



TYPE II APPLICATION – LAND USE

File #: SEP 13 2021

TYPES – PLEASE CHECK ONE:

- Design review
- Tentative Plan for Partition
- Tentative Plan for Subdivision
- Type II Major Modification
- Variance
- Other: (Explain) _____

APPLICANT INFORMATION:

APPLICANT: Nick Daniken
 ADDRESS: 16869 SW 65th Ave Suite 115, Lake Oswego, OR 97035
 EMAIL ADDRESS: nick@greenwingpdx.com
 PHONE: _____ MOBILE: (541) 778-9333 FAX: _____
 OWNER (if different from above): Greenwing Restorations LLC PHONE: (503) 473 - 8870
 ADDRESS: 16869 SW 65th Ave Suite 115, Lake Oswego, OR 97035
 ENGINEER/SURVEYOR: Emerio Design PHONE: (503) 746 - 8812
 ADDRESS: 6445 SW Fallbrook Place Suite 100, Beaverton OR 97008

GENERAL INFORMATION:

PROJECT NAME: Myrtlewood Subdivision PROJECT LOCATION: Crater Lane
 PROJECT DESCRIPTION/USE: Subdivide for (10) NSFR PROJECT VALUATION: _____
 MAP/TAX LOT NO. (i.e.3200AB-400): R3207 03202 ZONE: _____ SITE SIZE: 1.74 SQ. FT. ACRE
 COMP PLAN DESIGNATION: R1 TOPOGRAPHY: Flat
 CURRENT USE: Raw Land
 SURROUNDING USES:
 NORTH: Single Family Homes SOUTH: Single Family Homes
 EAST: Single Family Homes WEST: Single Family Homes

SPECIFIC PROJECT CRITERIA AND REQUIREMENTS ARE ATTACHED

General Checklist: Fees Public Notice Information Current Title Report Written Criteria Response Owner Signature

For detailed checklists, applicable criteria for the written criteria response, and number of copies per application type, turn to:

- Design Reviewp. 12
- Partition Tentative Platp. 14
- Subdivision Tentative Platp. 17
- Variance Checklistp. 20

The above statements and information herein contained are in all respects true, complete, and correct to the best of my knowledge and belief. Tentative plans must substantially conform to all standards, regulations, and procedures officially adopted by the City of Newberg. All owners must sign the application or submit letters of consent. Incomplete or missing information may delay the approval process.

Nicholas Daniken 8/26/21
 Applicant Signature Date
Nicholas Daniken
 Print Name

JEFF T. EDWARDS, MANAGING MEMBER 08.26.21
 Owner Signature Date
JEFF T. EDWARDS, MANAGING MEMBER
 Print Name

EMERIO *Design*

CIVIL ENGINEERS & PLANNERS

DATE: 8-30-2021

PROPERTY OWNERS: Greenwing Restorations, LLC
16869 SW 65th Ave., Suite 115
Lake Oswego, OR 97035

**CIVIL ENGINEER,
PLANNING &
SURVEYOR:**

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REQUEST: 10 Lot residential subdivision in the Low-Density Residential District (R-1). The proposal will be developed pursuant to the applicable criteria of the City of Newberg Municipal Code (NMC) requirements.

SITE

LOCATION: 2900 N Crater Ln.

ZONING: Low Density Residential District (R-1)

TOTAL

SITE SIZE: 76,006 Square Feet / 1.74 Acres

LEGAL DESCRIPTION: Tax Map 3-2-07; Tax Lot 3202

LIST OF EXHIBITS:

- 1 – Detailed Development Plans
- 2 – Yamhill Co Assessor Map
- 3 – Preliminary Storm Drainage Report
- 4 – Pre-Application Notes
- 5 – Title Report
- 6 – Neighborhood Mailing List and Labels

10-Lot Subdivision
Myrtlewood Subdivision

City of Newberg Municipal Code (NMC): The following sections of the Newberg Municipal Code are applicable to this land use approval:

- Chapter 15.235 – Land Divisions
 - Chapter 15.305 – Zoning Use Table
 - Chapter 15.405 – Lot Requirements
 - Chapter 15.410 – Yard Setback Requirements
 - Chapter 15.430 – Underground Utility Installation
 - Chapter 15.440 – Off Street Parking, Bicycle Parking, and Private Walkways
 - Chapter 15.505 – Public Improvement Standards
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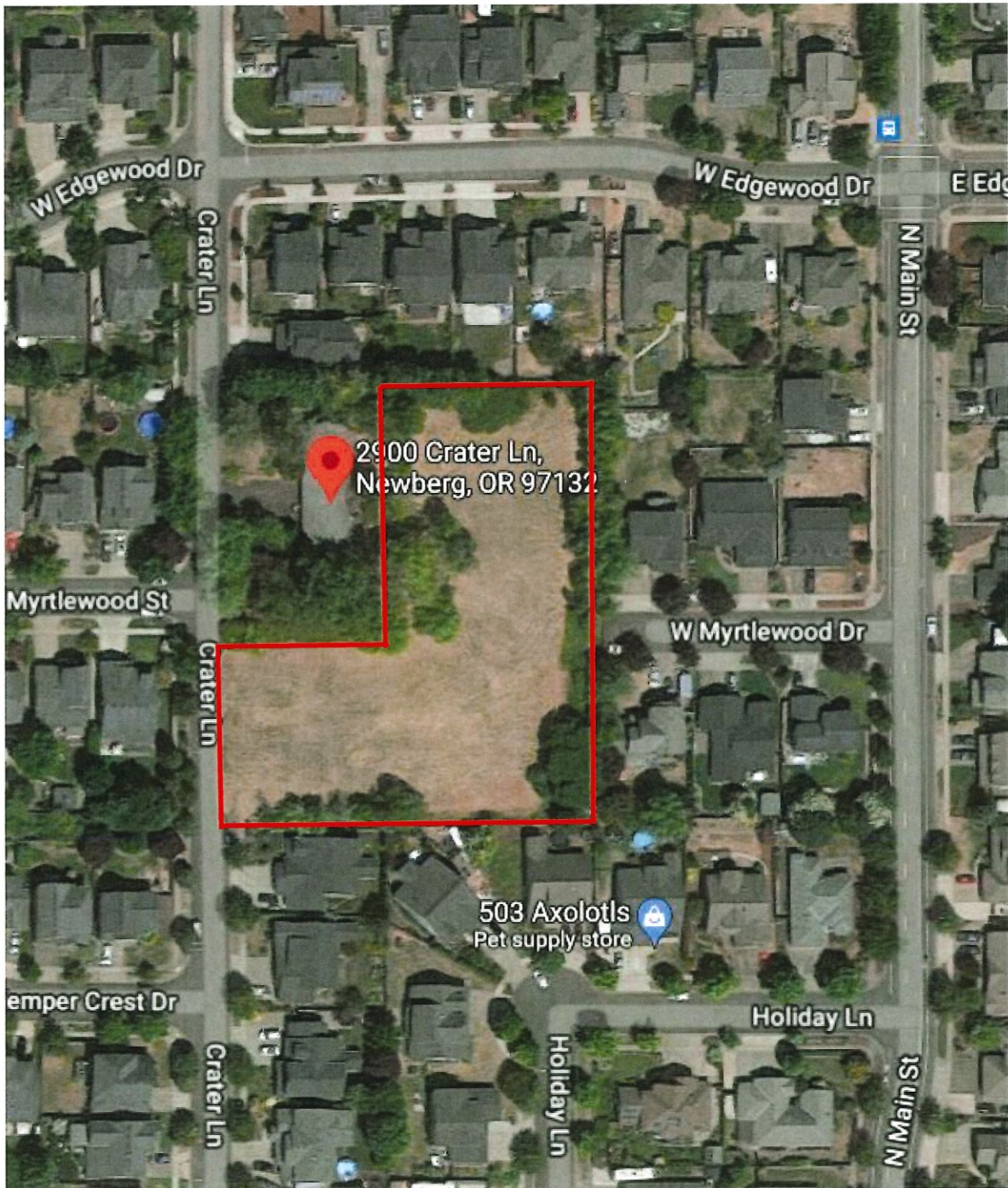
I. INTRODUCTION

The subject site is located at 2900 N Crater Ln. and is further identified on Yamhill County Assessor Map 3-2-07; Tax Lot 3202. The subject property is approximately 1.74 acres in size. The site area is generally oriented in a reverse "L" shape and is undeveloped. The site area is vegetated with a mix of trees, shrubs, and grass fields, and has an undulating topography. The subject site does not contain any flood plain or drainage hazard areas.

The applicant and property owner are requesting preliminary plat approval for a 10-Lot residential subdivision for single-family detached dwelling lots. The subject site is currently zoned Low Density Residential (R-1).

The subdivision will utilize the City's potable water, sanitary sewer and storm water services. The required number of street trees will be planted as part of the improvements. Storm water will be managed for the entire site via Tract A, which is the water quality detention/treatment facility to detain and treat storm water as per City standards.

2900 N CARTER LN. – VICINITY MAP



II. CONFORMANCE WITH CITY OF NEWBERG MUNICIPAL CODE (NMC) APPROVAL CRITERIA

**NEWBERG MUNICIPAL CODE (NMC)
Title 15 – DEVELOPMENT CODE**

10-Lot Subdivision
Myrtlewood Subdivision

Chapter 15.235 LAND DIVISIONS

15.235.050 Preliminary plat approval criteria

A. Approval Criteria. By means of a Type II procedure for a partition, or a Type II or III procedure for a subdivision per NMC 15.235.030(A), the applicable review body shall approve, approve with conditions, or deny an application for a preliminary plat. The decision shall be based on findings of compliance with all of the following approval criteria:

1. The land division application shall conform to the requirements of this chapter;

RESPONSE: The Applicant is proposing a 10-lot residential subdivision in the Low Density Residential District (R-1). As such, the Applicant has demonstrated through the submitted application materials and this narrative that the proposed subdivision conforms to the requirements of this chapter. Perceived

2. All proposed lots, blocks, and proposed land uses shall conform to the applicable provisions of NMC Division 15.400, Development Standards;

RESPONSE: See the Applicant's responses below under NMC Division 15.400, Development Standards.

3. Access to individual lots, and public improvements necessary to serve the development, including but not limited to water, wastewater, stormwater, and streets, shall conform to NMC Division 15.500, Public Improvement Standards;

RESPONSE: See the Applicant's responses below under NMC Division 15.500, Development Standards.

4. The proposed plat name is not already recorded for another subdivision, and satisfies the provisions of ORS Chapter 92;

RESPONSE: The Applicant is currently working with the Yamhill County Surveyor's office to reserve the "Myrtlewood" name for the proposed subdivision plat. As demonstrated through the submitted application materials and this narrative, the Applicant's proposed subdivision satisfies the provisions of ORS Chapter 92.

5. The proposed streets, utilities, and stormwater facilities conform to city of Newberg adopted master plans and applicable Newberg public works design and construction standards, and allow for transitions to existing and potential future development on adjacent lands. The preliminary plat shall identify all proposed public improvements and dedications;

RESPONSE: The Applicant's proposal satisfies the above criterion because the proposed

development will be extending Myrtlewood Dr., which is currently stubbed to the site's eastern property boundary, through the site to connect with Crater Lane. With the extension of Myrtlewood Dr., it will allow for transitions to existing and potential future development on surrounding lands. The proposed extension of Myrtlewood Dr. has been designed to conform to the City of Newberg adopted master plans and applicable Newberg public works standards.

In addition, the Applicant will also be dedicating additional right-of-way along the site's Crater Ln. frontage and making the necessary frontage improvements to comply with the City of Newberg public works design standards. Lastly, all proposed utility improvements and the proposed stormwater facilities conform to the City of Newberg public works design and construction standards. Sheets 4 and 5 of the submitted plan set provide additional detail demonstrating compliance with the City of Newberg design and construction standards for the proposed public improvements.

- 6. All proposed private common areas and improvements, if any, are identified on the preliminary plat and maintenance of such areas is assured through the appropriate legal instrument;**

RESPONSE: There are no proposed private common areas and/or improvements associated with the proposed development; therefore, the above criterion does not apply to the Applicant's proposal.

- 7. Evidence that any required state and federal permits, as applicable, have been obtained or can reasonably be obtained prior to development; and**
- 8. Evidence that improvements or conditions required by the city, road authority, Yamhill County, special districts, utilities, and/or other service providers, as applicable to the project, have been or can be met.**

RESPONSE: To the best of the Applicant's knowledge there are no required state and/or federal permits required for the proposed development. As part of the overall application submittal, the Applicant has provided detailed plans that show preliminary profiles & typical street sections, preliminary grading plan, and a preliminary site utility plan to demonstrate compliance with the City's road authority and utility requirements. To the best of the Applicant's knowledge, there are not special districts or Yamhill County code standards that apply to the Applicant's proposal. The Applicant's proposal satisfies the above criteria.

B. Conditions of Approval. The city may attach such conditions as are necessary to carry out provisions of this code, and other applicable ordinances and regulations.

RESPONSE: The Applicant is aware of the above criterion and understands that the City may attach conditions of approval as are necessary to carry out the provisions of this code, as well as other applicable ordinances and regulations.

Chapter 15.305 ZONING USE TABLE

15.305.020 Zoning use table – Use districts.

Newberg Development Code – Zoning Use Table

#	Use	R-1	R-2	R-3	R-4	RP	C-1	C-2	C-3	C-4	M-1	M-2	M-3	M-4-I	M-4-C	CF	I	AR	AI	Notes and Special Use Standards
100	AGRICULTURAL USES																			
Def.	Horticulture	P	P	P(1)	P(1)	P(1)	P(1)	P(1)	P(1)	P(1)	P(1)	P(1)	P(1)	P(1)	P(1)	P(1)	P(1)	P(1)	P(1)	
Def.	Livestock and poultry farming	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Def.	Home gardening	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Def.	Home livestock and poultry raising	S	S															S		NMC Title 6
200	RESIDENTIAL USES																			
Def.	Dwelling, single-family detached	P(2)	P	P(3)		P		C(4)	C(5)								P	P(6)		Subject to density limits of NMC 15.405.010(B)

RESPONSE: The subject property is zoned R-1, which is a low-density residential district. The Applicant is proposing a 10 Lot single-family residential subdivision, which is a permitted use in the R-1 Zone.

Chapter 15.405 LOT REQUIREMENTS

15.405.010 Lot area – Lot areas per dwelling unit.

A. In the following districts, each [lot](#) or [development site](#) shall have an area as shown below except as otherwise permitted by this code:

1. In the R-1 district, each lot or development site shall have a minimum area of 5,000 square feet or as may be established by a subdistrict. The average size of lots in a subdivision intended for single-family development shall not exceed 10,000 square feet.

B. [Lot](#) or [Development Site](#) Area per [Dwelling Unit](#).

1. In the R-1 district, there shall be a minimum of 5,000 square feet per [dwelling unit](#).

RESPONSE: As noted above, the subject property is located in the R-1 zoning district. The Applicant’s proposal satisfies the above criteria because all proposed lots are 5,000 sq. ft. in size or greater.

C. In calculating [lot](#) area for this section, [lot](#) area does not include land within public or [private streets](#). In calculating [lot](#) area for maximum [lot](#) area/minimum density requirements, [lot](#) area does not include land within [stream corridors](#), land reserved for public [parks](#) or [open spaces](#), commons [buildings](#), land for

preservation of natural, scenic, or historic resources, land on slopes exceeding 15 percent or for avoidance of identified natural hazards, land in shared [access](#) easements, [public walkways](#), or entirely used for [utilities](#), land held in reserve in accordance with a future [development plan](#), or land for [uses](#) not appurtenant to the residence.

RESPONSE: The Applicant has relied on the above criterion when calculating the lot area for each lot. The proposed lot areas do not include lands within public or private streets. Also, there are no stream corridors, land reserved for public parks or open spaces, commons buildings, land for preservation of natural, scenic, or historic resources, land on slopes exceeding 15 percent or for avoidance of identified natural hazards, public walkways, or entirely used for utilities, land held in reserve in accordance with a future development plan, or land for uses not appurtenant to the residence either located on the subject property or being proposed as part of this development proposal.

Lots 3 – 10 have land in shared access easements over these lots. The land located within the access easements of these lots has not be used in calculating lot area for these lots. Lots 3 – 6 are all 5,000 sq. ft. lots with the inclusion of the access and utility easements. After subtracting the square footage of the access and utility easement over these lots, though, these lots range in size between 4,244 sq. ft. to 4,259 sq. ft. in size. Lots 7 – 10 range in size from 6,468 sq. ft. to 6,952 sq. ft. with the inclusion of the access and utility easements. After subtracting the square footage of the access and utility easement over these lots, the lot sizes are as follows: Lot 7: 5,956 sq. ft., Lot 8: 5,762 sq. ft., Lot 9: 5,767 sq. ft., and Lot 10: 5,751 sq. ft. Lots 1 and 2 are not encumbered by an access easement and are both 5,000 sq. ft. in size or greater.

D. Lot size averaging is allowed for any subdivision. Some lots may be under the minimum lot size required in the zone where the subdivision is located, as long as the average size of all lots is at least the minimum lot size.

RESPONSE: Since the Newberg code does not allow for shared access easements to be included as part of the overall lot area when calculating lot sizes, the Applicant will be using the lot size averaging provided by the above criterion for the proposed subdivision. The Applicant is proposing the following lot sizes for the subdivision: Lot 1: 5,001 sq. ft., Lot 2: 5,000 sq. ft., Lot 3: 4,251 sq. ft., Lot 4: 4,259 sq. ft., Lot 5: 4,244 sq. ft., Lot 6: 4,245 sq. ft., Lot 7: 5,956 sq. ft., Lot 8: 5,762 sq. ft., Lot 9 5,767 sq. ft., and Lot 10: 5,751 sq. ft., for an average lot size of 5,023 sq. ft.

The Applicant's proposal satisfies the lot averaging criteria as the average lot size is at least the minimum lot size of 5,000 square feet as required by the R-1 zone.

15.405.030 Lot dimensions and frontage.

A. Width. Widths of [lots](#) shall conform to the standards of this [code](#).

RESPONSE: The Applicant's proposal satisfies the lot width standards of the R-1 zone as each lot has either frontage on a public street for a distance of at least 25 feet or has access to a public street through an easement that is at least 25 feet wide.

- B. Depth to Width Ratio.** Each lot and parcel shall have an average depth between the front and rear lines of not more than two and one-half times the average width between the side lines. Depths of lots shall conform to the standards of this code. Development of lots under 15,000 square feet are exempt from the lot depth to width ratio requirement.

RESPONSE: The above criterion does not apply to the applicant's proposal because all proposed lots are between 4,244 sq. ft. to 5,956 sq. ft., therefore, they are all under 15,000 sq. ft. in size and are exempt from the lot depth to width ratio requirement.

- C. Area.** Lot sizes shall conform to standards set forth in this code. Lot area calculations shall not include area contained in public or private streets as defined by this code.

RESPONSE: As noted above, the Applicant is utilizing the lot averaging criterion to satisfy the lot size requirements for the proposed subdivision. As such, the average lot size for the proposed 10 lot subdivision is 5,023 square feet, which meets the minimum lot size of the R-1 zone, and satisfies the above criterion.

D. Frontage.

1. No lot or development site shall have less than the following lot frontage standards:
 - a. Each lot or development site shall have either frontage on a public street for a distance of at least 25 feet or have access to a public street through an easement that is at least 25 feet wide. No new private streets, as defined in NMC 15.05.030, shall be created to provide frontage or access except as allowed by NMC 15.240.020(L)(2).
 - b. Each lot in R-2 zone shall have a minimum width of 25 feet at the front building line and R-3 zone shall have a minimum width of 30 feet at the front building line.
 - c. Each lot in R-1 zone shall have a minimum width of 35 feet at the front building line and AI or RP shall have a minimum width of 50 feet at the front building line.

RESPONSE: All proposed lots have a minimum frontage of 35 feet at the front building line, except for Lots 4, 5, 8, and 9, which have or have access to the public street through an easement that is at least 25 feet wide. All proposed lots will have a minimum width of 35 feet at the front building line. The Applicant's proposal satisfies the above criteria for new lots created in the R-1 zoning district.

15.405.040 Lot coverage and parking coverage requirements.

- B. Residential uses in residential zones shall meet the following maximum lot**

coverage and parking coverage standards. See the definitions in NMC 15.05.030 and Appendix A, Figure 4.

1. **Maximum Lot Coverage.**

a. R-1: 40 percent, or 50 percent if all structures on the lot are one story.

2. **Maximum Parking Coverage. R-1, R-2, R-3, and RP: 30 percent.**

RESPONSE: No new dwellings are being proposed at this time. Compliance with the lot coverage and parking coverage requirements will be reviewed during the building permit review process for the new dwellings.

Chapter 15.410 YARD SETBACK REQUIREMENTS

15.410.020 Front yard setback.

A. Residential (see Appendix A, Figure 10).

1. AR, R-1 and R-2 districts shall have a front yard of not less than 15 feet. Said yard shall be landscaped and maintained.

...

3. The entrance to a garage or carport, whether or not attached to a dwelling, shall be set back at least 20 feet from the nearest property line of the street to which access will be provided. However, the foregoing setback requirement shall not apply where the garage or carport will be provided with access to an alley only.

RESPONSE: No new dwellings are being proposed at this time. Compliance with the applicable setbacks will be reviewed during the building permit review process for the new dwellings.

15.410.030 Interior yard setback.

A. Residential.

1. All lots or development sites in the AR, R-1, R-2 and R-3 districts shall have interior yards of not less than five feet, except that where a utility easement is recorded adjacent to a side lot line, there shall be a side yard no less than the width of the easement.

RESPONSE: No new dwellings are being proposed at this time. Compliance with the applicable setbacks will be reviewed during the building permit review process for the new dwellings.

15.410.050 Special setback requirements to planned rights-of-way.

- B. Planned Street Right-of-Way Widths.** Planned street right-of-way widths are established as indicated in subsection (C) of this section for the various categories of streets shown in the transportation system plan.
- C. A lot or parcel of land in any district adjoining a street for which the planned right-of-way width and alignment have been determined shall have a building setback line equal to the yard required in the district, plus a distance of:**
1. Fifty feet from and parallel with the centerline of expressways.
 2. Thirty-five feet from and parallel with the centerline of major and minor arterials.
 3. Thirty feet from and parallel with the centerline of multifamily, commercial and industrial streets and single-family collector streets.
 4. Thirty feet from and parallel with the centerline of single-family local streets.
 5. Twenty-five feet from and parallel with the centerline of single-family hillside, cul-de-sacs and local streets which will never be extended more than 2,400 feet in length and which will have a relatively even division of traffic to two or more exits.

RESPONSE: Myrtlewood Dr. is currently stubbed to the site's eastern property boundary, and it is a street for which the planned right-of-way width and alignment have been determined. Myrtlewood Dr. between N. Main St. and Crater Ln. will be 530 feet in length and is a local street. Myrtlewood Dr. will never be extended more than 2,400 feet in length and will have a relatively even division of traffic to two exits. Thus, the lots adjoining Myrtlewood Dr. will have a building setback line equal to the yard required in the district plus a distance of twenty-five feet from and parallel with the centerline of Myrtlewood Dr. or criterion C(5) above.

15.410.060 Vision clearance setback.

The following vision clearance standards shall apply in all zones (see Appendix A, Figure 9).

- A. At the intersection of two streets, including private streets, a triangle formed by the intersection of the curb lines, each leg of the vision clearance triangle shall be a minimum of 50 feet in length.**
- B. At the intersection of a private drive and a street, a triangle formed by the intersection of the curb lines, each leg of the vision clearance triangle shall be a minimum of 25 feet in length.**
- C. Vision clearance triangles shall be kept free of all visual obstructions from two**

and one-half feet to nine feet above the [curb line](#). Where curbs are absent, the edge of the asphalt or future curb location shall be used as a guide, whichever provides the greatest amount of vision clearance.

RESPONSE: The required clear vision areas will be maintained at the following intersections: Myrtlewood Dr. and Crater Ln., as well as at the access easement intersections between Lots 3 and 6, and 7 and 10. The required clear vision setbacks will be shown at these intersections on the civil plans upon gaining land use approval. The vision clearance triangles will be kept free of all visual obstructions from two and one-half feet to nine feet above the curb line as required by the above criteria.

15.430.010 UNDERGROUND UTILITY INSTALLATION

- A. All new utility lines, including but not limited to electric, communication, natural gas, and cable television transmission lines, shall be placed underground. This does not include surface-mounted transformers, connections boxes, meter cabinets, service cabinets, temporary facilities during construction, and high-capacity electric lines operating at 50,000 volts or above.**
- B. Existing utility lines shall be placed underground when they are relocated, or when an addition or remodel requiring a Type II design review is proposed, or when a developed area is annexed to the [city](#).**

RESPONSE: The Applicant is proposing to install all new utility lines, including electric, communication, natural gas, and cable television transmission lines, underground as part of the proposed subdivision. Additionally, existing overhead utility lines serving the subject property will be placed underground to the extent practicable.

