed in OCMC 16.08, including the lot size reduction provisions of OCMC 16.08.065. As stated in OCMC 17.65.070.A, variances are not required for approval of listed adjustments. It should be noted that all of the lots within the Serres Farms project are in excess of 8,000 sq. ft. in area. This density of development is consistent with the Low Density Residential comprehensive plan designation of the site. Further, the setbacks on all perimeter lots abutting residentially zoned properties will remain at the standards set forth in the R-10 zone.

  Simply put, the Planned Unit Development/Master Plan process is intended to provide flexibility in land development. That flexibility would not be possible if Chapter 17.65 did not allow for adjustments.

Thank you for consideration of this additional information. The applicant's team will be available to answer any questions that the Planning Commission may have about this information.

Sincerely yours,



Rick Givens, Planning Consultant

From: Rick Givens
To: Kelly Reid
Subject: Kaylyn Drive Stub Information
Date: Monday, October 25, 2021 11:30:12 AM
Attachments: _1997-67810 .pdf

Hi Kelly,

We were finally able to get to the bottom of that 20' strip separating the Serres Farm property from the end of Kaylyn Drive. I'm attaching a copy of a 1997 deed that dedicates that area to Clackamas County for road purposes. I don't think it changes anything with respect to your conditions of approval, but I thought you should know that we shouldn't have any problem in providing the improvements needed to make the connection.

Rick

--
Rick Givens
Planning Consultant
18680 Sunblaze Dr.
Oregon City, OR 97045
Office: (503) 479-0097
Cell: (503) 351-8204

41 250

WARRANTY DEED

(Individual Grantor)

KNOW ALL MEN BY THESE PRESENTS, That PACIFIC LAND DEVELOPMENT AND ACQUISITION COMPANY, L.L.C. *hereinafter called Grantor, conveys and warrants to CLACKAMAS COUNTY, a political subdivision of the State of Oregon, its successors and assigns, hereinafter called Grantee, the following described real property free of encumbrances except as specifically set forth herein situated in Clackamas County, Oregon, and do hereby forever dedicate to the public as a public road, pursuant to O.R.S. 368.073(b) and hereby grant and convey unto said Clackamas County a perpetual easement for road and right-of-way purposes in, upon, and across all of the following described real property, pursuant to O.R.S. 368.016(1) on Road, Legal No. .... Road File No. .... described as follows, to wit*

SEE ATTACHED EXHIBIT "A" AND MAP EXHIBIT "B"

(If space insufficient, continue on reverse side.)

The said property is free from encumbrances except

The true consideration for this conveyance is $ a gift. (Here comply with requirements of O.R.S. 93.030)

Dated this 21ST *day of* APRIL 19 97

PACIFIC LAND DEVELOPMENT AND ACQUISITION COMPANY, L.L.C.

BY: P N C CORPORATION, A NEVADA CORPORATION
ROBERT JURGENSON, PRESIDENT
MANAGING MEMBER

This instrument does not guarantee that any particular use may be made of the property described in this instrument. A buyer should check with the appropriate City or County planning department to verify approved uses.

STATE OF OREGON, County of MULTNOMAH *ss.* APRIL 21 *19* 97

Personally appeared the above named ROBERT JURGENSON AS PRESIDENT OF P N C CORPORATION, A NEVADA CORPORATION, AS MANAGING MEMBER OF PACIFIC LAND DEVELOPMENT AND ACQUISITION COMPANY, L.L.C. *and acknowledged the foregoing instrument to be* THEIR *voluntary act and deed.*

(Official Seal)

OFFICIAL SEAL
STACI J. CHRISTIAN
NOTARY PUBLIC-OREGON
COMMISSION NO. 055122
MY COMMISSION EXPIRES JUN 18, 2000

Before Me: _____
Notary Public for Oregon

My Commission Expires: 6-18-00

WARRANTY DEED

Grantor

Grantee

Address

After recording, return to:

Clackamas County D.T.D.

Road File No.

Until a change is requested, all tax statements shall be sent to the following address.

State of Oregon
County of

I certify that the within instrument was received for record on the day of 19 at o'clock M., and recorded in book/reel/volume No. Record of Deeds of said county.

Witness my hand and seal of County affixed.