Chapter 15.440 OFF-STREET PARKING, BICYCLE PARKING, AND PRIVATE WALKWAYS

- A. Off-street parking shall be provided on the [development site](#) for all R-1, C-1, M-1, M-2 and M-3 zones. In all other zones, the required parking shall be on the [development site](#) or within 400 feet of the [development site](#) which the parking is required to serve. All required parking must be under the same ownership as the [development site](#) served except through special covenant agreements as approved by the [city](#) attorney, which bind the parking to the [development site](#).**
 - 1. In cases where the [applicant](#) is proposing off-street parking, refer to subsection (F) of this section for the maximum number of [parking spaces](#).**
- F. Maximum Number of Off-Street Automobile [Parking Spaces](#). The maximum number of off-street automobile [parking spaces](#) allowed per site equals the minimum number of required spaces, pursuant to NMC [15.440.030](#), multiplied by a factor of:**

1. One and one-fifth spaces for uses fronting a street with adjacent on-street parking spaces; or
2. One and one-half spaces for uses fronting no street with adjacent on-street parking

15.440.030 Parking spaces required.

<u>Use</u>	Minimum <u>Parking Spaces</u> Required
Residential Types	
<u>Dwelling, multifamily</u> and multiple <u>single-family dwellings</u> on a single <u>lot</u>	
Studio or one-bedroom unit	1 per <u>dwelling unit</u>
Two-bedroom unit	1.5 per <u>dwelling unit</u>
Three- and four-bedroom unit	2 per <u>dwelling unit</u>
Five- or more bedroom unit	0.75 spaces per bedroom
• Unassigned spaces	If a development is required to have more than 10 spaces on a <u>lot</u> , then it must provide some unassigned spaces. At least 15 percent of the total required <u>parking spaces</u> must be unassigned and be located for convenient <u>use</u> by all occupants of the development. The location shall be approved by the <u>director</u> .
• Visitor spaces	If a development is required to have more than 10 spaces on a <u>lot</u> , then it must provide at least 0.2 visitor spaces per <u>dwelling unit</u> .

RESPONSE: Based on the above criteria, the proposed subdivision will be required to provide a minimum of two (2) off street parking space per dwelling unit, as no five (5) bedroom houses are anticipated. Even though no houses are being proposed at this time, the proposed lot sizes will easily be able to accommodate two (2) car garages, as well as driveways capable of parking two (2) vehicles. Ultimate compliance with the off-street parking requirements will be reviewed during the building permit process. The Applicant's proposal satisfies the above criteria.

Chapter 15.505 PUBLIC IMPROVEMENTS STANDARDS

15.505.020 Applicability.

The provision and utilization of public facilities and services within the City of Newberg shall apply to all land developments in accordance with this chapter. No development shall be approved unless the following improvements are provided for prior to

occupancy or operation, unless future provision is assured in accordance with NMC [15.505.030\(E\)](#).

- A. Public Works Design and Construction Standards.** *The design and construction of all improvements within existing and proposed rights-of-way and [easements](#), all improvements to be maintained by the [city](#), and all improvements for which [city](#) approval is required shall comply with the requirements of the most recently adopted Newberg public works design and construction standards.*

RESPONSE: The Applicant is aware of the above requirements and understands that all proposed improvements within existing and proposed rights-of-ways and easements must comply with the requirements of the most recently adopted Newberg public works design and construction standards. The Applicant has provided detailed plans that demonstrate that all proposed public improvements can and will comply with the requirements of the most recently adopted Newberg public works design and construction standards. Nevertheless, ultimate compliance will be determined during the civil plan review upon gaining land use approval for the proposed subdivision.

- B. Street Improvements.** *All projects subject to a Type II design review, partition, or subdivision approval must construct street improvements necessary to serve the development.*

RESPONSE: The Applicant's proposal satisfies the above criterion because all proposed street improvements necessary to serve the proposed subdivision will be constructed with the development.

- C. Water.** *All developments, [lots](#), and [parcels](#) within the [City](#) of Newberg shall be served by the municipal water system as specified in Chapter [13.15](#) NMC.*
- D. Wastewater.** *All developments, [lots](#), and [parcels](#) within the [City](#) of Newberg shall be served by the municipal wastewater system as specified in Chapter [13.10](#) NMC.*
- E. Stormwater.** *All developments, [lots](#), and [parcels](#) within the [City](#) of Newberg shall manage stormwater runoff as specified in Chapters [13.20](#) and [13.25](#) NMC.*
- F. Utility [Easements](#).** *Utility [easements](#) shall be provided as necessary and required by the review body to provide needed facilities for present or future development of the area.*
- G. [City](#) Approval of Public Improvements Required.** *No [building](#) permit may be issued until all required public facility improvements are in place and approved by the [director](#), or are otherwise bonded for in a manner approved by the review authority, in conformance with the provisions of this [code](#) and the Newberg Public Works Design and Construction Standards.*

RESPONSE: The Applicant's proposal satisfies the above criteria because all proposed lots will be served by municipal water, wastewater, and stormwater systems as required

by Newberg code. Additionally, the necessary utility easements have been provided as necessary to provide the needed facilities for the development.

Upon gaining land use approval for the proposed subdivision, the Applicant will be submitting detailed civil plans to the City's Public Works Dept. for approval of the proposed public improvements. The Applicant understands that no building permits will be issued until all required public facility improvements are in place and approved by the City or are otherwise bonded for in a manner approved by the City.

15.505.030 Street standards.

- C. *Layout of Streets, Alleys, Bikeways, and Walkways. Streets, alleys, bikeways, and walkways shall be laid out and constructed as shown in the Newberg transportation system plan. In areas where the transportation system plan or future street plans do not show specific transportation improvements, roads and streets shall be laid out so as to conform to previously approved subdivisions, partitions, and other developments for adjoining properties, unless it is found in the public interest to modify these patterns. Transportation improvements shall conform to the standards within the Newberg Municipal Code, the Newberg public works design and construction standards, the Newberg transportation system plan, and other adopted city plans.***

RESPONSE: The Applicant's proposal satisfies the above criterion because the proposed layout of streets, alleys, bikeways and walkways are laid out and will be constructed as shown in the Newberg transportation system plan. As part of the proposed subdivision, Myrtlewood Dr. will be extended west through the site to connect with Crater Ln. as anticipated in the Newberg transportation system plan. In addition, a 10-foot right-of-way dedication is proposed for Crater Ln. to widen the street as expected by the Newberg transportation system plan. Lastly, the proposed access easements (i.e. alleys) will be designed and constructed to the Newberg public works design and construction standards.

- D. *Construction of New Streets. Where new streets are necessary to serve a new development, subdivision, or partition, right-of-way dedication and full street improvements shall be required. Three-quarter streets may be approved in lieu of full street improvements when the city finds it to be practical to require the completion of the other one-quarter street improvement when the adjoining property is developed; in such cases, three-quarter street improvements may be allowed by the city only where all of the following criteria are met:***

- 1. *The land abutting the opposite side of the new street is undeveloped and not part of the new development; and***
- 2. *The adjoining land abutting the opposite side of the street is within the city limits and the urban growth boundary.***

RESPONSE: As part of the proposed subdivision, the Applicant is proposing to dedicate right-of-way and make full street improvements for the extension of Myrtlewood Dr.

through the site. In addition, the Applicant is proposing to make a 10-foot right-of-way dedication for Crater Ln. so it can be improved to the full width adjacent to the subject site. The Applicant's proposal satisfies the above criterion.

E. Improvements to Existing Streets.

- 1. All projects subject to partition, subdivision, or Type II design review approval shall dedicate right-of-way sufficient to improve the street to the width specified in subsection (G) of this section.**
- 2. All projects subject to partition, subdivision, or Type II design review approval must construct a minimum of a three-quarter street improvement to all existing streets adjacent to, within, or necessary to serve the development. The director may waive or modify this requirement where the applicant demonstrates that the condition of existing streets to serve the development meets city standards and is in satisfactory condition to handle the projected traffic loads from the development. Where a development has frontage on both sides of an existing street, full street improvements are required.**

RESPONSE: As noted previously, the Applicant is proposing a 10-foot right-of-way dedication for Crater Ln., which is sufficient to improve the width of Crater Ln. adjacent to the subject site. The proposed right-of-way dedication and associated improvements to Crater Ln. will allow the existing street adjacent to the site to serve the proposed development. The Applicant's proposal satisfies the above criterion.

F. Improvements Relating to Impacts. Improvements required as a condition of development approval shall be roughly proportional to the impact of the development on public facilities and services. The review body must make findings in the development approval that indicate how the required improvements are roughly proportional to the impact. Development may not occur until required transportation facilities are in place or guaranteed, in conformance with the provisions of this code. If required transportation facilities cannot be put in place or be guaranteed, then the review body shall deny the requested land use application.

RESPONSE: The Applicant's proposal satisfies the above criterion because all proposed improvements relating to the anticipated impacts associated with the proposed subdivision are roughly proportional to the impacts of the development on public facilities and services. The Applicant will be extending Myrtlewood Dr. through the site to connect with Crater Ln., extending public and private utilities to all lots, dedicating 10-feet of right-of-way along the sites Crater Ln. frontage and making required frontage improvement, and a stormwater facility will be located in Tract A.

G. Street Width and Design Standards.

- 1. Design Standards. All streets shall conform with the standards contained in Table 15.505.030(G). Where a range of values is listed, the director shall determine the width based on a consideration of the total street section width**

needed, existing street widths, and existing development patterns. Preference shall be given to the higher value. Where values may be modified by the director, the overall width shall be determined using the standards under subsections (G)(2) through (10) of this section.

Table 15.505.030(G) Street Design Standards

Type of <u>Street</u>	<u>Right-of-Way</u> Width	Curb-to-Curb Pavement Width	Motor Vehicle Travel Lanes	Median Type	Striped <u>Bike Lane</u> (Both Sides)	On-Street Parking
Arterial Streets						
Expressway**	<u>ODOT</u>	<u>ODOT</u>	<u>ODOT</u>	<u>ODOT</u>	<u>ODOT</u>	<u>ODOT</u>
<u>Major arterial</u>	95 - 100 feet	74 feet	4 lanes	TWLTL or median*	Yes	No*
<u>Minor arterial</u>	69 - 80 feet	48 feet	2 lanes	TWLTL or median*	Yes	No*
Collectors						
Major	57 - 80 feet	36 feet	2 lanes	None*	Yes	No*
Minor	61 - 65 feet	40 feet	2 lanes	None*	Yes*	Yes*
Local Streets						
Local residential	54 - 60 feet	32 feet	2 lanes	None	No	Yes
Limited residential, parking both sides	44 - 50 feet	28 feet	2 lanes	None	No	Yes
Limited residential, parking one side	40 - 46 feet	26 feet	2 lanes	None	No	One side
Local commercial/ industrial	55 - 65 feet	34 feet	2 lanes	None*	No*	Yes*

RESPONSE: Myrtlewood Drive is designated as a "local residential" street. As part of the proposed subdivision, the Applicant is proposing to extend Myrtlewood Dr. through the site in a 54-foot-wide right-of-way, with a curb to curb pavement width of 34 ½ - feet. In

addition, the Applicant is proposing a 10 – foot right-of-way dedication along the sites Crater Ln. frontage, which will increase the Crater Ln. right-of-way to 30-feet adjacent to the site. Crater Ln. will also be improved with 9-feet of pavement to provide a 16-foot-wide travel lane along the sites Crater Ln. frontage. See Sheet 5, Preliminary Profiles & Typical Street Sections, for more detail. The Applicant's proposal satisfies the above criterion.

2. **Motor Vehicle Travel Lanes.** Collector and arterial streets shall have a minimum width of 12 feet.
3. **Bike Lanes.** Striped bike lanes shall be a minimum of six feet wide. Bike lanes shall be provided where shown in the Newberg transportation system plan.
4. **Parking Lanes.** Where on-street parking is allowed on collector and arterial streets, the parking lane shall be a minimum of eight feet wide.
5. **Center Turn Lanes.** Where a center turn lane is provided, it shall be a minimum of 12 feet wide.

RESPONSE: The above criteria do not apply to the Applicant's proposal because the site does not abut a collector or arterial street.

6. **Limited Residential Streets.** Limited residential streets shall be allowed only at the discretion of the review authority, and only in consideration of the following factors:
 - a. The requirements of the fire chief shall be followed.
 - b. The estimated traffic volume on the street is low, and in no case more than 600 average daily trips.
 - c. Use for through streets or looped streets is preferred over cul-de-sac streets.
 - d. Use for short blocks (under 400 feet) is preferred over longer blocks.
 - e. The total number of residences or other uses accessing the street in that block is small, and in no case more than 30 residences.
 - f. On-street parking usage is limited, such as by providing ample off-street parking, or by staggering driveways so there are few areas where parking is allowable on both sides.

RESPONSE: The Applicant is proposing to extend Myrtlewood St. through the site (approximately 270-feet) to connect with Crater Ln. With the proposed extension of Myrtlewood Dr. through the site it will connect N. Main St. with Crater Ln., which is

approximately 530-foot centerline to centerline. Due to existing development in the area, it is not possible for the Applicant reduce the block length by stubbing a new local street to the north or south as the existing homes preclude any future street connections. As such, the proposed block length is the minimum necessary to connect Myrtlewood St. with Crater Ln. and complete the block between N. Main St. and Crater Ln. With the extension of Myrtlewood Dr. through the site, there will be a total of 15 residences accessing the street in the block, which includes the six (6) existing residences currently accessing Myrtlewood Dr. east of the subject property. All proposed lots will be able to provide a minimum of two (2) off-street parking spaces, which will help to limit on-street parking. The Applicant's proposal satisfies the above criteria.

7. **Sidewalks.** *Sidewalks shall be provided on both sides of all public streets. Minimum width is five feet.*
8. **Planter Strips.** *Except where infeasible, a planter strip shall be provided between the sidewalk and the curb line, with a minimum width of five feet. This strip shall be landscaped in accordance with the standards in NMC 15.420.020. Curb-side sidewalks may be allowed on limited residential streets. Where curb-side sidewalks are allowed, the following shall be provided:*
 - a. *Additional reinforcement is done to the sidewalk section at corners.*
 - b. *Sidewalk width is six feet.*
9. **Slope Easements.** *Slope easements shall be provided adjacent to the street where required to maintain the stability of the street.*
10. **Intersections and Street Design.** *The street design standards in the Newberg public works design and construction standards shall apply to all public streets, alleys, bike facilities, and sidewalks in the city.*
11. *The planning commission may approve modifications to street standards for the purpose of ingress or egress to a minimum of three and a maximum of six lots through a conditional use permit.*

RESPONSE: Five-foot wide sidewalks and 5-foot-wide planter strips will be provided on both sides of Myrtlewood Dr. for the section of the street extended through the subject property. In addition, a 5-foot sidewalk and a 5-foot-wide planter strip will be added to the sites Crater Ln. frontage. No slope easements are necessary for the proposed subdivision. See Sheet 5, Preliminary Profiles & Typical Street Sections, for more detail.

- K. **Future Extension of Streets.** *All new streets required for a subdivision, partition, or a project requiring site design review shall be constructed to be "to and through": through the development and to the edges of the project site to serve adjacent properties for future development.*

L. Cul-de-Sacs.

RESPONSE: The Applicant is proposing to extend the currently stubbed portion of Myrtlewood Dr. to and through the site so it can connect with Crater Ln. No other streets are required or necessary to serve future development as all surrounding property has been developed. Additionally, no cul-de-sacs are being proposed. The Applicant's proposal satisfies the above criteria.

M. Street Names and Street Signs. Streets that are in alignment with existing named streets shall bear the names of such existing streets. Names for new streets not in alignment with existing streets are subject to approval by the director and the fire chief and shall not unnecessarily duplicate or resemble the name of any existing or platted street in the city. It shall be the responsibility of the land divider to provide street signs.

RESPONSE: As noted previously, the Applicant will be extending an existing street, Myrtlewood Dr., to and through the site to connect with Crater Ln. The existing street name will continue to be used for the street extension. No other streets are being proposed.

N. Platting Standards for Alleys.

RESPONSE: No alleys are being proposed; therefore, this criterion does not apply to the Applicant's proposal.

O. Platting Standards for Blocks.

- 1. Purpose. Streets and walkways can provide convenient travel within a neighborhood and can serve to connect people and land uses. Large, uninterrupted blocks can serve as a barrier to travel, especially walking and biking. Large blocks also can divide rather than unite neighborhoods. To promote connected neighborhoods and to shorten travel distances, the following minimum standards for block lengths are established.**
- 2. Maximum Block Length and Perimeter. The maximum length and perimeters of blocks in the zones listed below shall be according to the following table. The review body for a subdivision, partition, conditional use permit, or a Type II design review may require installation of streets or walkways as necessary to meet the standards below.**

Zone(s)	Maximum <u>Block Length</u>	Maximum <u>Block Perimeter</u>
R-1	800 feet	2,000 feet
R-2, R-3, RP, I	1,200 feet	3,000 feet

4. **Public Pedestrian Walkways and Bicycle Access.** The approval authority in approving a land use application with conditions may require a developer to provide an access way where the creation of a street consistent with street spacing standards is infeasible and the creation of a cul-de-sac or dead-end street is unavoidable. A public walkway provides a connection through a block that is longer than established standards or connects the end of the street to another right-of-way or a public access easement. A public walkway shall be contained within a public right-of-way or public access easement, as required by the city. A public walkway shall be a minimum of 10 feet wide and shall provide a minimum six-foot-wide paved surface or other all-weather surface approved by the city (see subsection (S) of this section for public walkway standards).

Design features should be considered that allow access to emergency vehicles but that restrict access to non-emergency motorized vehicles.

RESPONSE: Due to existing residential development surrounding the subject property, the block lengths in the vicinity of the subject property have been predetermined. With the extension of Myrtlewood Dr. through the subject property, it will complete the block consisting of W Edgewood Dr. (norther boundary), N Main St. (eastern boundary), Myrtlewood Dr. (southern boundary), and Crater Ln. (west boundary). The block length and perimeter block distances are as follows: W Edgewood Dr. to Myrtlewood Dr. along N Main St. is 340-feet, Myrtlewood Dr. between N Main St. and Crater Ln. is 534-feet, Myrtlewood Dr. to W Edgewood Dr. along Crater Ln. is 330-feet, and Crater Ln. to N. Main St. along W Edgewood Dr. is 534-feet for a total perimeter block length of 1,737 feet. The existing streets and walkways, together with the proposed extension of Myrtlewood Dr. through the site, will create block lengths consistent with the above criteria and will provide convenient travel within the neighborhood to connect people and surrounding land uses.

- P. **Private Streets.** New private streets, as defined in NMC 15.05.030, shall not be created, except as allowed by NMC 15.240.020(L)(2).

RESPONSE: No private streets are being proposed as part of this development proposal. Even though there will be easements serving some of the proposed lots, the easements will not be classified as private streets. The above criterion does not apply to the Applicant's proposal.

Q. Traffic Calming.

RESPONSE: No traffic calming measures are required or necessary for the proposed subdivision, therefore, the above criterion does not apply to the Applicant's proposal.

R. Vehicular Access Standards.

1. **Purpose.** The purpose of these standards is to manage vehicle access to maintain traffic flow, safety, roadway capacity, and efficiency. They help to

maintain an adequate level of service consistent with the functional classification of the street. Major roadways, including arterials and collectors, serve as the primary system for moving people and goods within and through the city. Access is limited and managed on these roads to promote efficient through movement. Local streets and alleys provide access to individual properties. Access is managed on these roads to maintain safe maneuvering of vehicles in and out of properties and to allow safe through movements. If vehicular access and circulation are not properly designed, these roadways will be unable to accommodate the needs of development and serve their transportation function.

- 2. Access Spacing Standards. Public street intersection and driveway spacing shall follow the standards in Table 15.505.R below. The Oregon Department of Transportation (ODOT) has jurisdiction of some roadways within the Newberg city limits, and ODOT access standards will apply on those roadways.*

RESPONSE: The subject property does not abut an arterial or collector street, so the vehicular access standards for those street classifications do not apply to this proposal.

Because some of the proposed lots will be taking access from a shared access easement (i.e. Lots 3 – 6 and 7 – 10), driveway spacing along Myrtlewood Dr. will be limited to only two (2) total driveways (i.e. easements serving Lots 3 – 6 and 7 – 10). The only other driveway on Myrtlewood Dr. will be for the water quality facility in Tract A. Lots 1 and 2 will take access from Crater Ln. Myrtlewood Dr. and Crater Ln. are designated as local public streets and the proposed driveway spacing follows the standards listed in Table 15.505 R. The Applicant's proposal satisfies the driveway spacing standards for a local public street.

- 3. Properties with Multiple Frontages. Where a property has frontage on more than one street, access shall be limited to the street with the lesser classification.*
- 4. Driveways. More than one driveway is permitted on a lot accessed from either a minor collector or local street as long as there is at least 40 feet of lot frontage separating each driveway approach. More than one driveway is permitted on a lot accessed from a major collector as long as there is at least 100 feet of lot frontage separating each driveway approach.*
- 5. Alley Access. Where a property has frontage on an alley and the only other frontages are on collector or arterial streets, access shall be taken from the alley only. The review body may allow creation of an alley for access to lots that do not otherwise have frontage on a public street provided all of the following are met:*

RESPONSE: Except for Lot 2, which is a corner lot, no other lots have multiple frontages. Lot 2 will take access from Crater Ln. as it will not be able to meet the spacing

standards from the new intersection of Myrtlewood Dr. and Crater Ln. Shared driveways (i.e. easement) is proposed for Lots 3 – 6 and 7 – 10.

- 6. Closure of Existing Accesses. Existing accesses that are not used as part of development or redevelopment of a property shall be closed and replaced with curbing, sidewalks, and landscaping, as appropriate.**

RESPONSE: The above criterion does not apply to the Applicant's proposal because closure of an existing access is not being proposed as part of this development proposal.

7. Shared Driveways.

- a. The number of driveways onto arterial streets shall be minimized by the use of shared driveways with adjoining lots where feasible. The city shall require shared driveways as a condition of land division or site design review, as applicable, for traffic safety and access management purposes. Where there is an abutting developable property, a shared driveway shall be provided as appropriate. When shared driveways are required, they shall be stubbed to adjacent developable parcels to indicate future extension. "Stub" means that a driveway temporarily ends at the property line, but may be accessed or extended in the future as the adjacent parcel develops. "Developable" means that a parcel is either vacant or it is likely to receive additional development (i.e., due to infill or redevelopment potential).**

RESPONSE: The above criterion does not apply to the Applicant's proposal because the subject property does not abut an arterial street; therefore, no driveways will have access to a street classified as an arterial.

- b. Access easements (i.e., for the benefit of affected properties) and maintenance agreements shall be recorded for all shared driveways, including pathways, at the time of final plat approval or as a condition of site development approval.**
- c. No more than four lots may access one shared driveway.**
- d. Shared driveways shall be posted as no parking fire lanes where required by the fire marshal.**
- e. Where three lots or three dwellings share one driveway, one additional parking space over those otherwise required shall be provided for each dwelling. Where feasible, this shall be provided as a common use parking space adjacent to the driveway.**

RESPONSE: Access easements are proposed for lots 3 – 6 and 7 – 10 and no more than four (4) lots will have access from the shared driveways. The proposed shared driveways will be posted as "no parking fire lanes" as required by the fire marshal.

Lastly, because the proposed shared access easements will serve four (4) lots each, one (1) additional parking space over those otherwise required will be provided for each dwelling. Where feasible, this will be provided as a common use parking space adjacent to the driveway. The Applicant's proposal satisfies the above criteria.

- 8. Frontage Streets and Alleys.** *The review body for a partition, subdivision, or design review may require construction of a frontage street to provide access to properties fronting an arterial or collector street.*

RESPONSE: The above criterion does not apply to the Applicant's proposal because the subject property does not abut an arterial or collector street; therefore, no frontage street or alley is necessary.

- 9. ODOT or Yamhill County Right-of-Way.** *Where a property abuts an ODOT or Yamhill County right-of-way, the applicant for any development project shall obtain an access permit from ODOT or Yamhill County.*

- 10. Exceptions.** *The director may allow exceptions to the access standards above in any of the following circumstances:*

RESPONSE: The above criteria do not apply to the Applicant's proposal because the subject property does not abut an ODOT or Yamhill County right-of-way; therefore, an access permit from these jurisdictions is not required.

S. Public Walkways.

- 1. Projects subject to Type II design review, partition, or subdivision approval may be required to provide public walkways where necessary for public safety and convenience, or where necessary to meet the standards of this code. Public walkways are meant to connect cul-de-sacs to adjacent areas, to pass through oddly shaped or unusually long blocks, to provide for networks of public paths according to adopted plans, or to provide access to schools, parks or other community destinations or public areas. Where practical, public walkway easements and locations may also be used to accommodate public utilities.**
- 2. Public walkways shall be located within a public access easement that is a minimum of 15 feet in width.**
- 3. A walk strip, not less than 10 feet in width, shall be paved in the center of all public walkway easements. Such paving shall conform to specifications in the Newberg public works design and construction standards.**
- 4. Public walkways shall be designed to meet the Americans with Disabilities Act requirements.**
- 5. Public walkways connecting one right-of-way to another shall be designed to provide as short and straight of a route as practical.**

6. **The developer of the public walkway may be required to provide a homeowners' association or similar entity to maintain the public walkway and associated improvements.**
7. **Lighting may be required for public walkways in excess of 250 feet in length.**
8. **The review body may modify these requirements where it finds that topographic, preexisting development, or similar constraints exist.**

RESPONSE: The above criteria do not apply to the Applicant's proposal because no cul-de-sacs are being proposed which would require a "public walkway" to connect to adjacent areas. Additionally, a "public walkway" is not needed for the project to allow pass through of oddly shaped or unusually long blocks, to provide for networks of public paths according to adopted City plans, or to provide access to schools, parks or other community destinations or public areas. With that being said, the proposed extension of Myrtlewood Dr. through the site will include sidewalks on both sides of the street, as well as a new sidewalk along the sites Crater Ln. frontage.

- T. **Street Trees. Street trees shall be provided for all projects subject to Type II design review, partition, or subdivision. Street trees shall be installed in accordance with the provisions of NMC 15.420.010(B)(4).**

RESPONSE: The Applicant's proposal satisfies the above criterion because the submitted plans show street trees will be installed on both sides of the Myrtlewood Dr. street extension through the site, as well as along the sites Crater Ln. street frontage. All proposed street trees will be installed in accordance with the provisions of NMC 15.420.010(B)(4).

- U. **Street Lights. All developments shall include underground electric service, light standards, wiring and lamps for street lights according to the specifications and standards of the Newberg public works design and construction standards. The developer shall install all such facilities and make the necessary arrangements with the serving electric utility as approved by the city. Upon the city's acceptance of the public improvements associated with the development, the street lighting system, exclusive of utility-owned service lines, shall be and become property of the city unless otherwise designated by the city through agreement with a private utility.**

RESPONSE: As required by the above criterion, the proposed development will include underground electric service, light standards, wiring and lamps for streetlights in accordance with the specifications and standards of the Newberg public works design and construction standards. All required streetlights will be installed in the public right-of-way and will become property of the City upon the City's acceptance of the public improvements associated with the development.

- V. **Transit Improvements. Development proposals for sites that include or are adjacent to existing or planned transit facilities, as shown in the Newberg**

transportation system plan or adopted local or regional transit plan, shall be required to provide any of the following, as applicable and required by the review authority:

RESPONSE: The above criterion does not apply to the Applicant's proposal because the subject property is not located adjacent to an existing or planned transit facility, as shown in the Newberg Transportation System Plan (TSP) or adopted local or regional transit plans.

15.505.040 Public utility standards.

C. General Standards.

- 1. The design and construction of all improvements within existing and proposed rights-of-way and easements, all improvements to be maintained by the city, and all improvements for which city approval is required shall conform to the Newberg public works design and construction standards and require a public improvements permit.**
- 2. The location, design, installation and maintenance of all utility lines and facilities shall be carried out with minimum feasible disturbances of soil and site. Installation of all proposed public and private utilities shall be coordinated by the developer and be approved by the city to ensure the orderly extension of such utilities within public right-of-way and easements.**

RESPONSE: All proposed and required improvements within the existing and proposed rights-of-ways will be designed and constructed conform to the Newberg public works design and construction standards. Upon gaining land use approval for the proposed subdivision, the Applicant will submit detailed civil plans to the City's Public Works department for review and approval in order to obtain a public improvements permit.

Additionally, the location, design, installation and maintenance of all required utility lines and facilities will be done with minimum disturbances of the soils and the site. Installation of all required public and private utilities will be coordinated by the developer and approved by the city to ensure the extension of such utilities within public right-of-way and easements are done in an organized fashion.

D. Standards for Water Improvements. All development that has a need for water service shall install the facilities pursuant to the requirements of the city and all of the following standards. Installation of such facilities shall be coordinated with the extension or improvement of necessary wastewater and stormwater facilities, as applicable.

- 1. All developments shall be required to be linked to existing water facilities adequately sized to serve their intended area by the construction of water distribution lines, reservoirs and pumping stations which connect to such water service facilities. All necessary easements required for the construction of these facilities shall be obtained by the developer and granted to**

the [city](#) pursuant to the requirements of the [city](#).

2. Specific location, size and capacity of such facilities will be subject to the approval of the [director](#) with reference to the applicable water master plan. All water facilities shall conform with [city](#) pressure zones and shall be looped where necessary to provide adequate pressure and fire flows during peak demand at every point within the system in the development to which the water facilities will be connected. Installation costs shall remain entirely the developer's responsibility.
3. The design of the water facilities shall take into account provisions for the future extension beyond the development to serve adjacent properties, which, in the judgment of the [city](#), cannot be feasibly served otherwise.
4. Design, construction and material standards shall be as specified by the [director](#) for the construction of such public water facilities in the [city](#).

RESPONSE: All proposed water improvements have been designed pursuant to the requirements of the City and the above standards. Upon gaining land use approval for the proposed subdivision, the Applicant will be submitting detailed civil plans to the City's Public Works department to further demonstrate compliance with the applicable City requirements for the installation of the water facilities.

E. Standards for Wastewater Improvements. All development that has a need for wastewater services shall install the facilities pursuant to the requirements of the [city](#) and all of the following standards. Installation of such facilities shall be coordinated with the extension or improvement of necessary water services and stormwater facilities, as applicable.

1. All septic tank systems and on-site sewage systems are prohibited. Existing septic systems must be abandoned or removed in accordance with Yamhill County standards.

2. All properties shall be provided with gravity service to the [city](#) wastewater system, except for [lots](#) that have unique topographic or other natural features that make gravity wastewater extension impractical as determined by the [director](#). Where gravity service is impractical, the developer shall provide all necessary pumps/lift stations and other improvements, as determined by the [director](#).

3. All developments shall be required to be linked to existing wastewater collection facilities adequately sized to serve their intended area by the construction of wastewater lines which connect to existing adequately sized wastewater facilities. All necessary [easements](#) required for the construction of these facilities shall be obtained by the developer and granted to the [city](#) pursuant to the requirements of the [city](#).

4. Specific location, size and capacity of wastewater facilities will be subject to the approval of the [director](#) with reference to the applicable wastewater master plan. All wastewater facilities shall be sized to provide adequate capacity during peak flows from the entire area potentially served by such facilities. Installation costs shall remain

entirely the developer's responsibility.

5. Temporary wastewater service facilities, including pumping stations, will be permitted only if the [director](#) approves the temporary facilities, and the developer provides for all facilities that are necessary for transition to permanent facilities.

6. The design of the wastewater facilities shall take into account provisions for the future extension beyond the development to serve upstream properties, which, in the judgment of the [city](#), cannot be feasibly served otherwise.

7. Design, construction and material standards shall be as specified by the [director](#) for the construction of such wastewater facilities in the [city](#).

RESPONSE: All proposed wastewater improvements have been designed pursuant to the requirements of the City and the above standards. Upon gaining land use approval for the proposed subdivision, the Applicant will be submitting detailed civil plans to the City's Public Works department to further demonstrate compliance with the applicable City requirements for the installation of the wastewater facilities.

F. Easements. Easements for public and private utilities shall be provided as deemed necessary by the city, special districts, and utility companies. Easements for special purpose uses shall be of a width deemed appropriate by the responsible agency. Such easements shall be recorded on easement forms approved by the city and designated on the final plat of all subdivisions and partitions. Minimum required easement width and locations are as provided in the Newberg public works design and construction standards.

RESPONSE: All easements necessary for public and private utilities will be provided as deemed necessary by the City during the review of the civil plans upon gaining land use approval for the proposed 10 Lot subdivision. All proposed and required easements will be the appropriate width and will be recorded on easement forms approved by the city and designated on the final plat.

15.505.050 Stormwater system standards.

C. General Requirement. All stormwater runoff shall be conveyed to a public storm wastewater or natural drainage channel having adequate capacity to carry the flow without overflowing or otherwise causing damage to public and/or private property. The developer shall pay all costs associated with designing and constructing the facilities necessary to meet this requirement.

RESPONSE: All stormwater runoff will be conveyed to a public storm wastewater facility in Tract A or a natural drainage channel having adequate capacity to carry the flow without overflowing or otherwise causing damage to public and/or private property.

D. Plan for Stormwater and Erosion Control. No construction of any facilities in a development included in subsection (B) of this section shall be permitted until an engineer registered in the State of Oregon prepares a stormwater report and

erosion control plan for the project. This plan shall contain at a minimum:

- 1. The methods to be used to minimize the amount of runoff, sedimentation, and pollution created from the development both during and after construction.**
- 2. Plans for the construction of stormwater facilities and any other facilities that depict line sizes, profiles, construction specifications, and other such information as is necessary for the [city](#) to review the adequacy of the stormwater plans.**
- 3. Design calculations shall be submitted for all drainage facilities. These drainage calculations shall be included in the stormwater report and shall be stamped by a licensed professional engineer in the State of Oregon. Peak design discharges shall be computed based upon the design criteria outlined in the public works design and construction standards for the [city](#).**

RESPONSE: All proposed stormwater improvements have been designed pursuant to the requirements of the City and the above standards. Upon gaining land use approval for the proposed subdivision, the Applicant will be submitting detailed civil plans to the City's Public Works department to further demonstrate compliance with the applicable City requirements for the installation of the proposed stormwater facility.

E. Development Standards. Development subject to this section shall be planned, designed, constructed, and maintained in compliance with the Newberg public works design and construction standards.

RESPONSE: All proposed improvements have been designed to meet the development standards of the Newberg Public Works Design and Construction Standards. Upon gaining land use approval for the proposed subdivision, the Applicant will be submitting detailed civil plans to the City's Public Works department for their review and approval to assure all public improvements are designed, constructed, and maintained in compliance with the City's public works design and construction standards.

PRELIMINARY PLAT MYRTLEWOOD SUBDIVISION

A 10 LOT SUBDIVISION
OF ADJUSTED TAX LOT 3 2 07, 3202
CITY OF NEWBERG, OREGON

LEGEND	
	EXISTING SANITARY CLEANOUT
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY SEWER
	EXISTING STORM INLET
	EXISTING STORM MANHOLE
	EXISTING STORM SEWER
	EXISTING FIRE HYDRANT
	EXISTING WATER VALVE
	EXISTING WATER BLOWOFF
	EXISTING WATER METER
	EXISTING WATERLINE
	EXISTING STREET LIGHT
	EXISTING ELECTRIC BOX
	EXISTING JUNCTION BOX
	EXISTING COMMUNICATION BOX
	EXISTING STREET CENTERLINE
	EXISTING PROPERTY LINE
	EXISTING BOUNDARY OF SITE
	EXISTING LIMITS OF WETLAND
	EXISTING FENCELINE
	PROPOSED PAVEMENT SAWCUT LINE
	EXISTING 2 FOOT CONTOUR
	EXISTING 10 FOOT CONTOUR
	PROPOSED SANITARY MANHOLE
	PROPOSED SANITARY SEWER
	PROPOSED SANITARY LATERAL
	PROPOSED STORM INLET
	PROPOSED STORM MANHOLE
	PROPOSED STORM SEWER
	PROPOSED STORM LATERAL
	PROPOSED FIRE HYDRANT
	PROPOSED WATER VALVE
	PROPOSED WATER METER
	PROPOSED WATERLINE
	PROPOSED STREET LIGHT
	PROPOSED STREET TREE
	PROPOSED RIP-RAP
	PROPOSED STREET CENTERLINE
	PROPOSED LOT LINE
	PROPOSED EASEMENT LINE
	PROPOSED FLOWLINE OF SWALE
	PROPOSED 2 FOOT CONTOUR
	PROPOSED 10 FOOT CONTOUR



SITE INFORMATION	
SITE AREA:	76,006 SF (1.74 AC)
ZONING:	R1
TAX MAP:	3 4 07
TAX LOT:	ADJUSTED 3202
NUMBER OF LOTS:	10

VERTICAL DATUM
VERTICAL DATUM IS BASED ON THE NATIONAL VERTICAL DATUM OF 1929 (NGVD 29).

PROJECT CONTACTS			
DEVELOPER:	GREENWING COMPANIES 16869 SW 65TH AVENUE, SUITE 115 LAKE OSWEGO, OREGON 97035 CONTACT: NICK DANIKEN 503-473-8870 NICK@GREENWINGPDX.COM	PLANNER:	EMERIO DESIGN 6445 SW FALLBROOK PL., SUITE 100 BEAVERTON, OREGON 97008 CONTACT: STEVE MILLER 541-318-7487 STEVE@EMERIODSIGN.COM
OWNER:	GREENWING COMPANIES 16869 SW 65TH AVENUE, SUITE 115 LAKE OSWEGO, OREGON 97035 CONTACT: NICK DANIKEN	ENGINEER:	EMERIO DESIGN 6445 SW FALLBROOK PL., SUITE 100 BEAVERTON, OREGON 97008 CONTACT: ERIC EVANS 503-853-1910 ERIC@EMERIODSIGN.COM
		SURVEYOR:	EMERIO DESIGN 6445 SW FALLBROOK PL., SUITE 100 BEAVERTON, OREGON 97008 CONTACT: DWAYNE KUFCHAK 971-724-2125 DWAYNE@EMERIODSIGN.COM

DRAWING INDEX	
1	COVER SHEET
2	EXISTING CONDITIONS & PRELIMINARY DEMOLITION PLAN
3	PRELIMINARY PLAT
4	PRELIMINARY SITE & UTILITY PLAN
5	PRELIMINARY PROFILES & TYPICAL STREET SECTIONS
6	PRELIMINARY GRADING PLAN
7	AERIAL & CIRCULATION PLAN

MYRTLEWOOD SUBDIVISION
A 10 LOT SUBDIVISION OF
ADJUSTED TAX LOT 3202
TAX MAP 3 2 07
CITY OF NEWBERG, OREGON

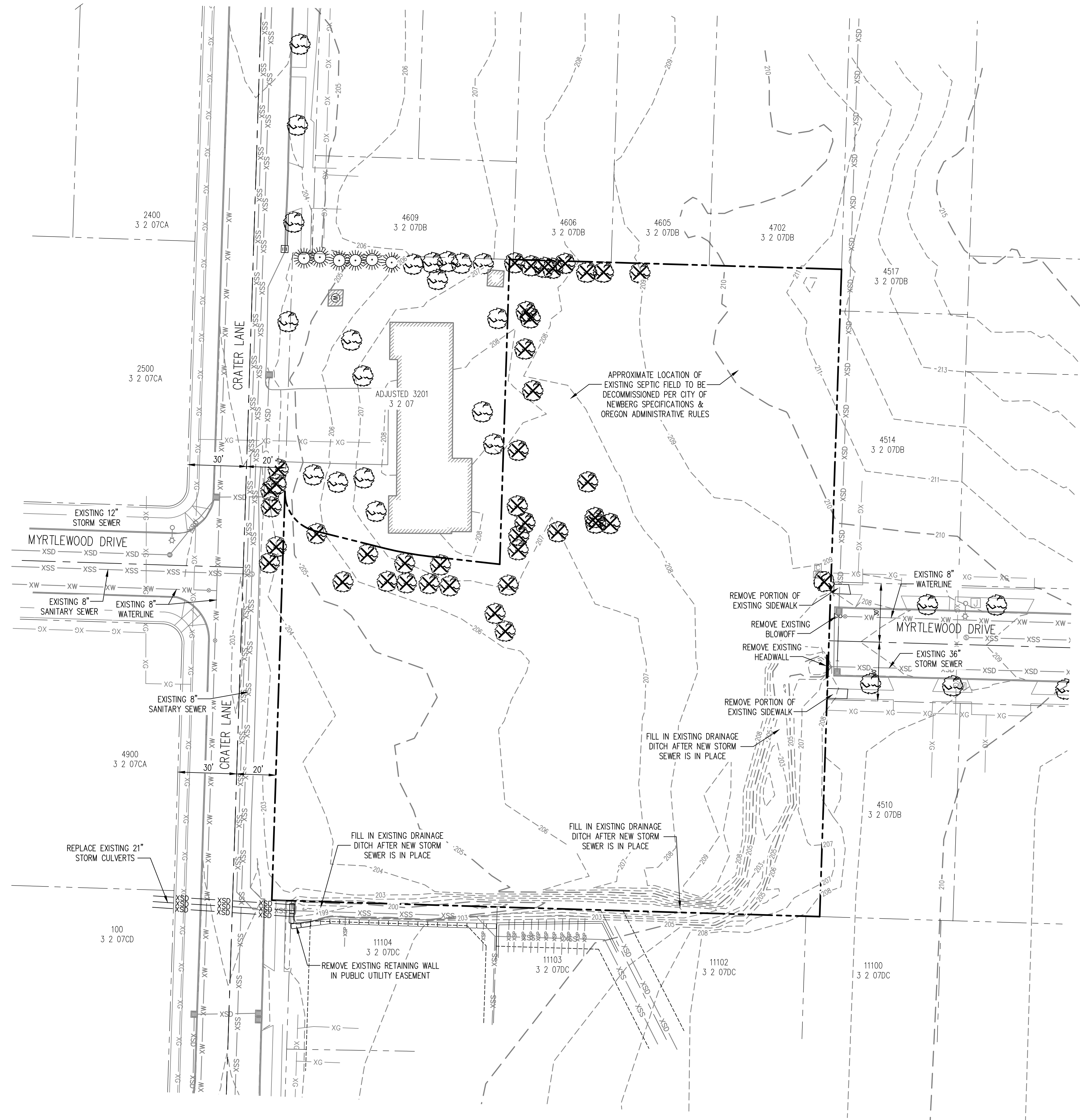
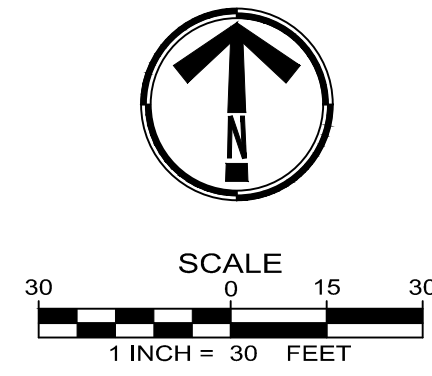
PRELIMINARY PLAT
COVER SHEET

NO.	DATE	REVISIONS DESCRIPTION

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FAX: (503) 639-9692
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TENTATIVE PLAT
SCALE: 1" = 40'

SHEET
1 OF 7



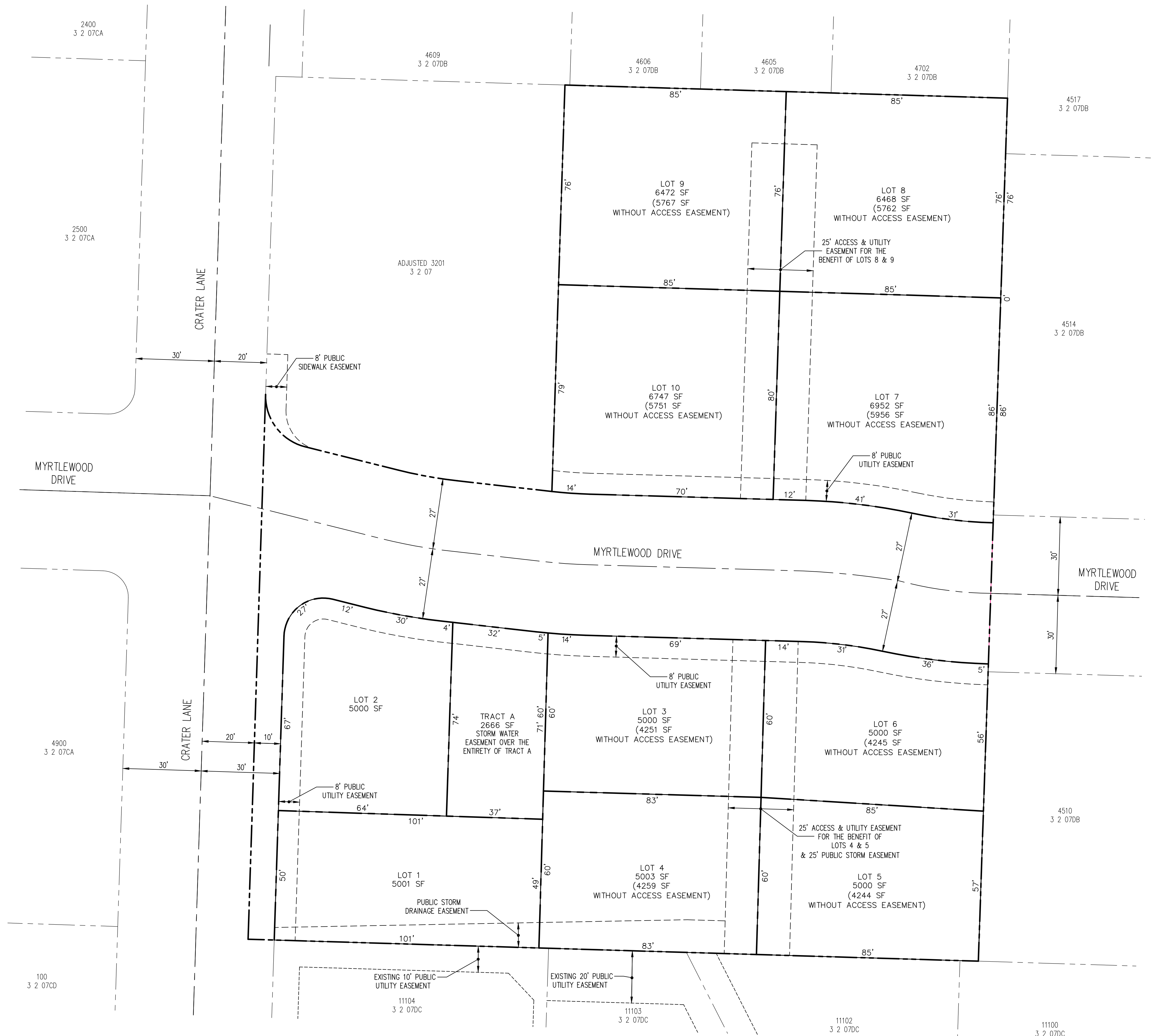
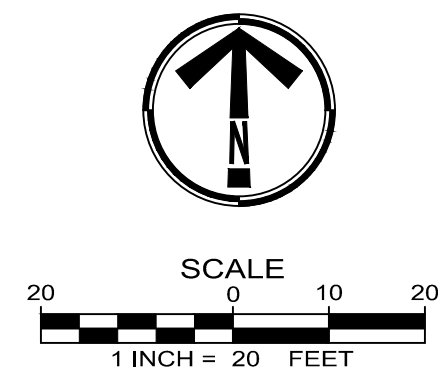
EXISTING CONDITIONS &
PRELIMINARY DEMOLITION PLAN
SCALE: 1" = 30'

MYRTLEWOOD SUBDIVISION
A 10 LOT SUBDIVISION OF
ADJUSTED TAX LOT 3202
TAX MAP 3 2 07
CITY OF NEWBERG, OREGON

PRELIMINARY PLAT
EXISTING CONDITIONS &
PRELIMINARY
DEMOLITION PLAN

NO.	DATE	REVISIONS	DESCRIPTION

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PRELIMINARY PLAT
SCALE: 1" = 20'