Name *Title*

By 97-067810 *Deputy*

271 039

Order: QuickView_
Doc: 1997-67810
Page 1 of 2
Requested By: , Printed: 10/21/2021 5:14 PM

LAND DEVELOPMENT CONSULTANTS, INC.

PLANNING
CIVIL ENGINEERING
SURVEYING

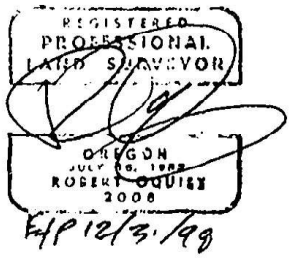
1400 WASHINGTON, SUITE 150, VANCOUVER, WA 98660 PHONE: (360) 695-1074 FAX: (360) 695-4142

EXHIBIT "A"

A portion of the James Winston Donation Land Claim Number 69, located in the Northeast ¼ of Section 28, Township 2 South, Range 2 East, Willamette Meridian, County of Clackamas, State of Oregon, being more particularly described as follows:

Beginning the Northeast corner of Section 28;
THENCE along the East line of said Northeast ¼, S01°06'27"W, 25.00 feet;
THENCE leaving said Section line, N88°41'42"W, 20.00 feet to a point on the East line of that property described in Fee No. 95-040117, Clackamas County deed records;
THENCE along said line, N01°06'27"E, 25.00 feet to the North line of said 1/4 Section;
THENCE along said North line S88°41'42"E, 20.00 feet to the POINT OF BEGINNING.

Containing 500 square feet.



E&P 12/3/96

STATE OF OREGON 97-067810
CLACKAMAS COUNTY
Received and placed in the public
records of Clackamas County
RECEIPT# AND FEE: 58874 $8.00
DATE AND TIME: 09/03/97 11:56 AM
JOHN KAUFFMAN, COUNTY CLERK

IV:C\..\Kaylyn Dedication.doc 2 271 040

Order: QuickView_
Doc: 1997-67810

Requested By: , Printed: 10/21/2021 5:14 PM

SN2021-151

RECORD OF SURVEY

LOTS 4, 5, 6, 7, 12, 13, AND A PORTION OF LOT 11,
"WINSTON ACRES", PLAT NO. 332, LOCATED IN THE
N.E. 1/4 SECTION 28 AND THE S.E. 1/4 SECTION 21,
T.2S., R.2E., W.M., CITY OF OREGON CITY,
CLACKAMAS COUNTY, OREGON
JULY 13, 2021 SCALE 1"=200'

SURVEY PERFORMED FOR:
ICON CONSTRUCTION AND DEVELOPMENT LLC

CLACKAMAS COUNTY SURVEYOR
RECEIVED: 4-8-2021
ACCEPTED FOR FILING: 7-19-2021
SURVEY NUMBER: SN2021-151

NARRATIVE:

THE PURPOSE OF THIS SURVEY IS TO MONUMENT THE BOUNDARIES OF THAT TRACT OF LAND DESCRIBED AS PARCEL I IN DEED RECORDED AS DOCUMENT NO. 2006–119698, CLACKAMAS COUNTY DEED RECORDS, BEING LOTS 4, 5, 6, 7, 8, 12, AND 13, AND A PORTION OF LOT 11, "WINSTON ACRES", PLAT NO. 332, CLACKAMAS COUNTY PLAT RECORDS, FOR THE PROPOSED SUBDIVISION OF "SERRES FARMS".

FOR MY BASIS OF BEARINGS, I HELD NORTH 65°22'08" WEST BETWEEN FOUND MONUMENTS "A" AND "B", BEING ON THE NORTH LINE OF THE ABERNETY DLC NO. 58, AS HELD IN SN 1912–004, BASED ON OREGON STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NAD83(2011), POST PROCESSED STATIC GPS OBSERVATIONS.