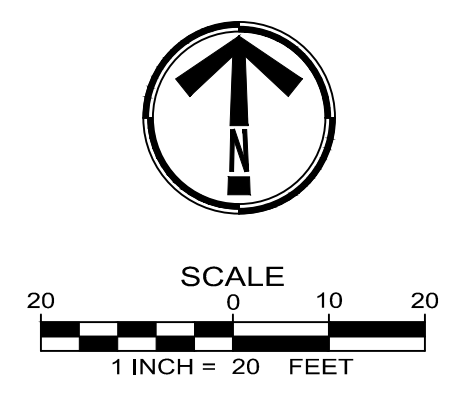
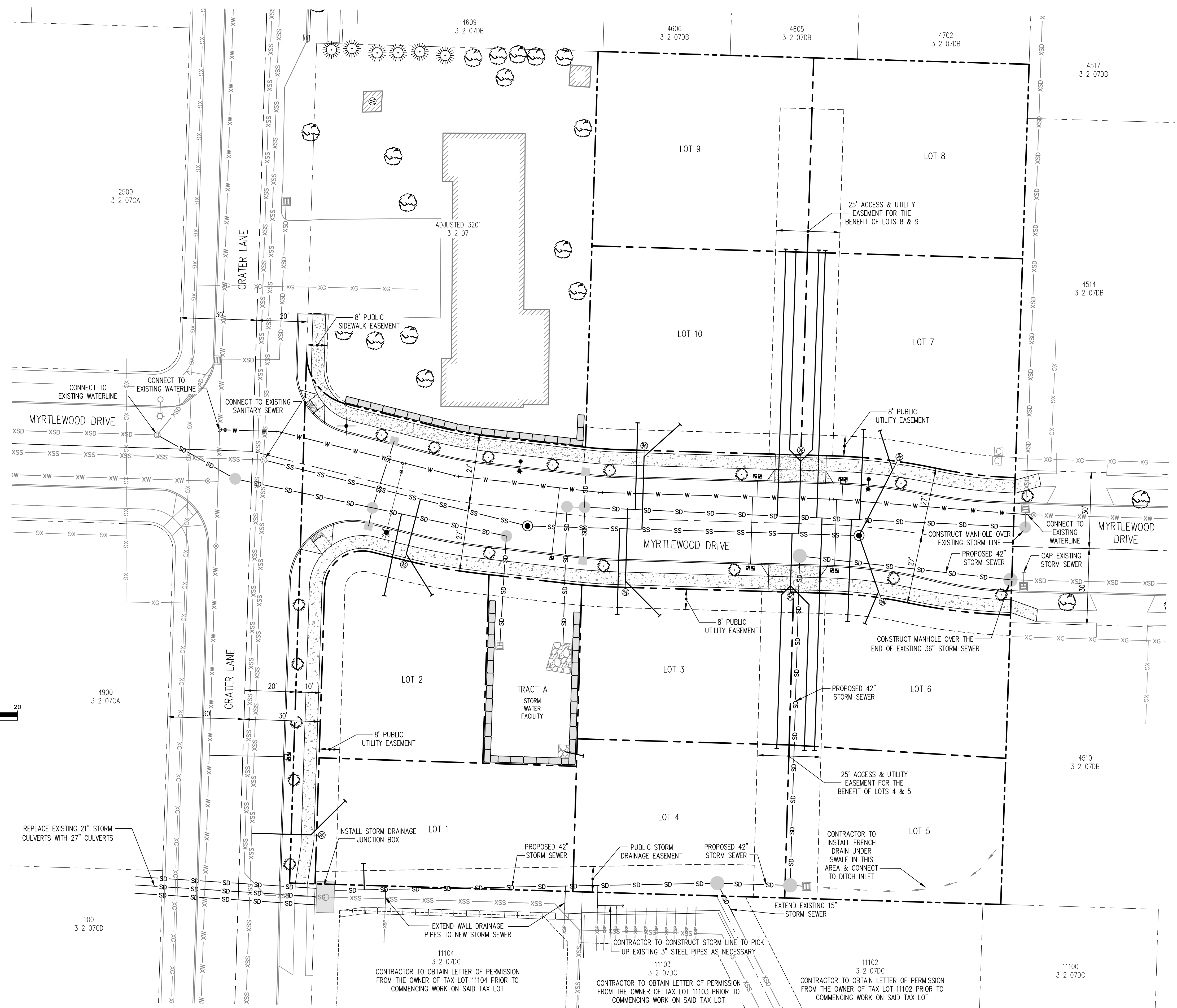
MYRTLEWOOD SUBDIVISION
A 10 LOT SUBDIVISION OF
ADJUSTED TAX LOT 3202
TAX MAP 3 2 07
CITY OF NEWBERG, OREGON

PRELIMINARY PLAT
PRELIMINARY PLAT

NO.	DATE	DESCRIPTION

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OF
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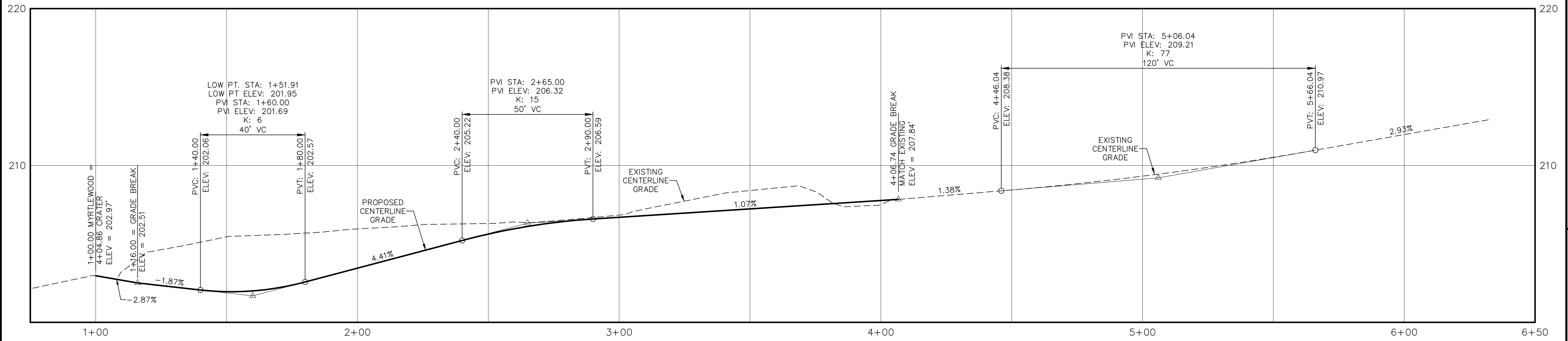
PRELIMINARY SITE PLAT
SCALE: 1" = 20'

MYRTLEWOOD SUBDIVISION
A 10 LOT SUBDIVISION OF
ADJUSTED TAX LOT 3202
TAX MAP 3 2 07
CITY OF NEWBERG, OREGON

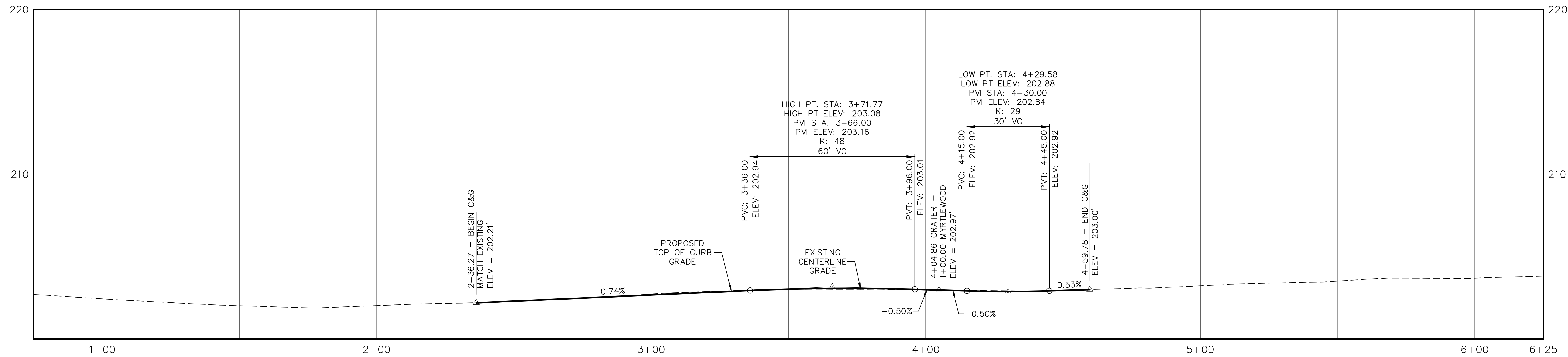
PRELIMINARY PLAT
PRELIMINARY SITE PLAN

NO.	DATE	DESCRIPTION

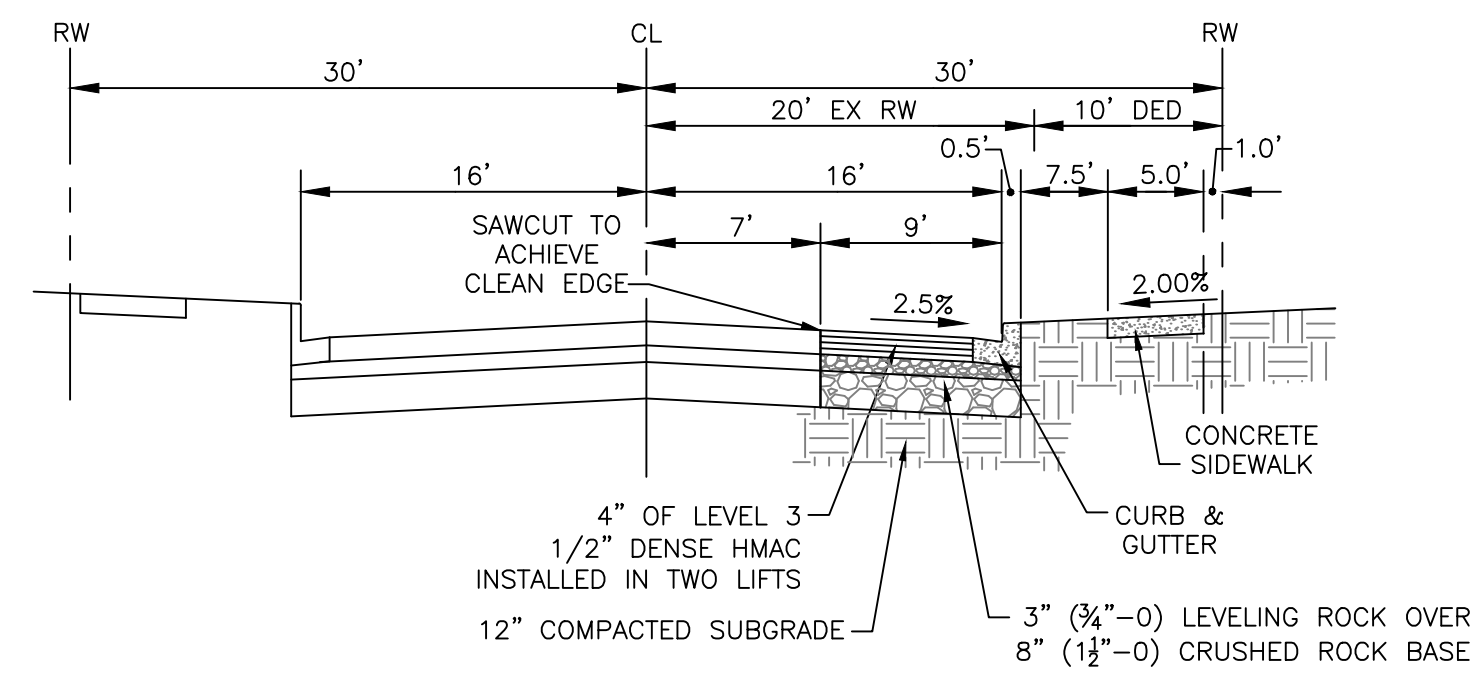
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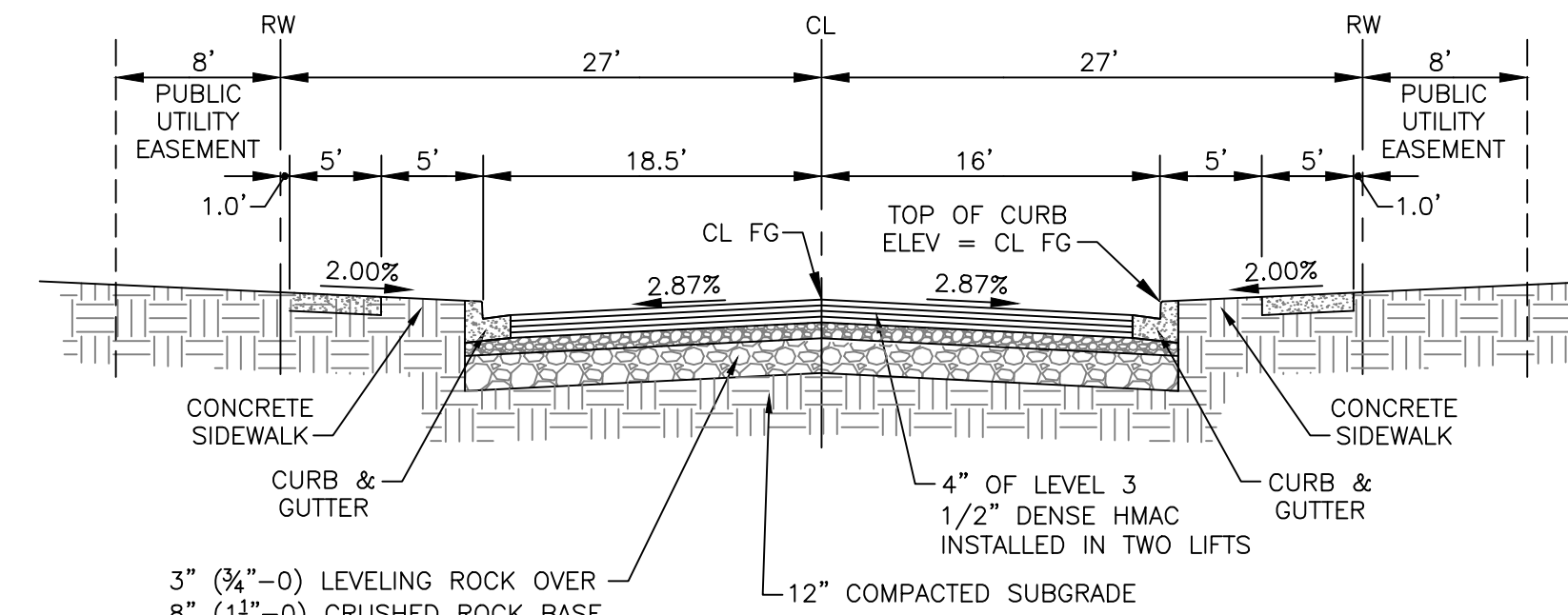
MYRTLEWOOD STREET PRELIMINARY PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 5'



CRATER DRIVE PRELIMINARY PROFILE
 HORIZONTAL SCALE: 1" = 20'
 VERTICAL SCALE: 1" = 5'



CRATER DRIVE TYPICAL SECTION
 NOT TO SCALE



MYRTLEWOOD STREET TYPICAL SECTION
 NOT TO SCALE

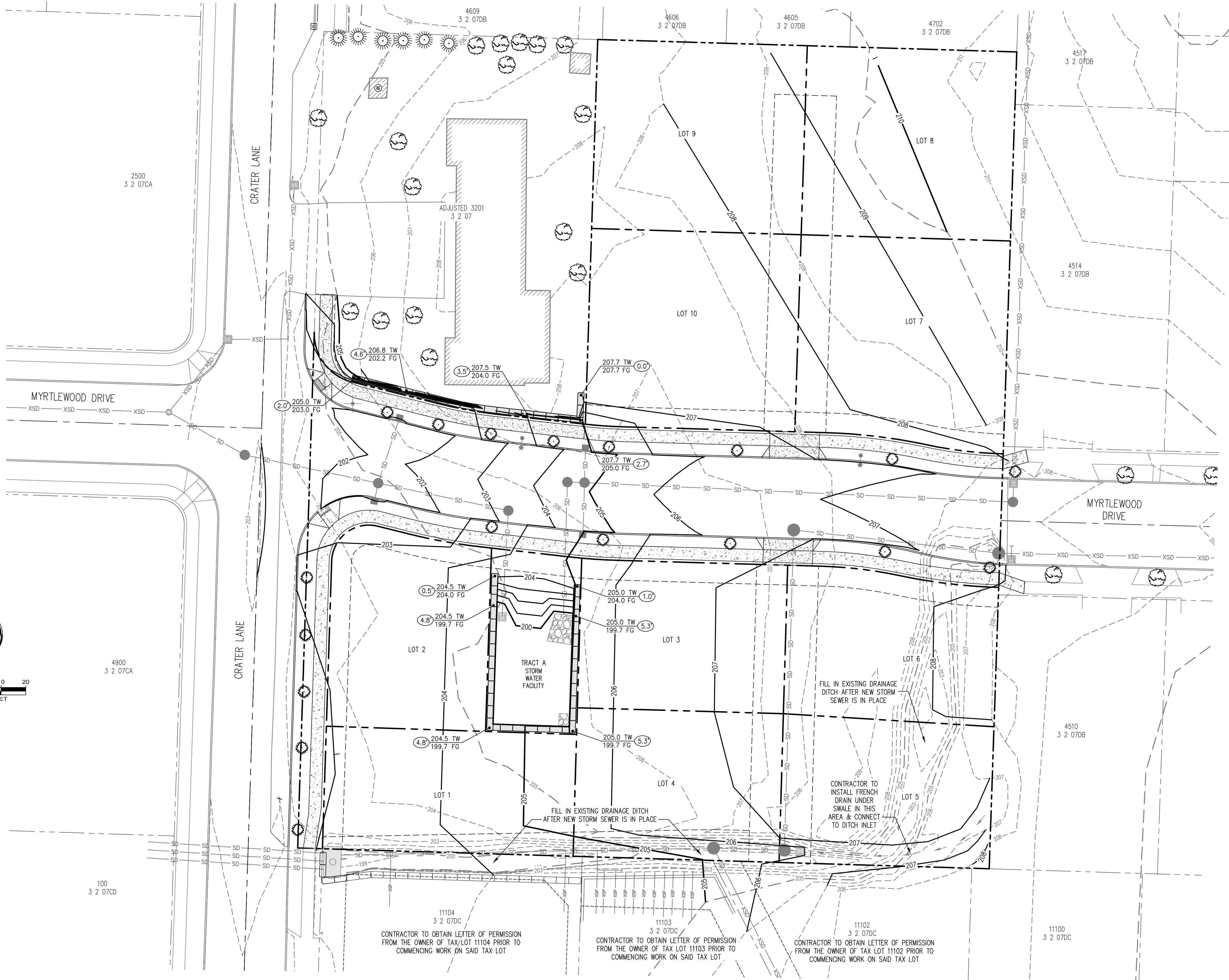
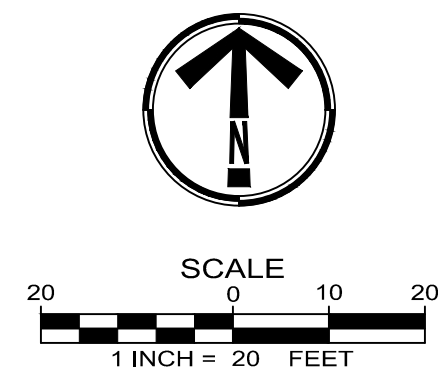
MYRTLEWOOD SUBDIVISION
 A 10 LOT SUBDIVISION OF
 ADJUSTED TAX LOT 3202
 TAX MAP 3 2 07
 CITY OF NEWBERG, OREGON

PRELIMINARY PLAT
PRELIMINARY PROFILES & TYPICAL STREET SECTIONS

NO.	DATE	DESCRIPTION

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SHEET
5
 OF
7



11104
3 2 07DC
CONTRACTOR TO OBTAIN LETTER OF PERMISSION FROM THE OWNER OF TAX/LOT 11104 PRIOR TO COMMENCING WORK ON SAID TAX LOT

11103
3 2 07DC
CONTRACTOR TO OBTAIN LETTER OF PERMISSION FROM THE OWNER OF TAX LOT 11103 PRIOR TO COMMENCING WORK ON SAID TAX LOT

11102
3 2 07DC
CONTRACTOR TO OBTAIN LETTER OF PERMISSION FROM THE OWNER OF TAX LOT 11102 PRIOR TO COMMENCING WORK ON SAID TAX LOT

PRELIMINARY GRADING PLAN
SCALE: 1" = 20'

MYRTLEWOOD SUBDIVISION
A 10 LOT SUBDIVISION OF
ADJUSTED TAX LOT 3202
TAX MAP 3 2 07
CITY OF NEWBERG, OREGON

PRELIMINARY PLAT
PRELIMINARY
GRADING PLAN

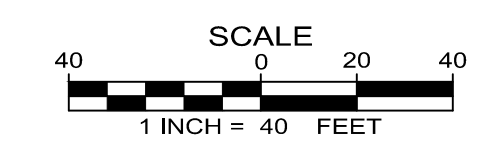
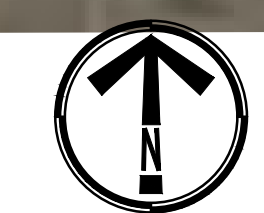
NO.	DATE	REVISIONS DESCRIPTION

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Plotted: Aug 31, 2021 - 9:26am, N:\0780-003 SW Myrtlewood Street Subdivision (Crater Lane Phase 2)\wpa\plan\0780-003 (06) Grading.dwg, Layout: (06) Grad EMERIO PROJECT NO. 0780-003



AERIAL & CIRCULATION PLAN
SCALE: 1" = 40'



SHEET
7
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7

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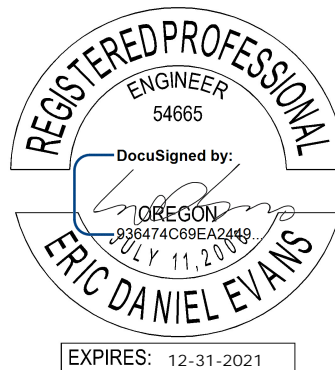
NO.	DATE	REVISIONS DESCRIPTION

PRELIMINARY PLAT
AERIAL & CIRCULATION
PLAN

MYRTLEWOOD SUBDIVISION
A 10 LOT SUBDIVISION OF
ADJUSTED TAX LOT 3202
TAX MAP 3 2 07
CITY OF NEWBERG, OREGON

Preliminary Stormwater Report for
Myrtlewood Subdivision at
Tax Lot 3201 & 3202
Tax Map T3S R2W 7DB
Newberg, Oregon

Emerio Project Number: 0780-003
City of Newberg Application No.: TBD
Date: 08/24/2021



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APPENDIX B

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- (2) Curve Number Table

APPENDIX C

- (1) Basin Area Tabulated Data
- (2) Detention and Water Quality HydroCAD Plots
- (3) Bypass Conveyance Spreadsheet
- (4) Conveyance HydroCAD Plots

APPENDIX D

- (1) Pre-Developed Basin Map
- (2) Post-Developed Basin Map
- (3) Upstream Basin Map

Project Overview and Description:

The proposed project will convert an existing 1.74-acre parcel into a 10-lot subdivision. Currently, the site is mostly grassed and is zoned R-1. The existing lot lines between tax lots 3201 and 3202 will be adjusted as part of the development. The proposed development will occur on the adjusted tax lot 3202, while tax lot 3201 will retain its existing structures and paved areas. In addition to the 10 new homes, the development will include an extension of Myrtlewood Drive with associated walkways, and frontage improvements along Crater Lane. See Appendix A(1) for a vicinity map of the site.

Soil Classification:

The NRCS soil survey of Yamhill County, Oregon classifies the onsite soils as Woodburn silt loam and Wapato silt loam. The associated hydrologic soil groups of these soils are C and C/D, respectively. Hydraulic soil group (HSG) C was used to design the onsite proposed storm facilities. Curve numbers of 74 and 86 were used for pre and post-developed pervious surfaces. A curve number of 98 was set for impervious surfaces, reference appendices B(1) and B(2).

Basin Delineation:

The onsite and offsite basins were delineated after determining how stormwater runoff is collected in both pre and post-developed conditions. Residential lot impervious areas were set at 2,877 SF per lot per Newberg Public Works Design and Construction Standards section 4.6.1.II. All offsite right-of-way areas without measurable impervious areas available were assumed to be 85% impervious. See Appendix C(1) for a tabulated basin areas and Appendix D for all basin maps.

Water Quality:

Water quality requirements will be met by means of infiltrating runoff through the growing media of the proposed detention pond located within Tract A. The proposed development will create 44,675 SF of new impervious area that requires water quality treatment. Due to grading restrictions, 14,515 SF of new impervious area from the western portion of the site and Crater Lane will be unable to route runoff to the proposed pond location. To compensate, some upstream areas that route runoff through the existing segment of Myrtlewood Drive to the east of the site will be redirected to the pond to proxy treat existing impervious areas for the new untreated impervious areas. Of the 40,551 SF of existing impervious area that will route through the pond, exactly 14,515 SF will be treated to meet stormwater requirements.

Treatment will be achieved by raising the pond outlet structure above the peak water surface elevation caused by runoff from 44,675 SF of impervious area during the water quality storm event. This will force the impervious runoff during the water quality storm to infiltrate. See Appendix C(2) for HydroCAD plots of the water quality storm.

Quantity Control/Detention:

Detention will be provided for the half of the 2, 2, 10, and 25-year 24-hour design storms. Flows are detained via the detention pond located within onsite Tract A. All developed flows and upstream flows routed to the pond are considered in detention calculations. As some developed flows will go undetained, onsite and upstream areas that route to the pond will be overdetained to match pre-developed and post-developed peak flows for the whole development. Flow is controlled for the half of the 2, 2, 10, and 25-year flows via two orifices with information shown below:

- Orifice #1: 3.3" diameter, elevation 198.00'
- Orifice #2: 5.7" diameter, elevation 201.85'

Both orifices are set in an outflow control structure per City of Newberg standard drawings 417 and 418.

Storm Event	Pre-Developed and Detained Post-Developed Flows	
	Pre-Dev.	Post-Dev. w/ Detention
1/2 of 2 Year	0.53	0.40
2-Year	1.07	0.81
10-Year	1.88	1.45
25-Year	2.32	1.82

As shown in the tables above, the detention requirement is met by limiting the peak discharge of each of the return periods from the pre to post-developed conditions. With the 25-year design water elevation at 202.98' and the top of pond at 204.00', greater than one foot of freeboard is maintained. See Appendix C(2) for pre and post-developed HydroCAD detention plots.

Stormwater Conveyance:

Currently, upstream flows from the northeast and southeast route through the site via an existing ditch that runs along the east and south borders of the site. As part of the development, 42" onsite pipe segments will replace the ditch as the onsite bypass system for upstream flows. Lot 1 will also route to these new pipes via a proposed lateral. In the original ditch flow path, three parallel 21" culverts convey all upstream flows from the onsite ditch to the west side of Crater Lane at the southwest corner of the site. As part of the development, these culverts will be replaced by 27" to mitigate existing flooding issues at that point in the existing storm system. A capacity analysis of this proposed system was performed, which showed that all proposed bypass pipe segments are within capacity assuming gravity flow. The three parallel culverts are assumed to have identical geometries and will each manage a third of the tributary flows. See Appendix C(3) for the capacity spreadsheet, Appendix C(4) for HydroCAD plots of the tributary flows, and Appendix D(3) for a map of the tributary upstream areas.

Onsite and upstream flows that are managed by the onsite pond will be routed to and from the pond using proposed storm mains. Runoff collection will be achieved

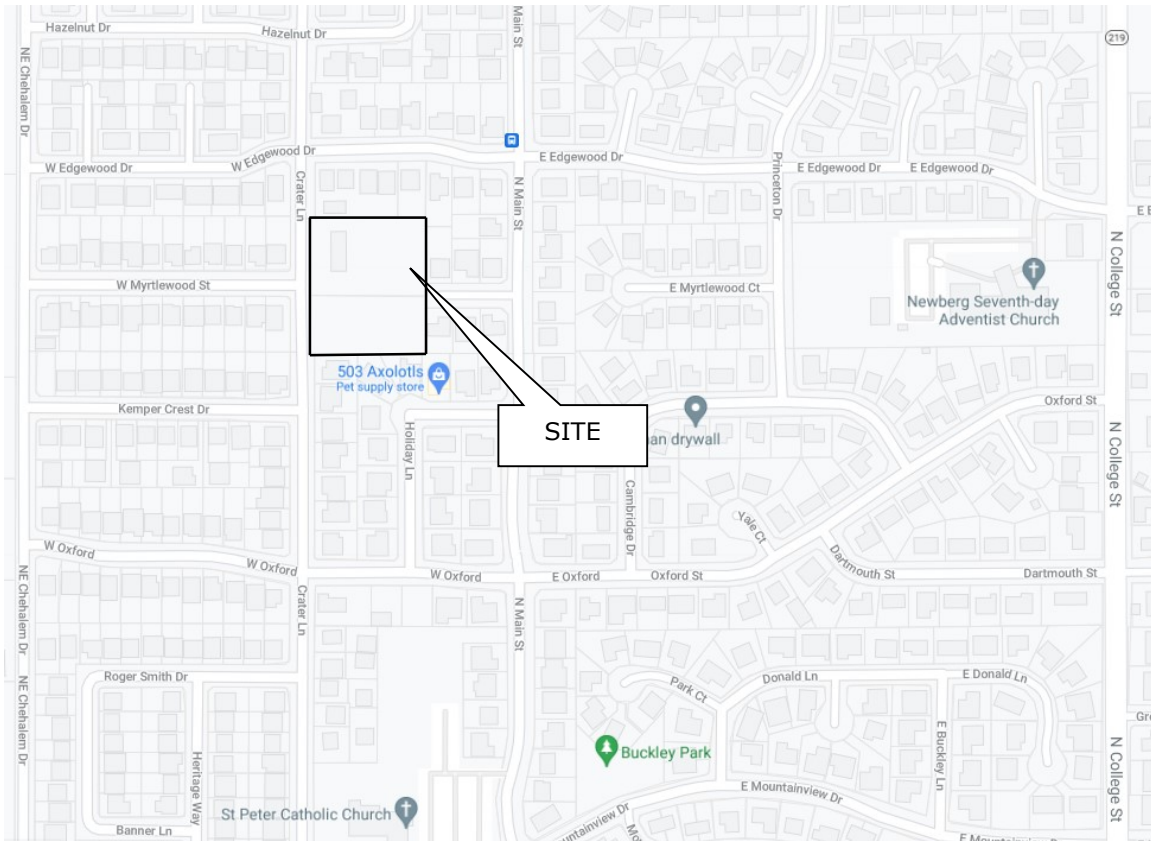
via onsite or existing catch basins and storm laterals. After treatment and detention, these flows will route to the existing public storm sewer via a connection with an existing manhole at the intersection of Crater Lane and Myrtlewood Drive. Most developed flows that go untreated will route to the same existing manhole and will also be collected via storm laterals and onsite catch basins. The rest of the of the Crater Lane frontage runoff will flow overland southward to existing catch basins.

Conclusion:

The design of the proposed site satisfies the water quality and water quantity standards set by the 2015 Newberg Public Works Design and Construction 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 — Yamhill County, Oregon (OR071)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
2013A	Wapato silty clay loam, 0 to 3 percent slopes	C/D	0.8	35.8%
2310A	Woodburn silt loam, 0 to 3 percent slopes	C	1.5	64.2%
Totals for Area of Interest			2.3	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
<i>Fully developed urban areas (vegetation established)</i>					
Open space (lawns, parks, golf courses, cemeteries, etc.) ³ :					
Poor condition (grass cover <50%)				86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover >75%)				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
Paved; open ditches (including right-of-way)					
Gravel (including right-of-way)		83	89	92	93
Dirt (including right-of-way)		76	85	89	91
		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 = 86 for Post-Developed Pervious Areas

Use CN = 74 for Onsite Pre-Developed Pervious Areas

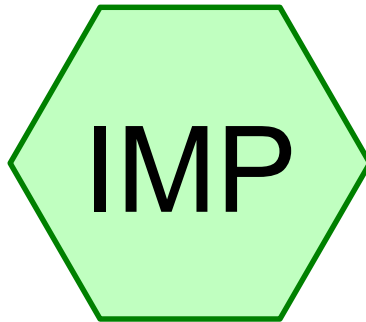
Use CN = 98 for Impervious Areas

Appendix C:

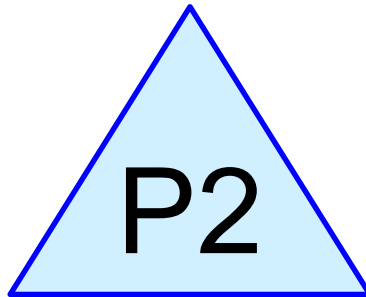
Basin Area Tabulated Data
 Myrtlewood Street Subdivision

Appendix C(1)

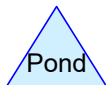
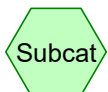
Basin #	Name	Total Area SF	Total Area Acres	Number of Lots	Lot Impervious SF	ROW/Tract Imp SF	Total Impervious SF	Total Pervious (Calc'd) SF
100	Pre-developed Onsite Detained	57,865	1.33	1	0	0	0	57,865
101	Pre-Developed Undetained	21,295	0.49	1	0	270	270	21,025
200	Post-developed Onsite Detained	57,865	1.33	8	23,016	7,144	30,160	27,705
201	Undetained Development	21,295	0.49	2	5,754	8,761	14,515	6,780
301	Upstream 1 (Proxy Treated Area)	94,082	2.16	9	25,893	14,658	40,551	53,531
302	Upstream 2	429,419	9.86	39	112,203	111,395	223,598	205,821
303	Upstream 3	5,457,351	125.28	314	1,079,378	958,307	2,037,685	3,419,666



Treated Impervious
Area



Onsite Pond



0780-003 HydroCAD Detention & WQ

Prepared by Emerio Design LLC

HydroCAD® 10.00-24 s/n 04804 © 2018 HydroCAD Software Solutions LLC

Printed 5/25/2021

Page 2

Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
44,675	98	Impervious (IMP)
44,675	98	TOTAL AREA

Summary for Subcatchment IMP: Treated Impervious Area

Runoff = 0.21 cfs @ 7.90 hrs, Volume= 2,944 cf, Depth= 0.79"

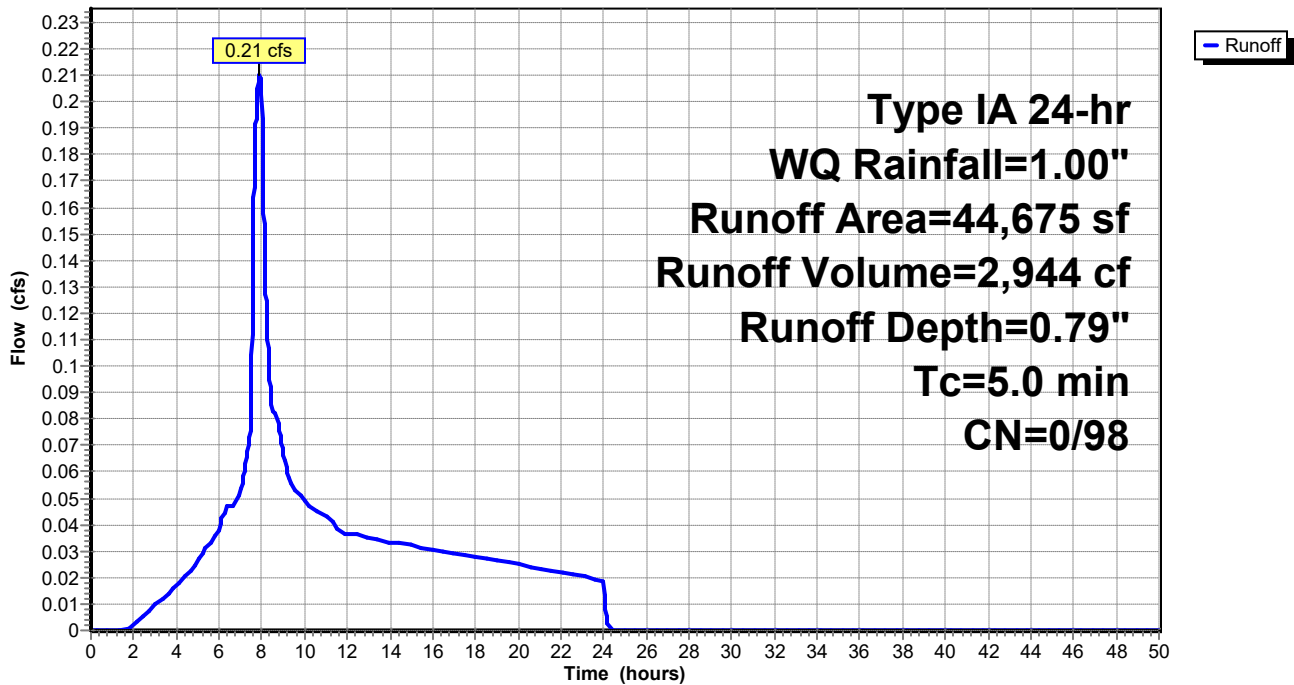
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
 Type IA 24-hr WQ Rainfall=1.00"

Area (sf)	CN	Description
* 44,675	98	Impervious
44,675	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment IMP: Treated Impervious Area

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr WQ Rainfall=1.00"

Prepared by Emerio Design LLC

Printed 5/25/2021

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Summary for Pond P2: Onsite Pond

Inflow Area = 44,675 sf, 100.00% Impervious, Inflow Depth = 0.79" for WQ event
 Inflow = 0.21 cfs @ 7.90 hrs, Volume= 2,944 cf
 Outflow = 0.06 cfs @ 9.14 hrs, Volume= 2,944 cf, Atten= 70%, Lag= 74.6 min
 Primary = 0.06 cfs @ 9.14 hrs, Volume= 2,944 cf

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
 Peak Elev= 200.01' @ 9.14 hrs Surf.Area= 1,341 sf Storage= 416 cf

Plug-Flow detention time= 45.5 min calculated for 2,944 cf (100% of inflow)
 Center-of-Mass det. time= 45.5 min (758.1 - 712.6)

Volume	Invert	Avail.Storage	Storage Description
#1	199.70'	6,697 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
199.70	1,301	0	0
200.00	1,339	396	396
201.00	1,462	1,401	1,797
202.00	1,577	1,520	3,316
203.00	1,686	1,632	4,948
203.50	1,750	859	5,807
204.00	1,813	891	6,697

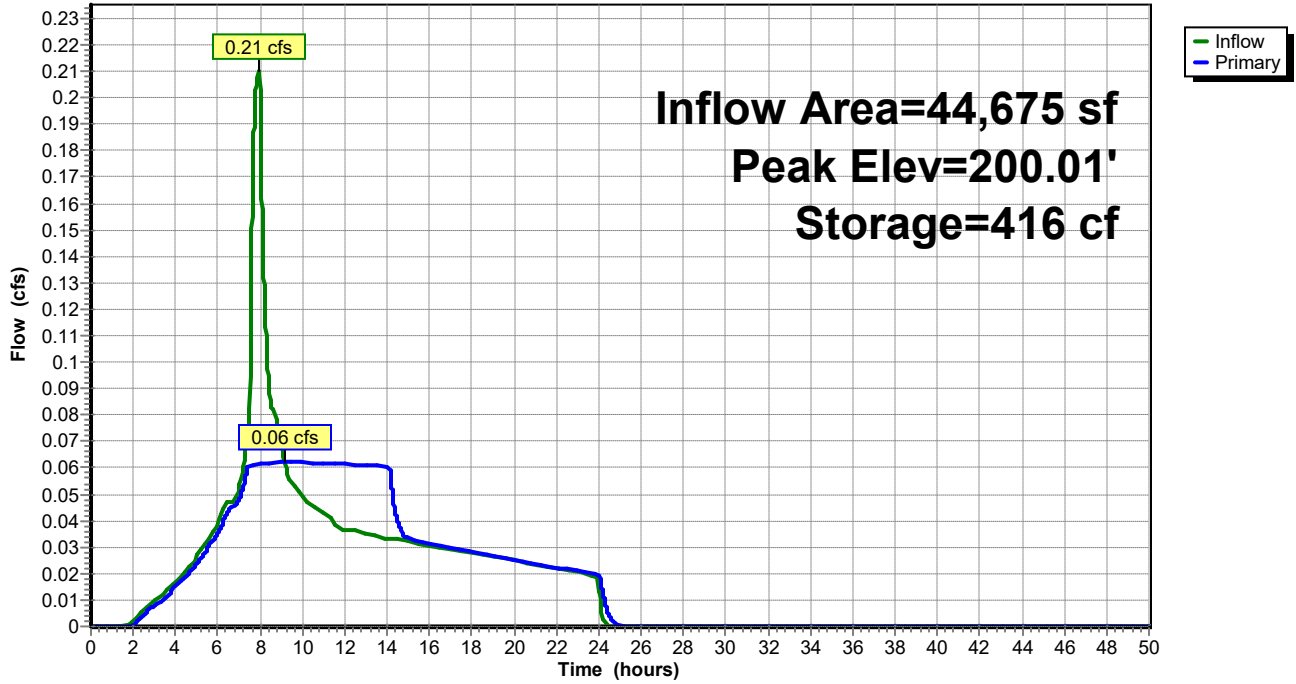
Device	Routing	Invert	Outlet Devices
#1	Primary	197.70'	12.0" Round Outlet Pipe L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 197.70' / 197.50' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	198.00'	3.3" Vert. Low Orifice C= 0.620
#3	Device 2	200.05'	24.0" x 24.0" Horiz. Low Grate Inlet C= 0.620 Limited to weir flow at low heads
#4	Device 1	201.85'	5.7" Vert. High Orifice C= 0.620
#5	Device 1	199.70'	2.000 in/hr Growing Media Infiltration over Surface area above 197.70' Excluded Surface area = 0 sf

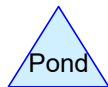
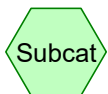
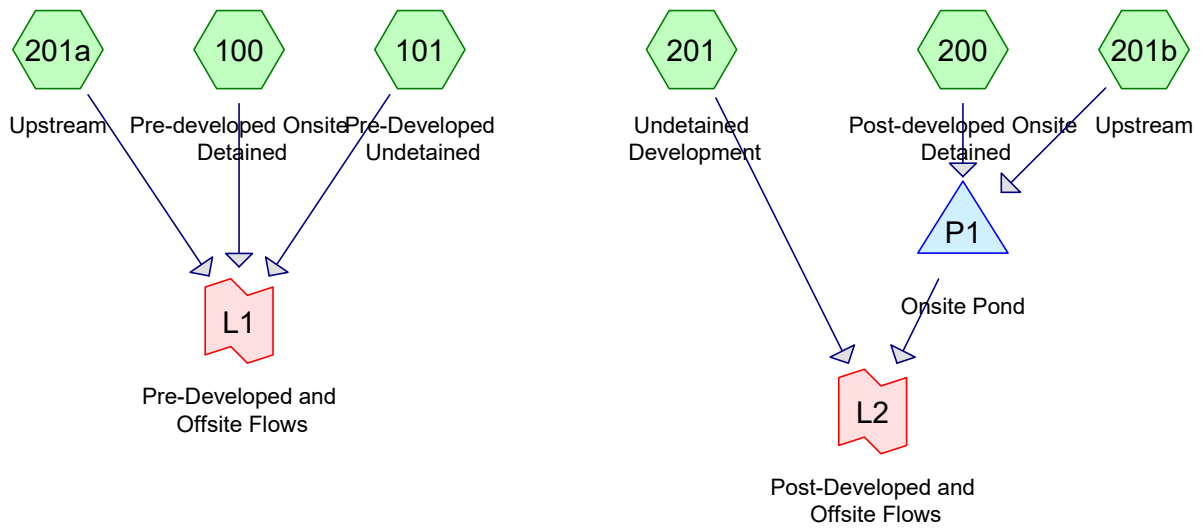
Primary OutFlow Max=0.06 cfs @ 9.14 hrs HW=200.01' (Free Discharge)

- 1=Outlet Pipe (Passes 0.06 cfs of 4.67 cfs potential flow)
- 2=Low Orifice (Passes 0.00 cfs of 0.40 cfs potential flow)
- 3=Low Grate Inlet (Controls 0.00 cfs)
- 4=High Orifice (Controls 0.00 cfs)
- 5=Growing Media Infiltration (Exfiltration Controls 0.06 cfs)

Pond P2: Onsite Pond

Hydrograph





0780-003 HydroCAD Detention & WQ

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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
126,048	98	Impervious (101, 200, 201, 201a, 201b)
78,891	74	Pervious (100, 101)
154,277	86	Pervious (200, 201, 201a, 201b)
359,216	88	TOTAL AREA

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Type IA 24-hr 2-YR Rainfall=2.50"

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Page 3

Summary for Subcatchment 100: Pre-developed Onsite Detained

Runoff = 0.10 cfs @ 8.01 hrs, Volume= 2,939 cf, Depth= 0.61"

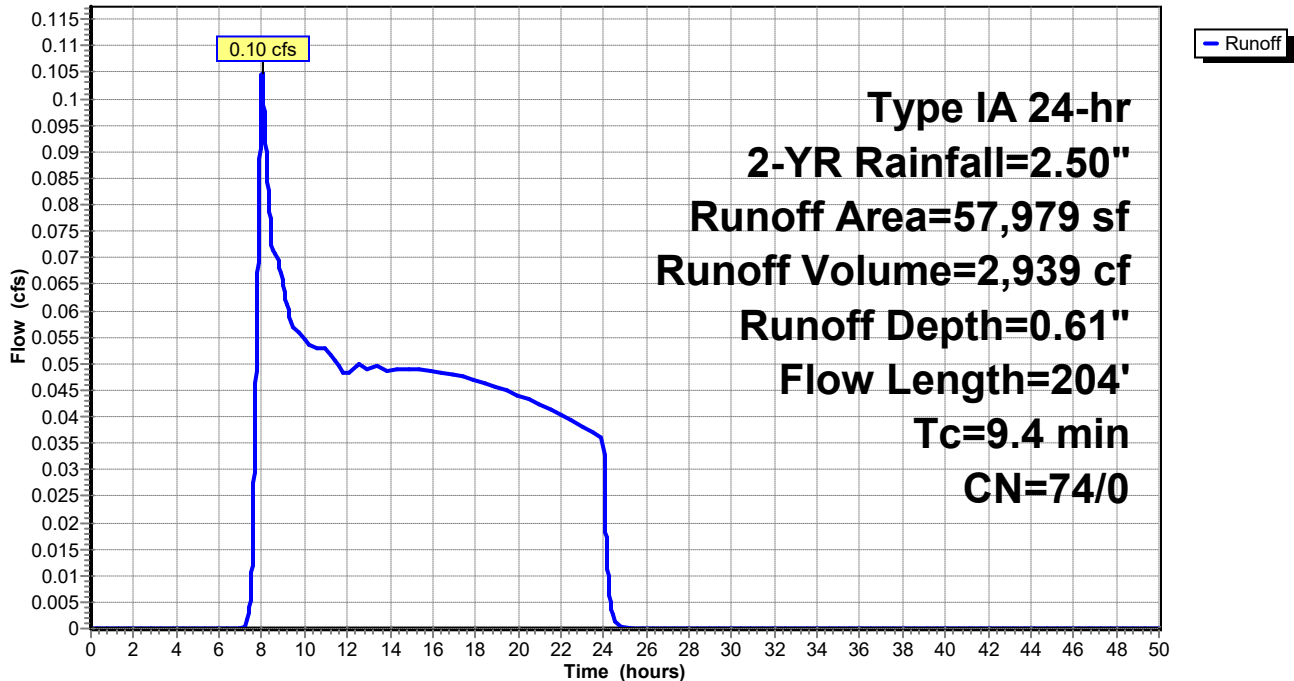
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

Area (sf)	CN	Description
* 57,979	74	Pervious
57,979	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.0170	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
2.6	154	0.0195	0.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
9.4	204	Total			

Subcatchment 100: Pre-developed Onsite Detained

Hydrograph



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Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Subcatchment 101: Pre-Developed Undetained

Runoff = 0.04 cfs @ 8.00 hrs, Volume= 1,111 cf, Depth= 0.63"

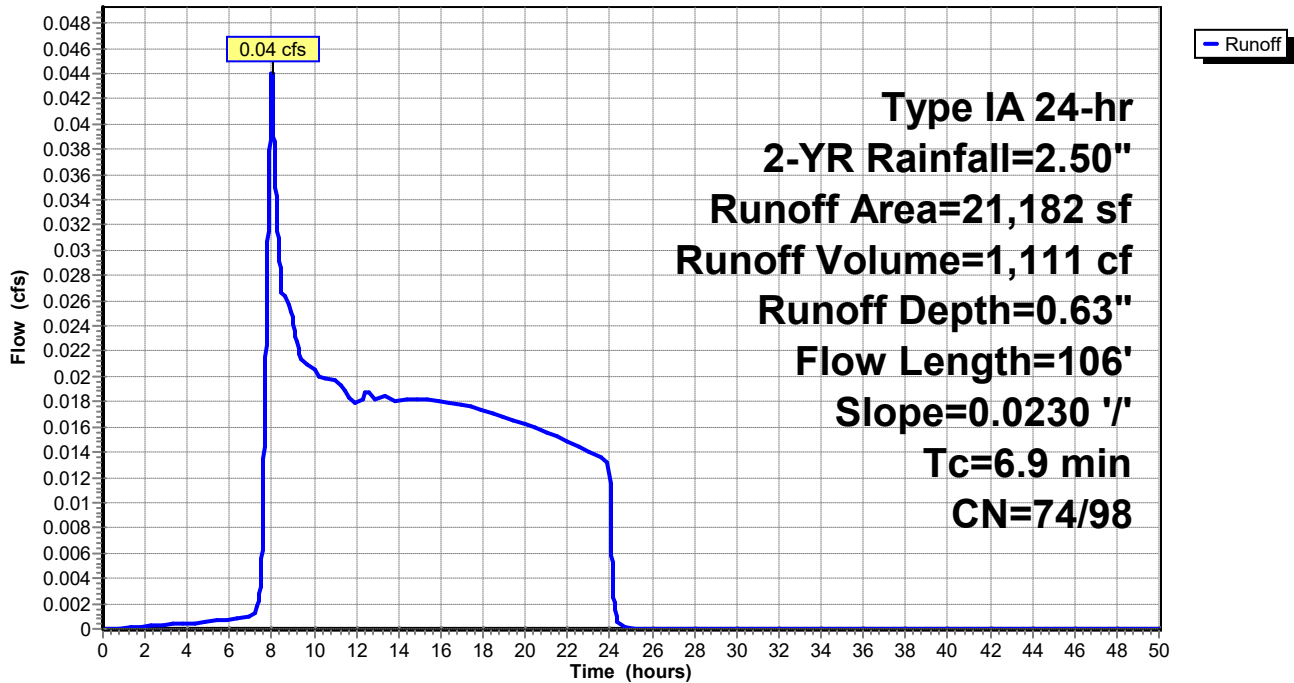
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