FOR THE SOUTHWEST RIGHT OF WAY LINE OF SE HOLCOMB ROAD, AKA COUNTY ROAD NO. 105 (ORIGINALLY A 60.00 FOOT WIDE RIGHT OF WAY), I HELD FOUND MONUMENTS "E", "F", "G", AND "H" PER SURVEYS NO. 6059, 6211, AND THE SUBDIVISION PLATS OF "BARLOW CREST PHASE 1" #3324, "WASKO ACRES" #3708, AND "TRACEY HEIGHTS" #3858. I THEN HELD A LINE PARALLEL WITH AND 70.00 FEET NORTHEASTERLY OF SAID SOUTHWEST RIGHT OF WAY LINE FOR THE NORTHEAST RIGHT OF WAY LINE THEREOF, WHICH FIT WITH FOUND MONUMENTS "C" AND "D".

FOR THE MOST SOUTHERLY SEGMENT OF THE WEST LINE OF THE SUBJECT TRACT, BEING THE EAST LINE OF ADJOINING DEED DOCUMENT NO. 98–032531, I HELD FOUND MONUMENTS "B" AND RECORD DISTANCE SOUTHEASTERLY FROM FOUND MONUMENT "I", PER SAID DEED AND SURVEY NO. 21207. THE ORIGINAL MONUMENT AT THIS LOCATION HAS BEEN DESTROYED BY THE INSTALLATION OF A NEW UTILITY POLE.

I HELD FOUND MONUMENTS "B", "J", AND "K" FOR THE WEST LINES OF SUBJECT LOTS 4, 5, 6, AND 7, EXTENDING RECORD PLAT DISTANCE NORTH FROM FOUND MONUMENT "K" TO ESTABLISH THE NORTHWEST CORNER OF SAID LOT 4, PER SAID PLAT OF "WINSTON ACRES" AND SURVEYS NO. 3999 AND 29771.

FOR THE MOST SOUTHERLY SEGMENT OF THE EAST LINE OF THE SUBJECT TRACT, BEING THE WEST LINE OF ADJOINING DEED DOCUMENT NO. 2020–081030, I HELD FOUND MONUMENTS "D" AND "L", PER SURVEY NO. 6211 AND THE PLAT OF "WINSTON HILLS" #1645. THIS ESTABLISHMENT CORRELATES CLOSELY WITH RECORD DISTANCE ALONG THIS LINE PER SAID SURVEY NO. 6211.

FOR THE EASTERLY LINE COMMON WITH SAID PLAT OF "WINSTON HILLS", I HELD FOUND MONUMENTS "L", "M", "N", "O", "P", "Q", "R", AND "S", PER SAID PLAT, CREATING ANGLE POINTS AT FOUND MONUMENTS "P" AND "R", WHICH APPEAR TO BE ORIGINAL UNDISTURBED PLAT MONUMENTS.

FOR THE EAST LINE OF SUBJECT LOT 11, "WINSTON ACRES", I HELD A LINE 20.00 FEET WESTERLY OF AND PARALLEL WITH THE EAST LINE OF SAID PLAT OF "BARLOW CREST PHASE 1", AS EVIDENCED BY FOUND MONUMENTS "T", "U", AND "V".

I HELD FOUND MONUMENTS "J" AND "T" FOR THE NORTH LINE OF SUBJECT LOTS 6 AND 11, "WINSTON ACRES", PER SAID PLAT AND USBT ENTRY 2000–001 AND SURVEY NO. 29771. I THEN EXTENDED THE ESTABLISHED EAST LINE OF SAID LOT 11 NORTH RECORD PLAT DISTANCE OF 137.17 FEET, AND PROCEEDED AT RECORD ANGLE OF 137°18'00" FOR THE NORTHERLY LINE OF SUBJECT LOTS 12 AND 13, CALCULATING THE MOST NORTHERLY CORNER OF SAID LOT 13 AT RECORD PLAT DISTANCE OF 945.41 FEET.