	Area (sf)	CN	Description
*	20,912	74	Pervious
*	270	98	Impervious
	21,182	74	Weighted Average
	20,912	74	98.73% Pervious Area
	270	98	1.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0230	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
0.9	56	0.0230	1.06		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.9	106	Total			

Subcatchment 101: Pre-Developed Undetained

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Subcatchment 200: Post-developed Onsite Detained

Runoff = 0.58 cfs @ 7.91 hrs, Volume= 8,597 cf, Depth= 1.78"

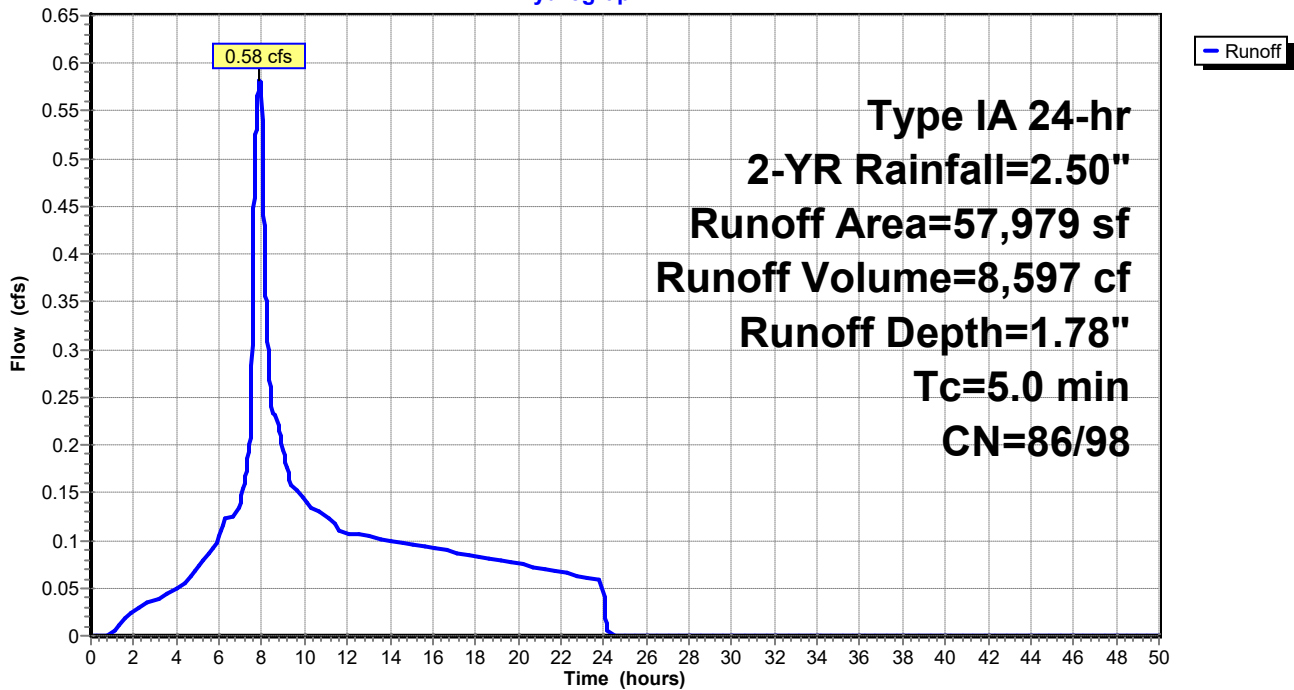
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

	Area (sf)	CN	Description
*	30,242	98	Impervious
*	27,737	86	Pervious
	57,979	92	Weighted Average
	27,737	86	47.84% Pervious Area
	30,242	98	52.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 200: Post-developed Onsite Detained

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Subcatchment 201: Undetained Development

Runoff = 0.24 cfs @ 7.90 hrs, Volume= 3,431 cf, Depth= 1.94"

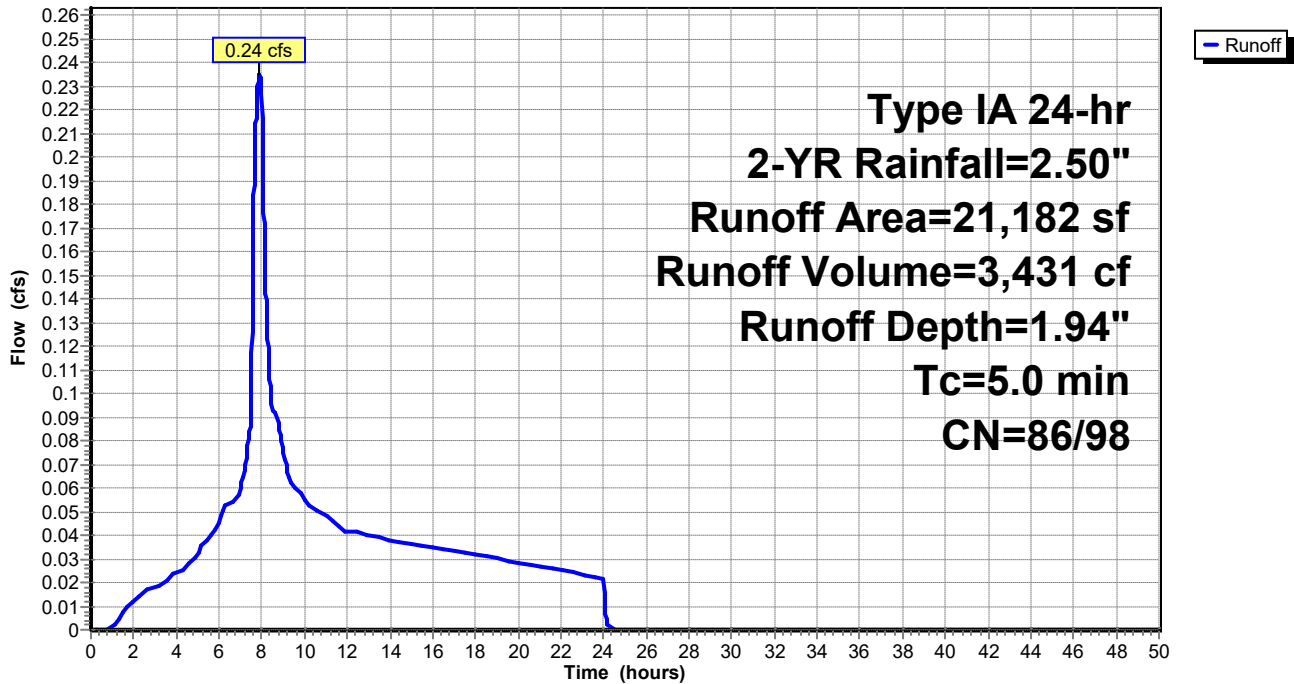
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

	Area (sf)	CN	Description
*	14,434	98	Impervious
*	6,748	86	Pervious
	21,182	94	Weighted Average
	6,748	86	31.86% Pervious Area
	14,434	98	68.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 201: Undetained Development

Hydrograph



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Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Subcatchment 201a: Upstream

Runoff = 0.93 cfs @ 7.92 hrs, Volume= 13,880 cf, Depth= 1.66"

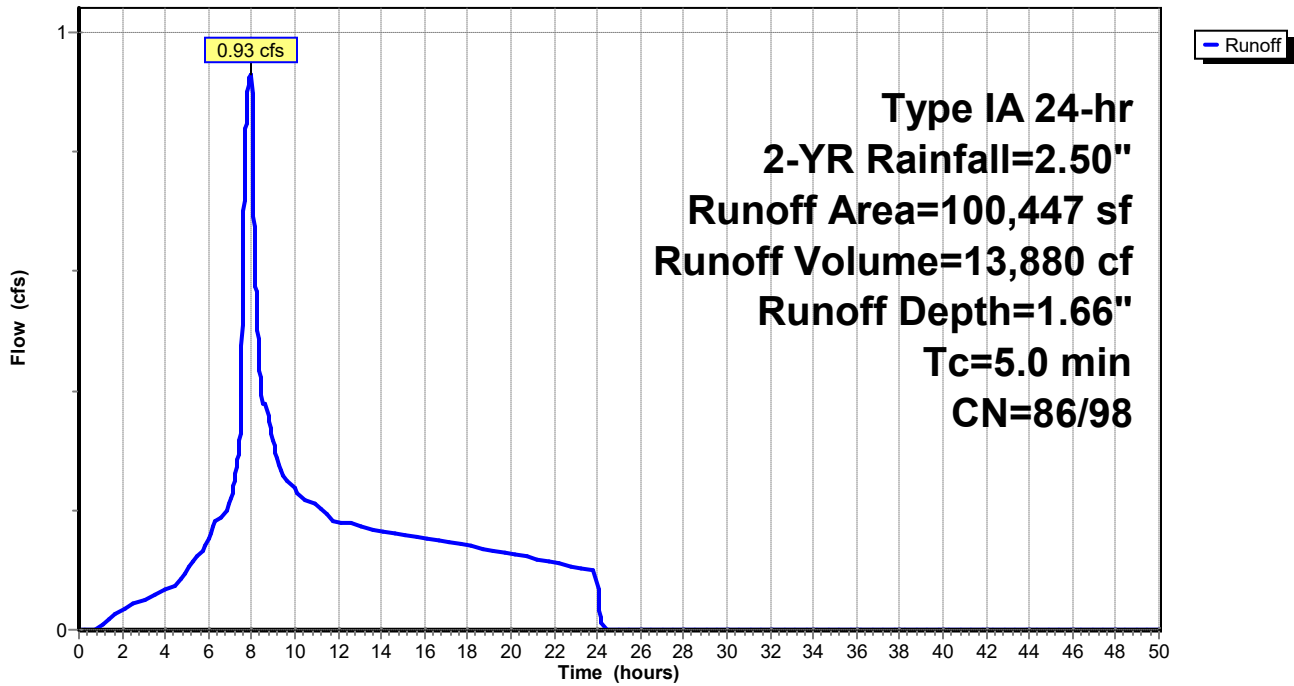
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 2-YR Rainfall=2.50"

	Area (sf)	CN	Description
*	40,551	98	Impervious
*	59,896	86	Pervious
	100,447	91	Weighted Average
	59,896	86	59.63% Pervious Area
	40,551	98	40.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 201a: Upstream

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Subcatchment 201b: Upstream

Runoff = 0.93 cfs @ 7.92 hrs, Volume= 13,880 cf, Depth= 1.66"

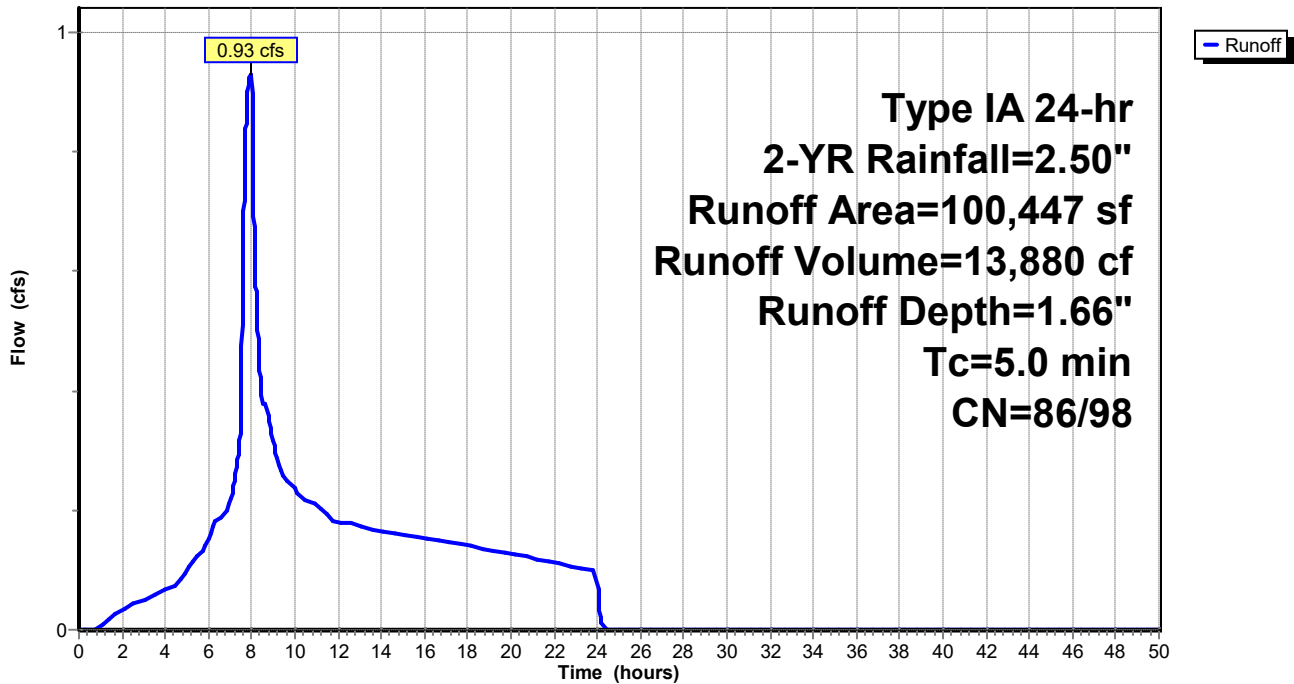
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 2-YR Rainfall=2.50"

	Area (sf)	CN	Description
*	40,551	98	Impervious
*	59,896	86	Pervious
	100,447	91	Weighted Average
	59,896	86	59.63% Pervious Area
	40,551	98	40.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 201b: Upstream

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr 2-YR Rainfall=2.50"

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Summary for Pond P1: Onsite Pond

Inflow Area = 158,426 sf, 44.69% Impervious, Inflow Depth = 1.70" for 2-YR event
 Inflow = 1.51 cfs @ 7.92 hrs, Volume= 22,477 cf
 Outflow = 0.61 cfs @ 8.66 hrs, Volume= 22,477 cf, Atten= 60%, Lag= 44.4 min
 Primary = 0.61 cfs @ 8.66 hrs, Volume= 22,477 cf

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
 Peak Elev= 201.47' @ 8.66 hrs Surf.Area= 1,516 sf Storage= 2,496 cf

Plug-Flow detention time= 42.8 min calculated for 22,472 cf (100% of inflow)
 Center-of-Mass det. time= 42.8 min (767.5 - 724.7)

Volume	Invert	Avail.Storage	Storage Description
#1	199.70'	6,697 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
199.70	1,301	0	0
200.00	1,339	396	396
201.00	1,462	1,401	1,797
202.00	1,577	1,520	3,316
203.00	1,686	1,632	4,948
203.50	1,750	859	5,807
204.00	1,813	891	6,697

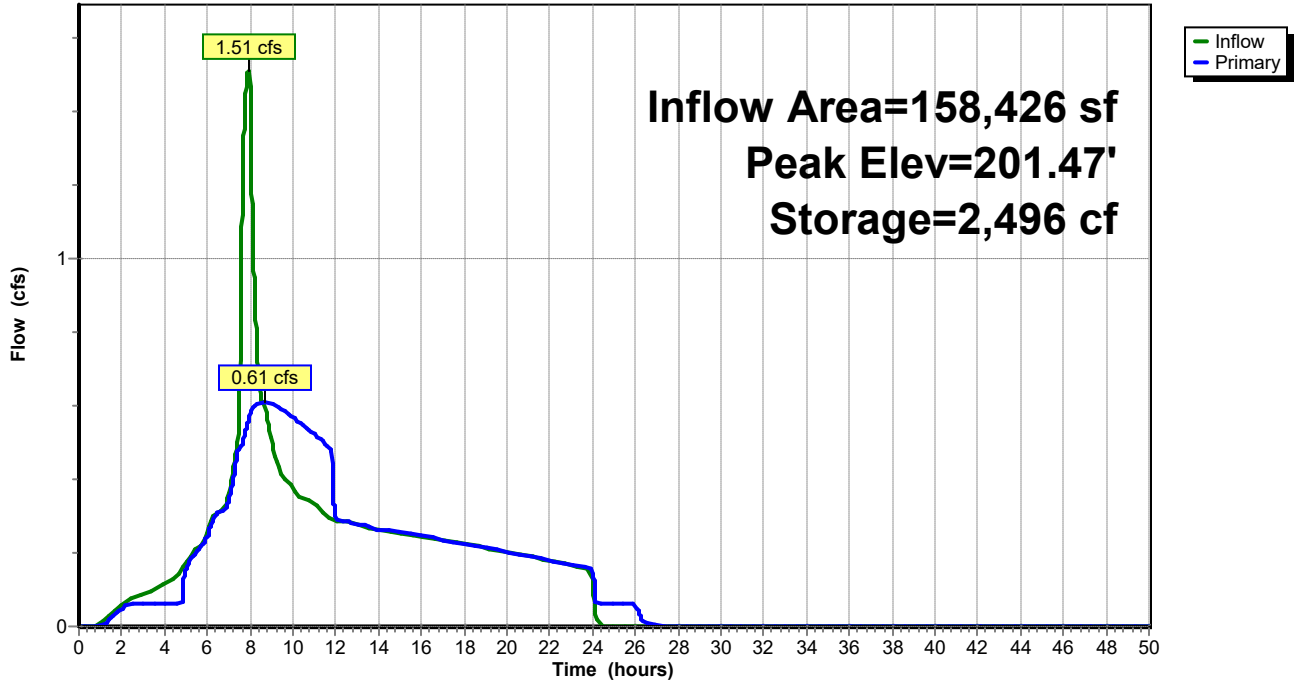
Device	Routing	Invert	Outlet Devices
#1	Primary	197.70'	12.0" Round Outlet Pipe L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 197.70' / 197.50' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	198.00'	3.3" Vert. Low Orifice C= 0.620
#3	Device 2	200.05'	24.0" x 24.0" Horiz. Low Grate Inlet C= 0.620 Limited to weir flow at low heads
#4	Device 1	201.85'	5.7" Vert. High Orifice C= 0.620
#5	Device 1	199.70'	2.000 in/hr Growing Media Infiltration over Surface area above 197.70' Excluded Surface area = 0 sf

Primary OutFlow Max=0.61 cfs @ 8.66 hrs HW=201.47' (Free Discharge)

- 1=Outlet Pipe (Passes 0.61 cfs of 6.54 cfs potential flow)
- 2=Low Orifice (Orifice Controls 0.54 cfs @ 9.08 fps)
- 3=Low Grate Inlet (Passes 0.54 cfs of 23.71 cfs potential flow)
- 4=High Orifice (Controls 0.00 cfs)
- 5=Growing Media Infiltration (Exfiltration Controls 0.07 cfs)

Pond P1: Onsite Pond

Hydrograph



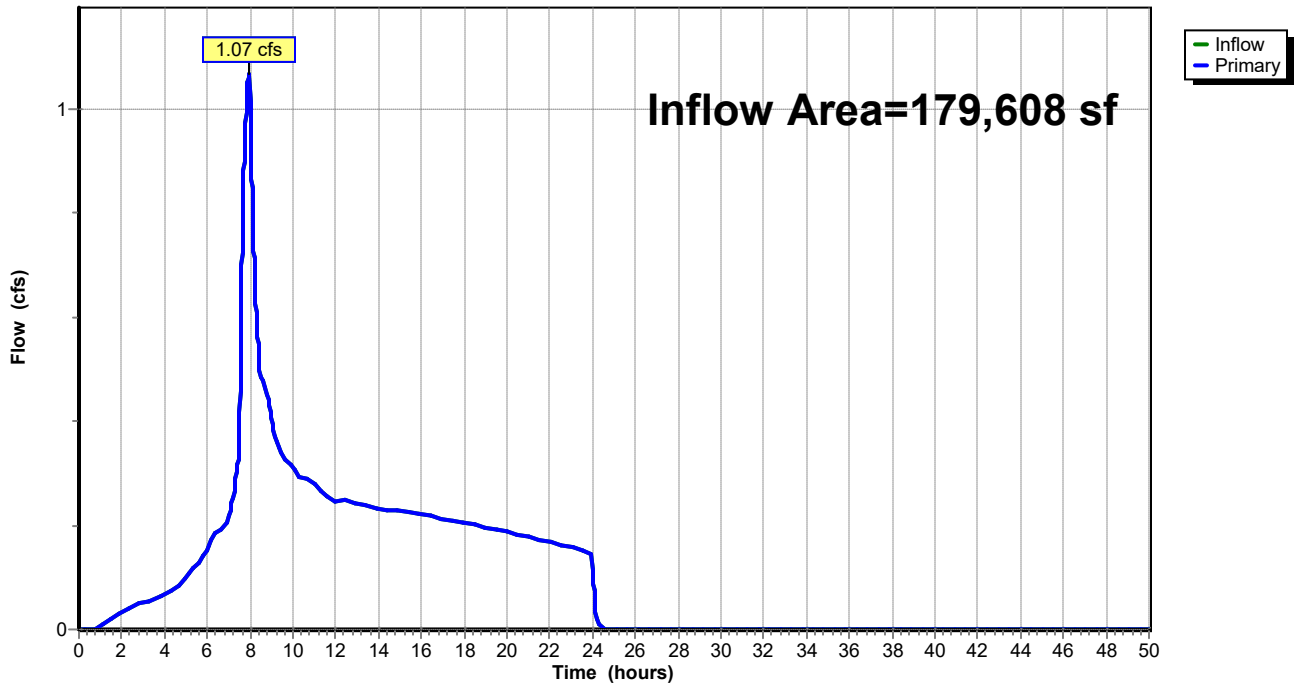
Summary for Link L1: Pre-Developed and Offsite Flows

Inflow Area = 179,608 sf, 22.73% Impervious, Inflow Depth = 1.20" for 2-YR event
Inflow = 1.07 cfs @ 7.97 hrs, Volume= 17,930 cf
Primary = 1.07 cfs @ 7.97 hrs, Volume= 17,930 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

Link L1: Pre-Developed and Offsite Flows

Hydrograph



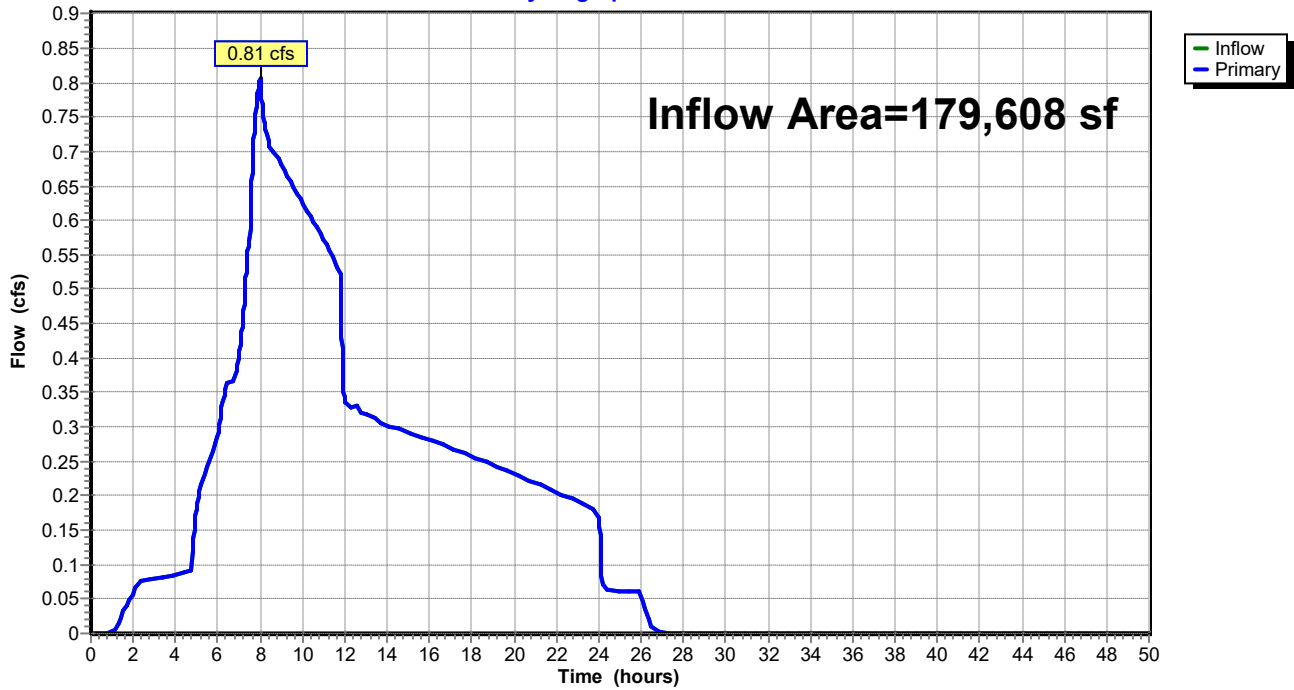
Summary for Link L2: Post-Developed and Offsite Flows

Inflow Area = 179,608 sf, 47.45% Impervious, Inflow Depth = 1.73" for 2-YR event
Inflow = 0.81 cfs @ 8.00 hrs, Volume= 25,907 cf
Primary = 0.81 cfs @ 8.00 hrs, Volume= 25,907 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

Link L2: Post-Developed and Offsite Flows

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr 10-YR Rainfall=3.50"

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Summary for Subcatchment 100: Pre-developed Onsite Detained

Runoff = 0.31 cfs @ 8.00 hrs, Volume= 5,991 cf, Depth= 1.24"

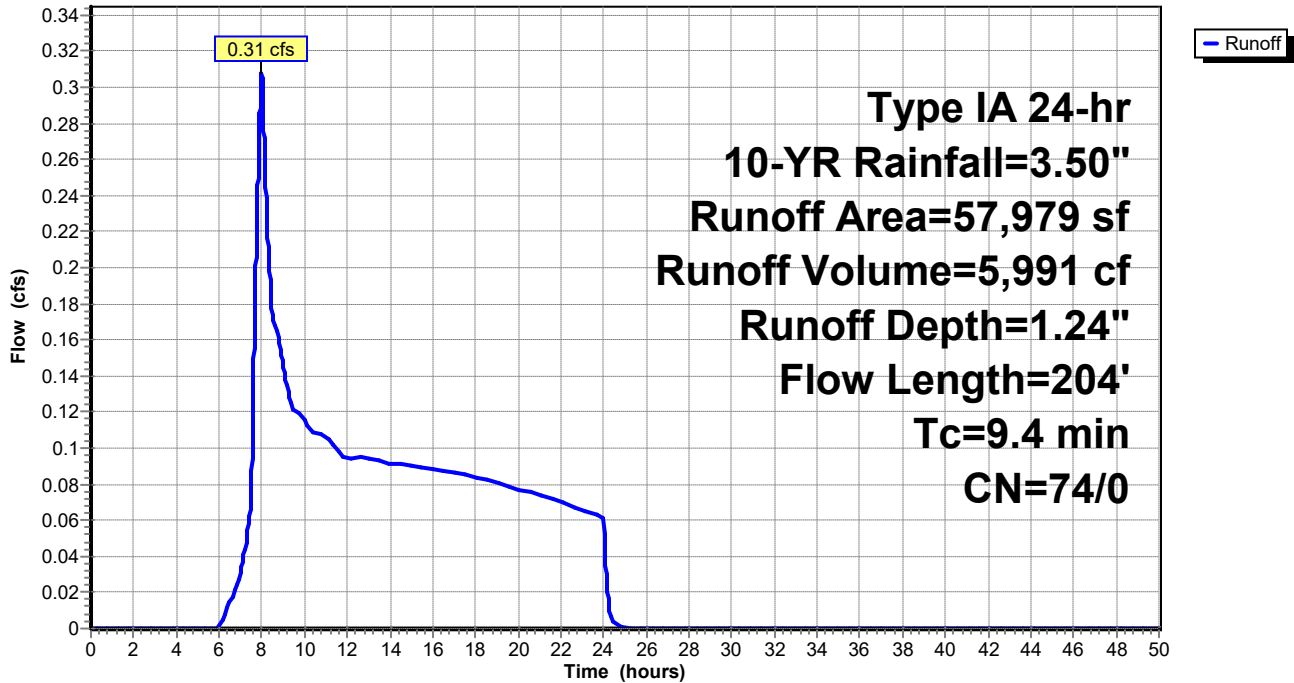
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-YR Rainfall=3.50"

Area (sf)	CN	Description
* 57,979	74	Pervious
57,979	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.0170	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
2.6	154	0.0195	0.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
9.4	204	Total			

Subcatchment 100: Pre-developed Onsite Detained

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr 10-YR Rainfall=3.50"

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Summary for Subcatchment 101: Pre-Developed Undetained

Runoff = 0.12 cfs @ 8.00 hrs, Volume= 2,234 cf, Depth= 1.27"

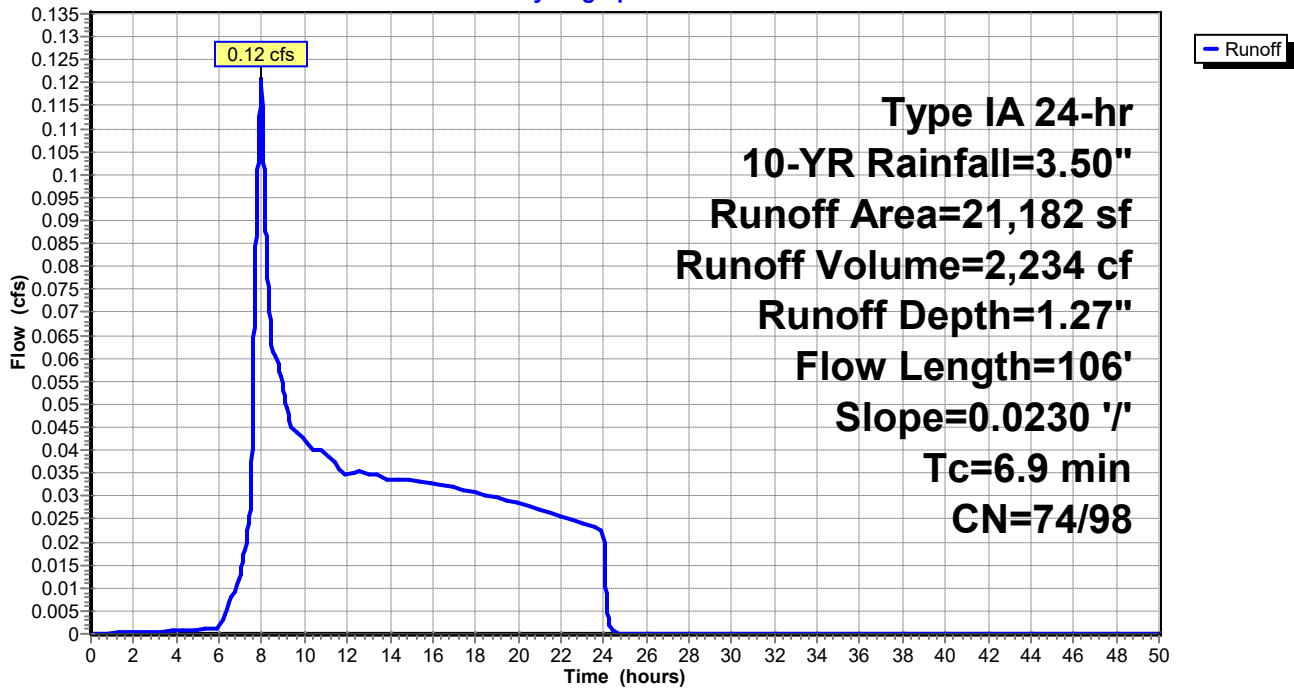
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-YR Rainfall=3.50"

	Area (sf)	CN	Description
*	20,912	74	Pervious
*	270	98	Impervious
	21,182	74	Weighted Average
	20,912	74	98.73% Pervious Area
	270	98	1.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0230	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
0.9	56	0.0230	1.06		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.9	106	Total			

Subcatchment 101: Pre-Developed Undetained

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr 10-YR Rainfall=3.50"

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Summary for Subcatchment 200: Post-developed Onsite Detained

Runoff = 0.90 cfs @ 7.90 hrs, Volume= 13,082 cf, Depth= 2.71"

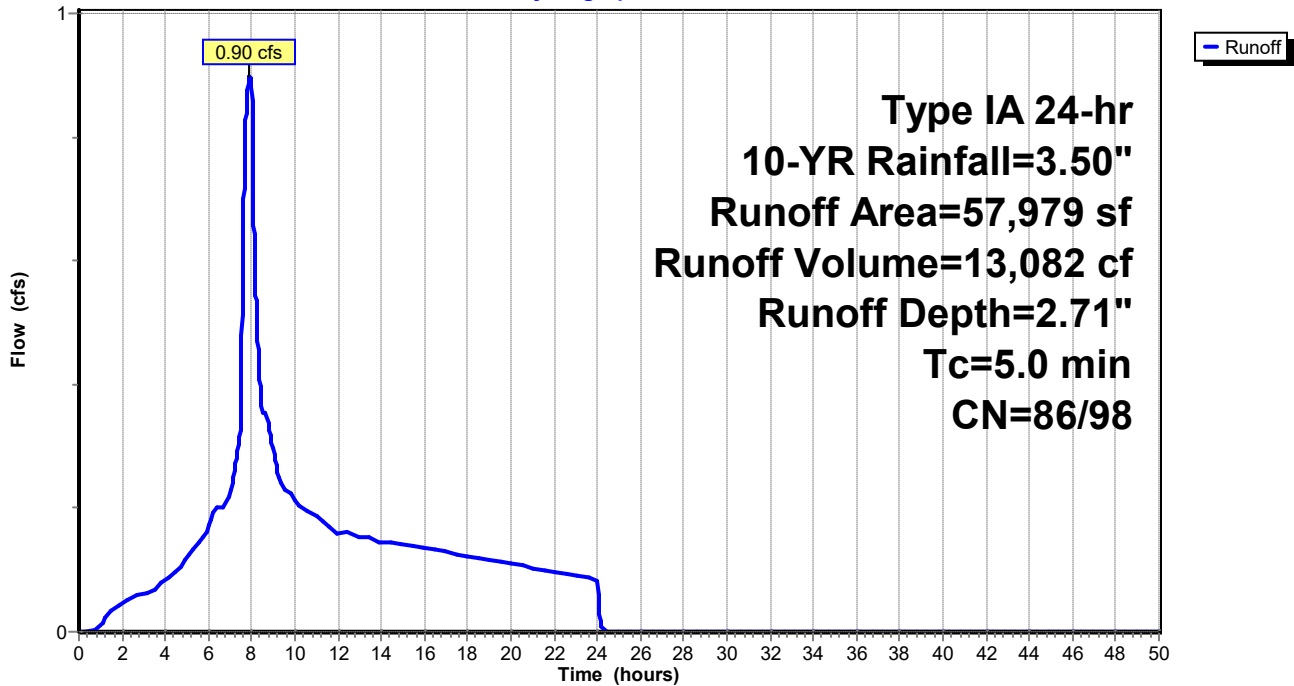
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-YR Rainfall=3.50"

	Area (sf)	CN	Description
*	30,242	98	Impervious
*	27,737	86	Pervious
	57,979	92	Weighted Average
	27,737	86	47.84% Pervious Area
	30,242	98	52.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 200: Post-developed Onsite Detained

Hydrograph



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Type IA 24-hr 10-YR Rainfall=3.50"

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Summary for Subcatchment 201: Undetained Development

Runoff = 0.35 cfs @ 7.89 hrs, Volume= 5,109 cf, Depth= 2.89"

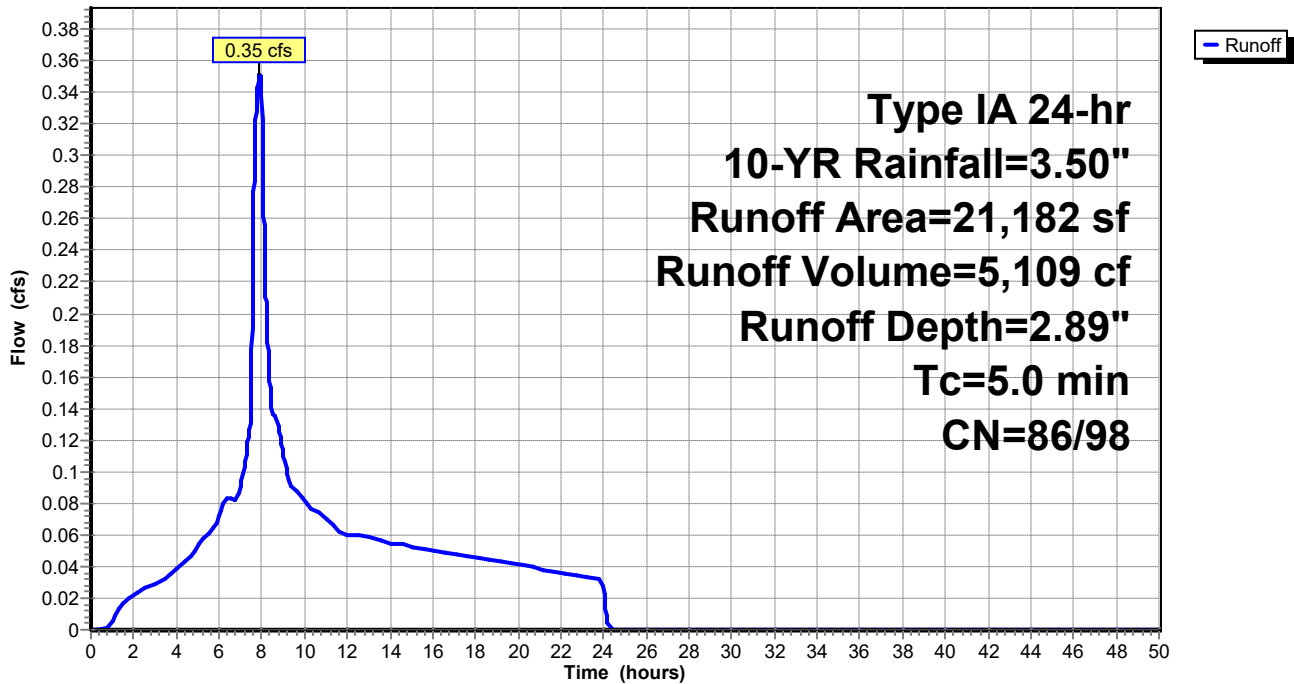
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-YR Rainfall=3.50"

	Area (sf)	CN	Description
*	14,434	98	Impervious
*	6,748	86	Pervious
	21,182	94	Weighted Average
	6,748	86	31.86% Pervious Area
	14,434	98	68.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 201: Undetained Development

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr 10-YR Rainfall=3.50"

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Summary for Subcatchment 201a: Upstream

Runoff = 1.47 cfs @ 7.91 hrs, Volume= 21,512 cf, Depth= 2.57"

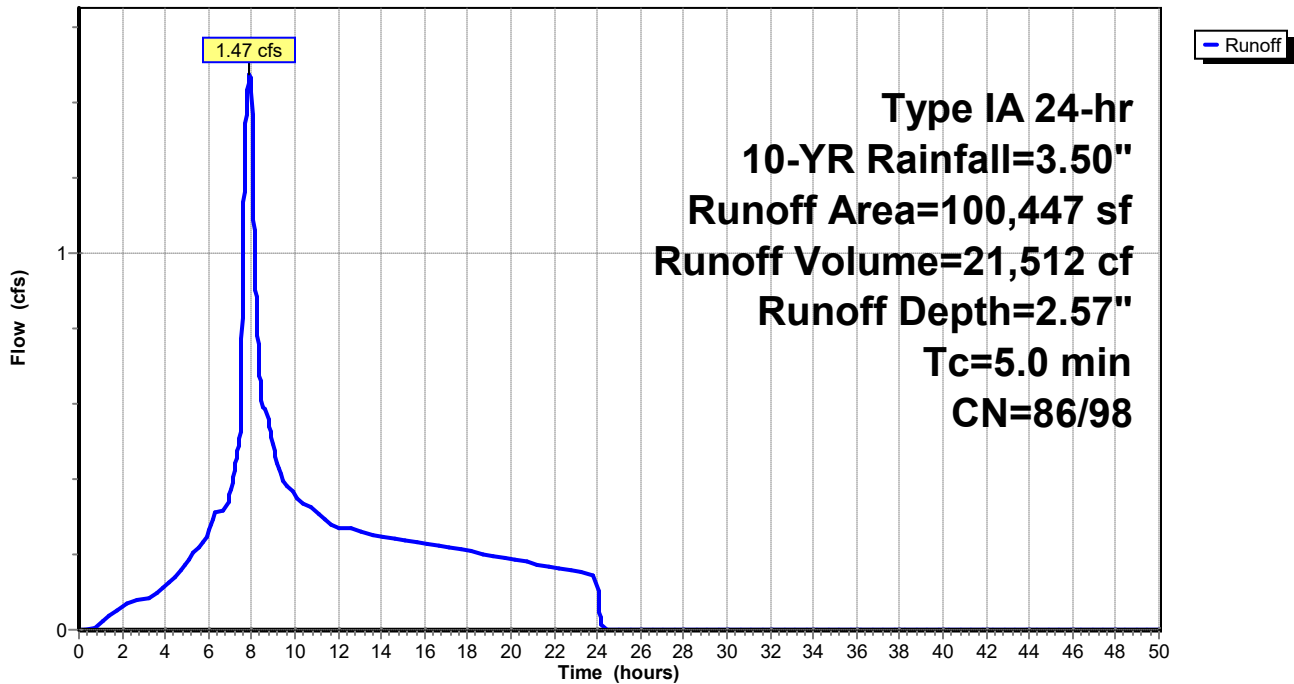
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 10-YR Rainfall=3.50"

	Area (sf)	CN	Description
*	40,551	98	Impervious
*	59,896	86	Pervious
	100,447	91	Weighted Average
	59,896	86	59.63% Pervious Area
	40,551	98	40.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 201a: Upstream

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr 10-YR Rainfall=3.50"

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Summary for Subcatchment 201b: Upstream

Runoff = 1.47 cfs @ 7.91 hrs, Volume= 21,512 cf, Depth= 2.57"

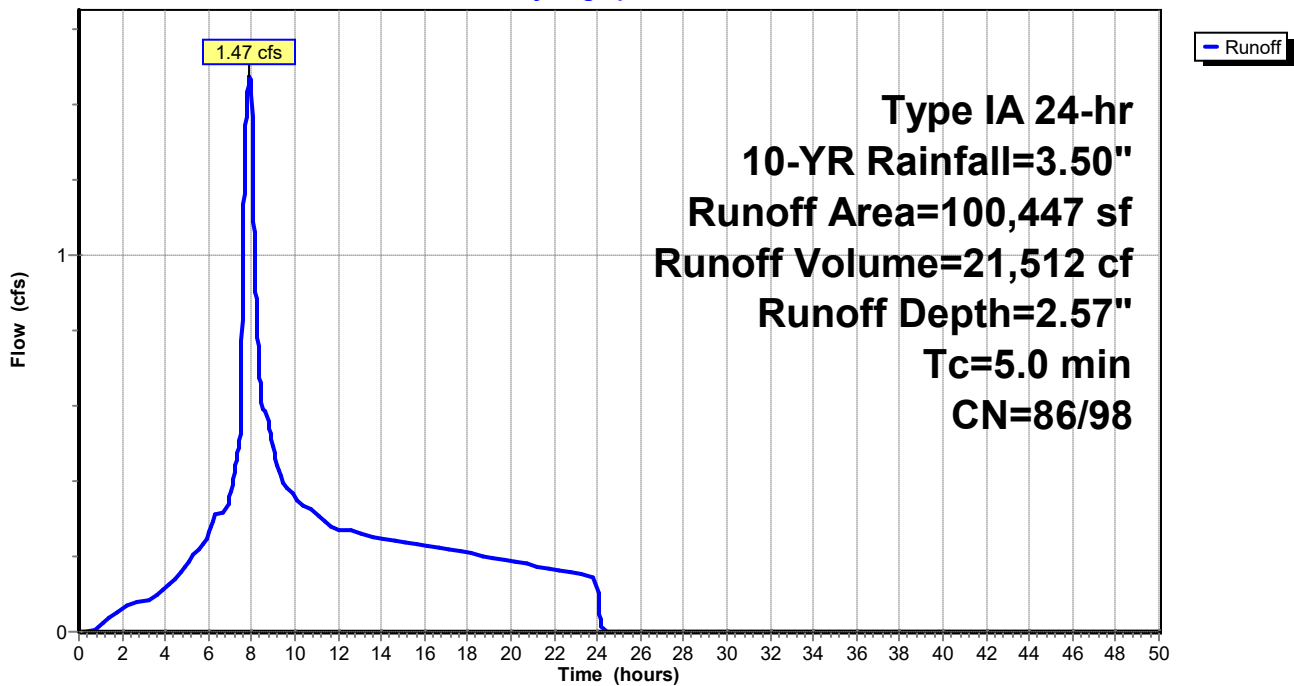
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 10-YR Rainfall=3.50"

	Area (sf)	CN	Description
*	40,551	98	Impervious
*	59,896	86	Pervious
	100,447	91	Weighted Average
	59,896	86	59.63% Pervious Area
	40,551	98	40.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 201b: Upstream

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr 10-YR Rainfall=3.50"

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Summary for Pond P1: Onsite Pond

Inflow Area = 158,426 sf, 44.69% Impervious, Inflow Depth = 2.62" for 10-YR event
 Inflow = 2.37 cfs @ 7.91 hrs, Volume= 34,594 cf
 Outflow = 1.25 cfs @ 8.28 hrs, Volume= 34,594 cf, Atten= 47%, Lag= 22.1 min
 Primary = 1.25 cfs @ 8.28 hrs, Volume= 34,594 cf

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
 Peak Elev= 202.49' @ 8.28 hrs Surf.Area= 1,630 sf Storage= 4,098 cf

Plug-Flow detention time= 45.9 min calculated for 34,587 cf (100% of inflow)
 Center-of-Mass det. time= 45.9 min (756.3 - 710.4)

Volume	Invert	Avail.Storage	Storage Description
#1	199.70'	6,697 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
199.70	1,301	0	0
200.00	1,339	396	396
201.00	1,462	1,401	1,797
202.00	1,577	1,520	3,316
203.00	1,686	1,632	4,948
203.50	1,750	859	5,807
204.00	1,813	891	6,697

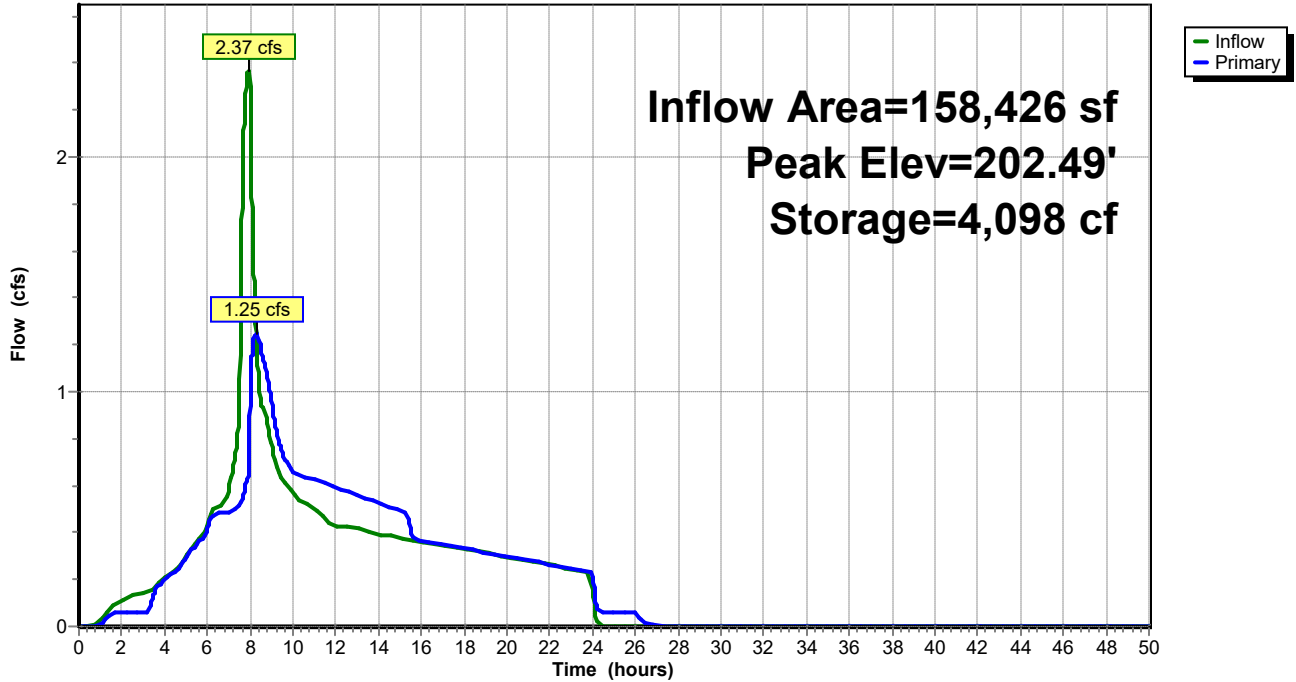
Device	Routing	Invert	Outlet Devices
#1	Primary	197.70'	12.0" Round Outlet Pipe L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 197.70' / 197.50' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	198.00'	3.3" Vert. Low Orifice C= 0.620
#3	Device 2	200.05'	24.0" x 24.0" Horiz. Low Grate Inlet C= 0.620 Limited to weir flow at low heads
#4	Device 1	201.85'	5.7" Vert. High Orifice C= 0.620
#5	Device 1	199.70'	2.000 in/hr Growing Media Infiltration over Surface area above 197.70' Excluded Surface area = 0 sf