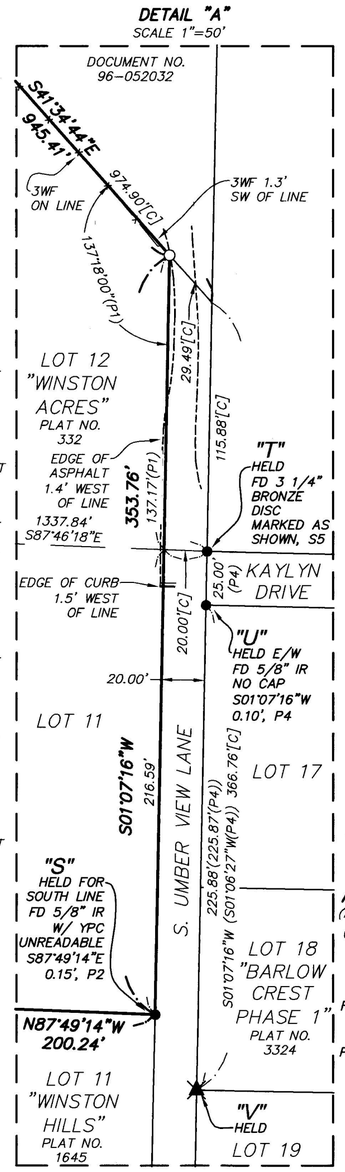
I THEN CALCULATED THE NORTHEAST CORNER OF LOT 4, COMMON TO THE WEST LINE OF SAID LOT 13, AT RECORD PLAT DISTANCE FROM THE NORTHWEST CORNER OF SAID LOT 4 AND THE MOST NORTHERLY CORNER OF SAID LOT 13.

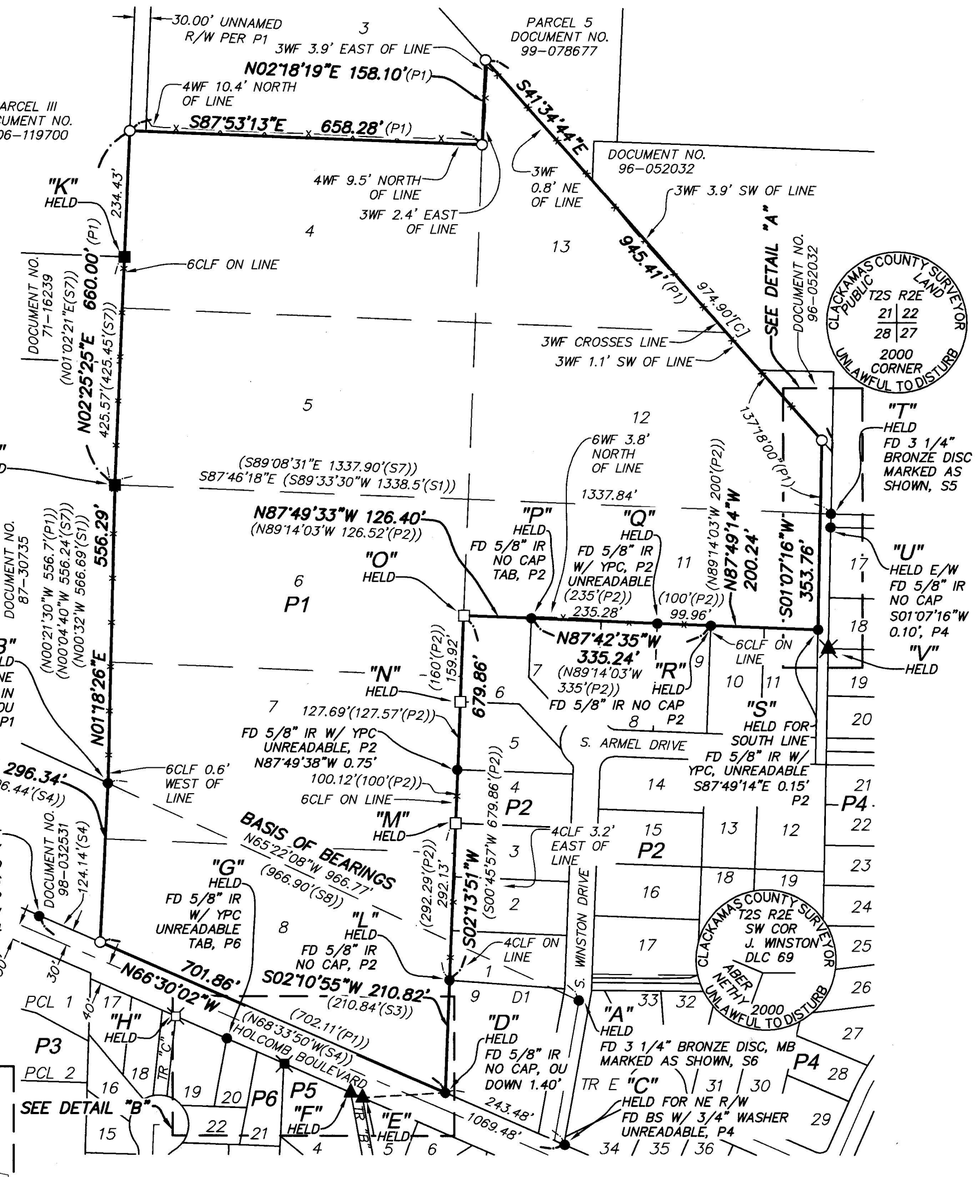
LEGEND:

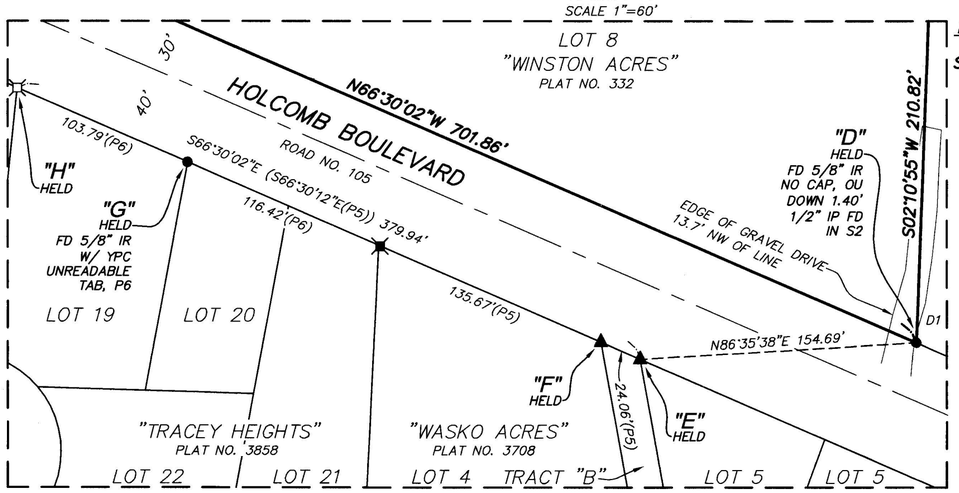
- ○ SET 5/8" x 30" IRON ROD W/ RED PLASTIC CAP MARKED "CENTERLINE CONCEPTS" ON JULY 13, 2021
- ● FOUND MONUMENT AS NOTED
- ■ FOUND 5/8" IRON ROD W/ YELLOW PLASTIC CAP MARKED "COMPASS ENGINEERING" FROM S7
- □ FOUND 5/8" IRON ROD W/ YELLOW PLASTIC CAP MARKED "MASON RLS 322" FROM P2
- ▲ FOUND 5/8" IRON ROD W/ YELLOW PLASTIC CAP MARKED "LDC DESIGN GROUP" FROM P5
- ⧓ FOUND 5/8" IRON ROD W/ YELLOW PLASTIC CAP MARKED "G&L LAND SURVEYING" FROM P6 FALLS S56°50'55"E 0.95'
- ⧖ FOUND BRASS SCREW WITH 3/4" WASHER MARKED "G&L LAND SURVEYING" FROM P6
- ⧗ FOUND 5/8" IRON ROD W/ YELLOW PLASTIC CAP MARKED "LAND DEV. CONSULTANTS" FROM P4

( ) = RECORD DISTANCES & BEARINGS
TSP = BENT, TIED SPIN POINT
TAB = BENT, TIED AT BASE
YPC = YELLOW PLASTIC CAP
MB = IN MONUMENT BOX
R/W = RIGHT OF WAY
[C] = CALCULATED DISTANCE
OU = ORIGIN UNKNOWN
3WF = 3' WIRE FENCE
4WF = 4' WIRE FENCE
4CLF = 4' CHAINLINK FENCE
6WF = 6' WIRE FENCE
6CLF = 6' CHAINLINK FENCE
DOCUMENT NO. = DEED DOCUMENT NUMBER, CLACKAMAS COUNTY DEED RECORDS
SN = SURVEY NUMBER, CLACKAMAS COUNTY SURVEYOR'S OFFICE
S1 = SN 3999
S2 = SN 6059
S3 = SN 6211
S4 = SN 21207
S5 = U.S.B.T. ENTRY 2000–001
S6 = U.S.B.T. ENTRY 2000–006
S7 = SN 29771
S8 = SN 1912–004

TR = TRACT
FD = FOUND
W/ = WITH
PCL = PARCEL
IP = IRON PIPE
IR = IRON ROD
BS = BRASS SCREW
P1 = "WINSTON ACRES" PLAT NO. 332
P2 = "WINSTON HILLS" PLAT NO. 1645
P3 = PARTITION PLAT NO. 1992–015
P4 = "BARLOW CREST – PHASE 1" PLAT NO. 3324
P5 = "WASKO ACRES" PLAT NO. 3708
P6 = "TRACEY HEIGHTS" PLAT NO. 3858
D1 = DOCUMENT NO. 2020–081030







GRAPHIC SCALE
200 0 100 200 400
(IN FEET)
1 INCH = 200FT.

N

SIGNED ON: 14 JUL 21

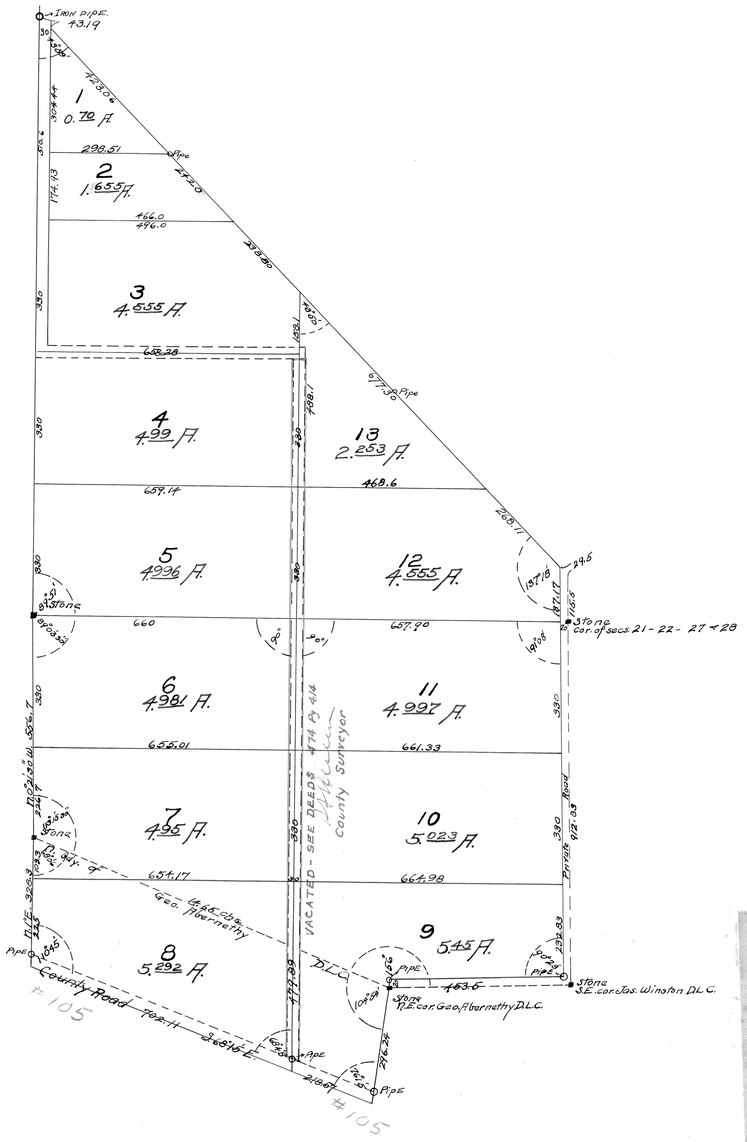
REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JULY 13, 2004
TOBY G. BOLDEN
60377LS
RENEWS: DECEMBER 31, 2021

CENTERLINE CONCEPTS
LAND SURVEYING, INC.
19376 MOLALLA AVE., SUITE 120
OREGON CITY, OREGON 97045
PHONE 503.650.0188 FAX 503.650.0189

PLOTTED: M:\PROJECTS\ICON–HOLCOMB BLVD–S\DWG\ROS–C3D.dwg

WINSTON ACRES

SITUATED IN THE
DONATION LAND CLAIMS
OF
James Winston and Geo. Abernethy.
SURVEYED BY --- H.H. JOHNSON.
1912.



Scale 1 inch = 200 feet.

Approved, April 5th 1912. D. Thompson Meldrum
County Surveyor.

Approved, April 5th 1912. J. E. Jack
County Assessor.
By H. H. Johnson
Deputy.

Approved, by County Court of Clackamas County this 5th day of April, A.D. 1912.
B. B. Beatie
County Judge.
W. H. Mattoon
County Commissioner.
N. Blair
County Commissioner.

Attest---this 5th day of April, 1912. J. R. Mulvey
County Clerk.

Seal of County Court

STATE OF OREGON,
County of Clackamas, } ss.

I, L. E. Williams, Recorder of Conveyances, of the above named County and State, do hereby certify that the foregoing copy of Town Plat of Winston Acres
from
to
as recorded in Book All at page 19 of town plats has been by me compared with the original, and that it is a correct transcript therefrom, and the whole of such original Town Plats as the same appears of record in my office and in my care and custody.

In Testimony Whereof, I have hereunto set my hand and affixed my seal this 30thm day of April 1912.

L. E. Williams
Recorder of Conveyances.
By A. R. Williams
Deputy.

SURVEYORS CERTIFICATE.

State of Oregon
County of Clackamas } ss.

I, H.H. Johnson, being first duly sworn, depose and say that I have correctly surveyed and marked with proper monuments the tract of land represented on the within map to be known as Winston Acres, said tract of land being a part of the Donation Land Claims of James Winston and Geo. Abernethy in T.2S. R.2E. Willamette Meridian, bounded as follows, to wit:

Beginning at the N.E. corner of the said Abernethy claim; running, thence North 20ft. to an iron pipe, thence East parallel to the South boundary of the said Jas. Winston claim 433.5 ft. to an iron pipe, thence North parallel to the section line between Secs. 27 and 28, 1030 ft. thence N 43° W. 1921.96 ft. to an iron pipe, thence S 1°05' W. 1500.6 ft. to a stone on the section line between Secs. 21 and 28, thence S 0°21'30" E. 556.7 ft. to a stone on the N. boundary of the said Abernethy claim, 14.65 chains from the N.E. corner thereof, thence S 1° W. 328.3 ft. to the center of the Hirschem's Mill and Moss Hill County road, thence along the center of said road S 68°15' E. 920.68 ft. to the East boundary of the said Abernethy claim, thence N 8° E. 296.24 ft. to the place of beginning; that I have subdivided the above described tract as shown hereon, and have marked the corners of the several tracts with wooden stakes, unless otherwise indicated on the within map.

H. H. Johnson
Surveyor.

Subscribed and sworn to before me this 4th day of April, A.D. 1912.
J. R. Mulvey
County Clerk.

Seal of County Court By Clerk

DEDICATION.

Know All Men By These Presents, that we A.E. Latourette and D. Clinton Latourette, Trustees, are the owners in fee of the tract of land described in the Surveyors Certificate above; that we do hereby make, establish and declare the within plat to be the true and official map of Winston Acres, and we do further dedicate to the Public forever, without reservation, the streets and roads shown hereon as such.

In Witness Whereof, we have hereunto set our hands and seals this 1st day of April, A.D. 1912.

Witnesses:-
A. E. Latourette Trustee (Seal)
Mary Clifford Latourette
D. Clinton Latourette Trustee (Seal)

State of Oregon
County of Multnomah } ss.

Be It Known, that on this 1st day of April, 1912, before me a Notary Public in and for said County and State, personally appeared the within named A.E. Latourette and D. Clinton Latourette, who are well known to me to be the identical persons described in, and who executed the within dedication, and acknowledged to me that they executed the same.

In Witness Whereof, I have hereunto set my hand and Notarial seal the day and year last above written.

L. E. Latourette
Notary Public for Oregon.

Seal of Notary Public