Primary OutFlow Max=1.25 cfs @ 8.28 hrs HW=202.49' (Free Discharge)

- 1=Outlet Pipe (Passes 1.25 cfs of 7.58 cfs potential flow)
- 2=Low Orifice (Orifice Controls 0.62 cfs @ 10.38 fps)
- 3=Low Grate Inlet (Passes 0.62 cfs of 31.07 cfs potential flow)
- 4=High Orifice (Orifice Controls 0.56 cfs @ 3.15 fps)
- 5=Growing Media Infiltration (Exfiltration Controls 0.08 cfs)

Pond P1: Onsite Pond

Hydrograph



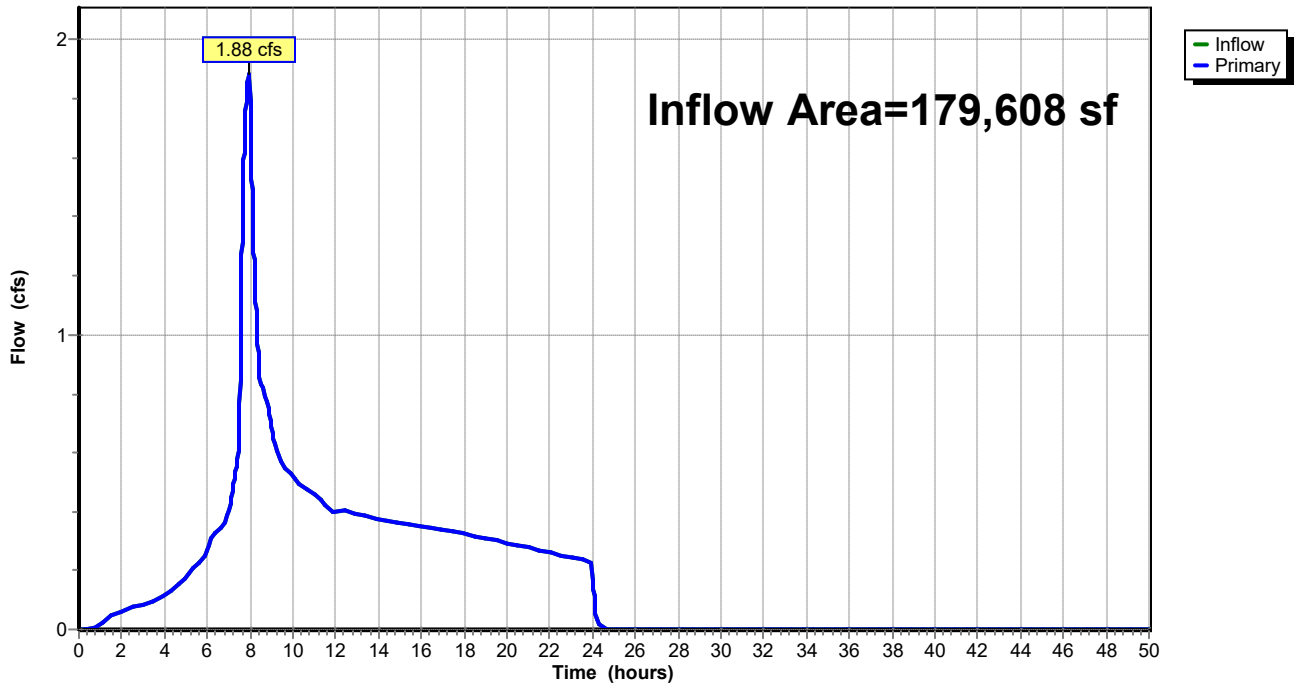
Summary for Link L1: Pre-Developed and Offsite Flows

Inflow Area = 179,608 sf, 22.73% Impervious, Inflow Depth = 1.99" for 10-YR event
Inflow = 1.88 cfs @ 7.95 hrs, Volume= 29,737 cf
Primary = 1.88 cfs @ 7.95 hrs, Volume= 29,737 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

Link L1: Pre-Developed and Offsite Flows

Hydrograph



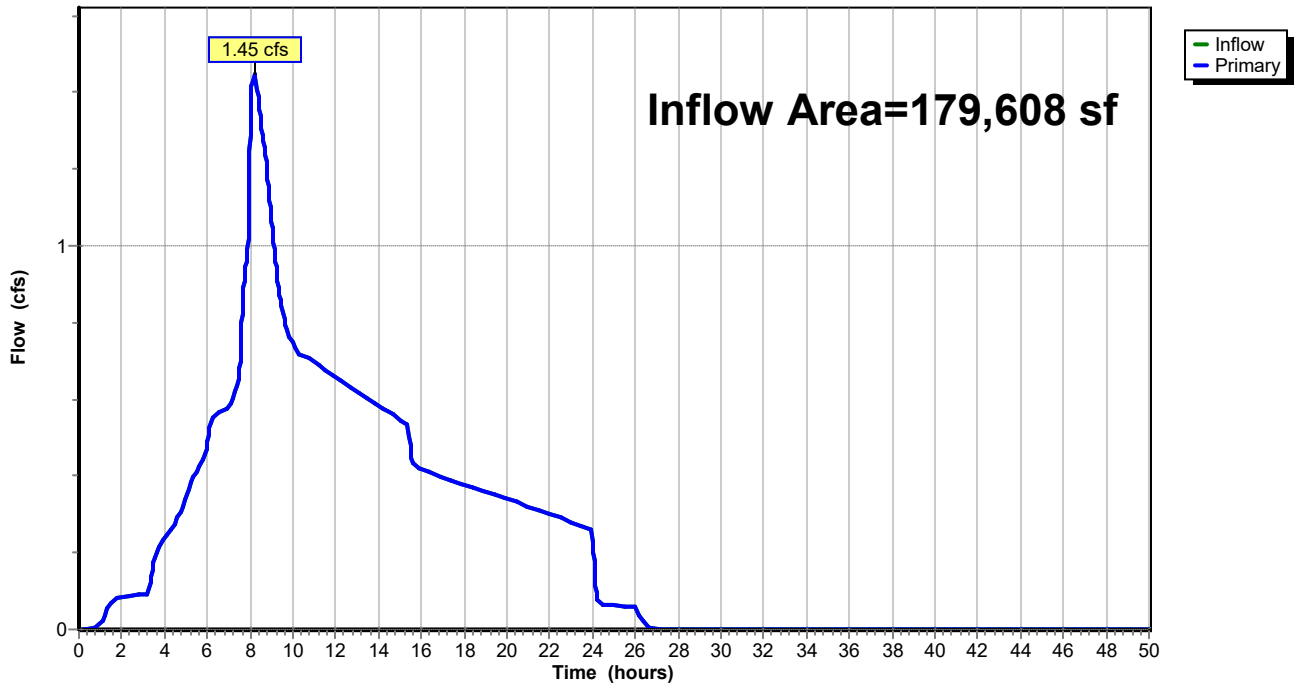
Summary for Link L2: Post-Developed and Offsite Flows

Inflow Area = 179,608 sf, 47.45% Impervious, Inflow Depth = 2.65" for 10-YR event
Inflow = 1.45 cfs @ 8.18 hrs, Volume= 39,703 cf
Primary = 1.45 cfs @ 8.18 hrs, Volume= 39,703 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

Link L2: Post-Developed and Offsite Flows

Hydrograph



0780-003 HydroCAD Detention & WQ

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Type IA 24-hr 25-YR Rainfall=4.00"

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Summary for Subcatchment 100: Pre-developed Onsite Detained

Runoff = 0.43 cfs @ 8.00 hrs, Volume= 7,713 cf, Depth= 1.60"

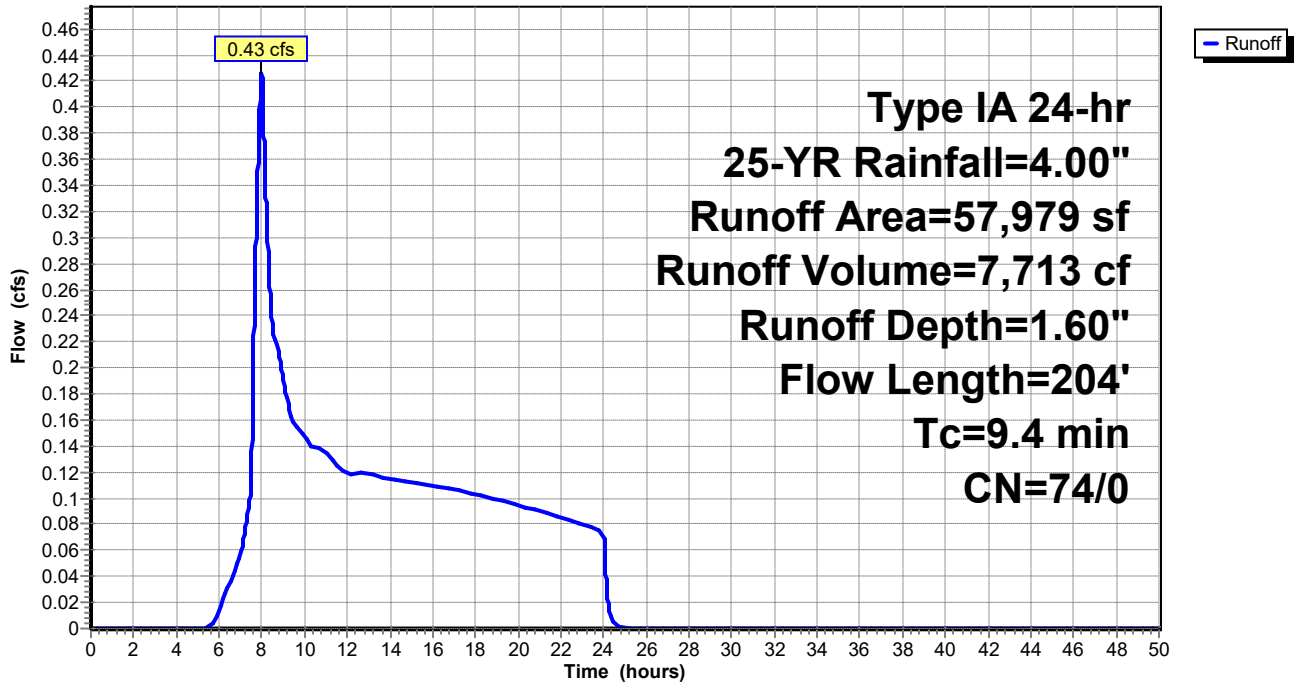
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=4.00"

Area (sf)	CN	Description
* 57,979	74	Pervious
57,979	74	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.8	50	0.0170	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
2.6	154	0.0195	0.98		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
9.4	204	Total			

Subcatchment 100: Pre-developed Onsite Detained

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr 25-YR Rainfall=4.00"

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Summary for Subcatchment 101: Pre-Developed Undetained

Runoff = 0.17 cfs @ 8.00 hrs, Volume= 2,867 cf, Depth= 1.62"

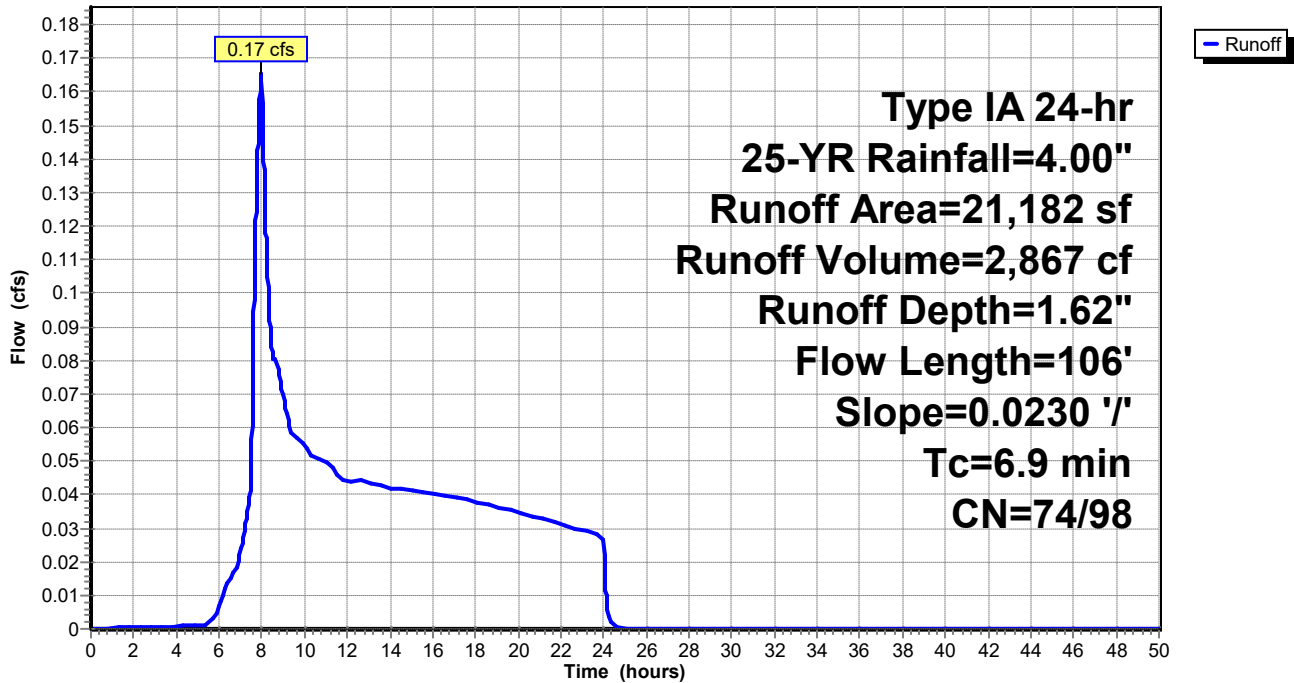
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=4.00"

	Area (sf)	CN	Description
*	20,912	74	Pervious
*	270	98	Impervious
	21,182	74	Weighted Average
	20,912	74	98.73% Pervious Area
	270	98	1.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0230	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
0.9	56	0.0230	1.06		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.9	106	Total			

Subcatchment 101: Pre-Developed Undetained

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr 25-YR Rainfall=4.00"

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Summary for Subcatchment 200: Post-developed Onsite Detained

Runoff = 1.06 cfs @ 7.90 hrs, Volume= 15,374 cf, Depth= 3.18"

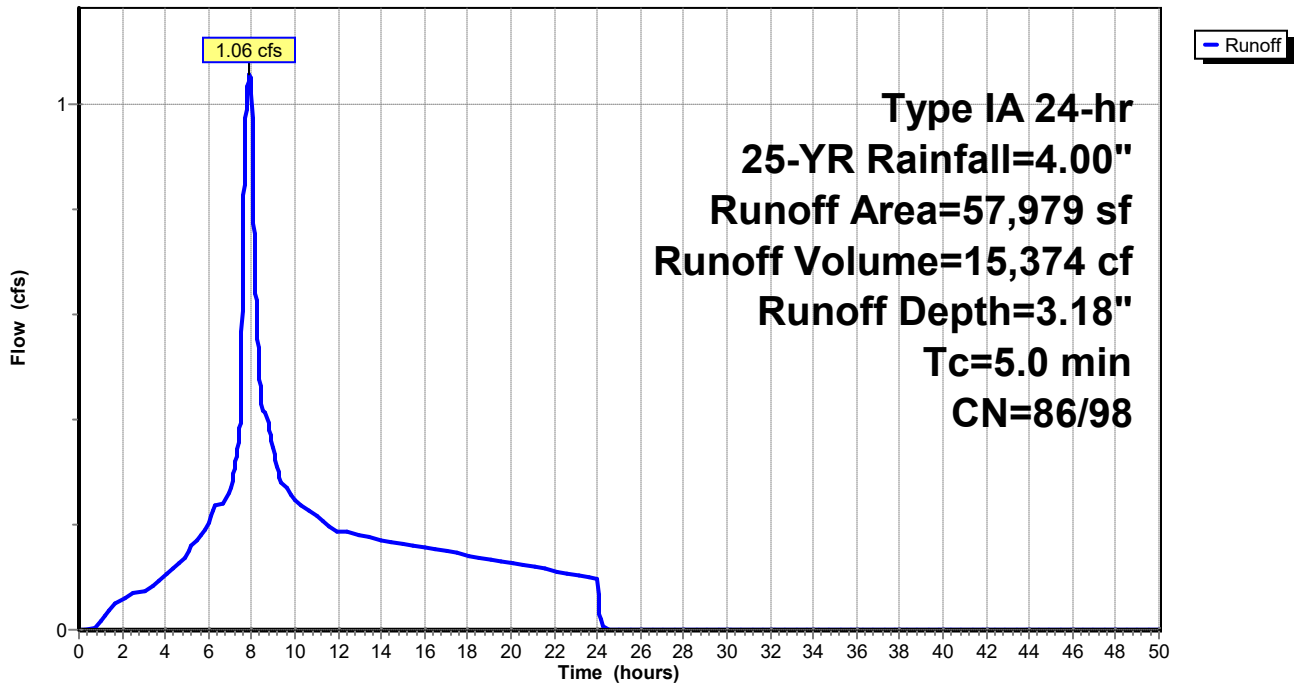
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
 Type IA 24-hr 25-YR Rainfall=4.00"

	Area (sf)	CN	Description
*	30,242	98	Impervious
*	27,737	86	Pervious
	57,979	92	Weighted Average
	27,737	86	47.84% Pervious Area
	30,242	98	52.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 200: Post-developed Onsite Detained

Hydrograph



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Type IA 24-hr 25-YR Rainfall=4.00"

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Summary for Subcatchment 201: Undetained Development

Runoff = 0.41 cfs @ 7.89 hrs, Volume= 5,961 cf, Depth= 3.38"

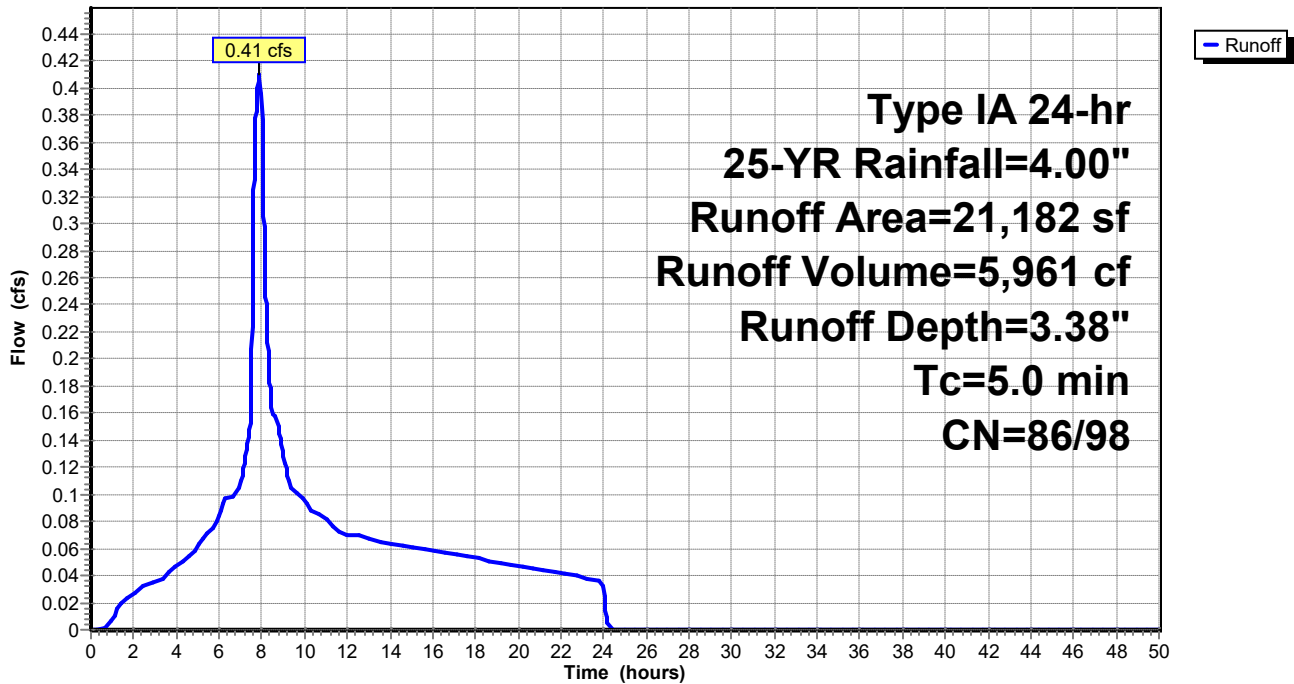
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=4.00"

	Area (sf)	CN	Description
*	14,434	98	Impervious
*	6,748	86	Pervious
	21,182	94	Weighted Average
	6,748	86	31.86% Pervious Area
	14,434	98	68.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 201: Undetained Development

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr 25-YR Rainfall=4.00"

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Summary for Subcatchment 201a: Upstream

Runoff = 1.75 cfs @ 7.91 hrs, Volume= 25,433 cf, Depth= 3.04"

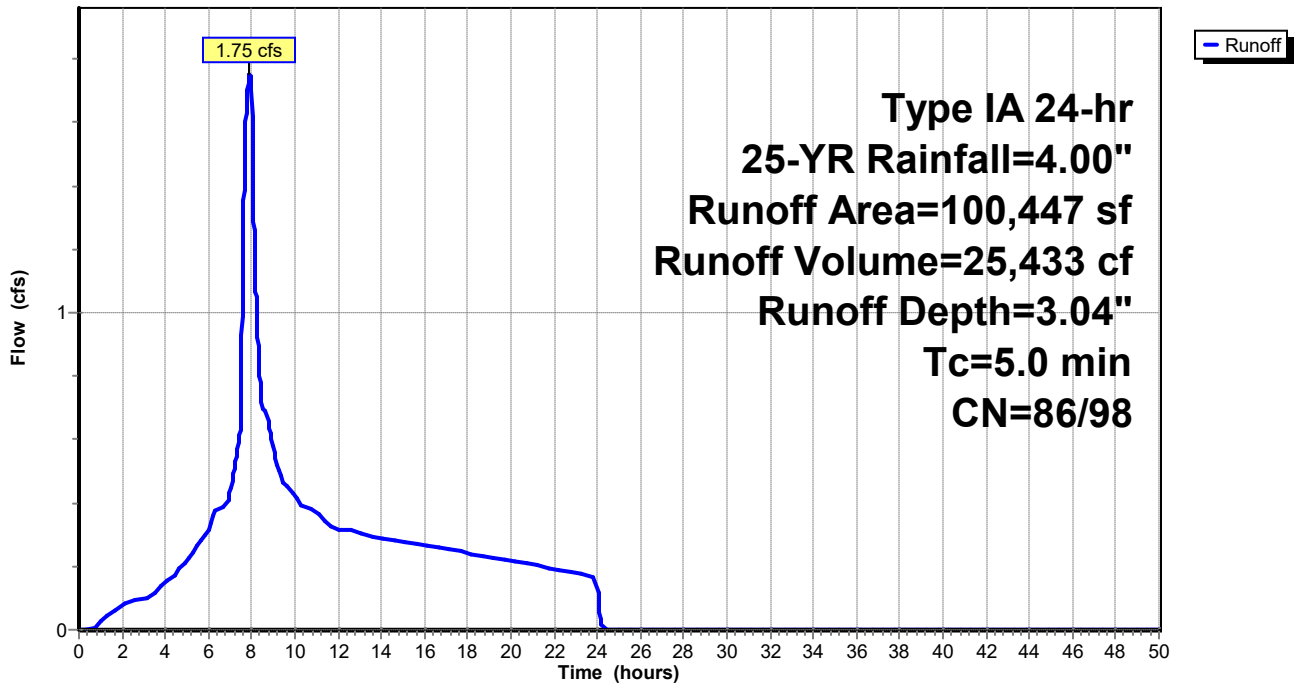
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=4.00"

	Area (sf)	CN	Description
*	40,551	98	Impervious
*	59,896	86	Pervious
	100,447	91	Weighted Average
	59,896	86	59.63% Pervious Area
	40,551	98	40.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 201a: Upstream

Hydrograph



0780-003 HydroCAD Detention & WQ

Type IA 24-hr 25-YR Rainfall=4.00"

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Summary for Subcatchment 201b: Upstream

Runoff = 1.75 cfs @ 7.91 hrs, Volume= 25,433 cf, Depth= 3.04"

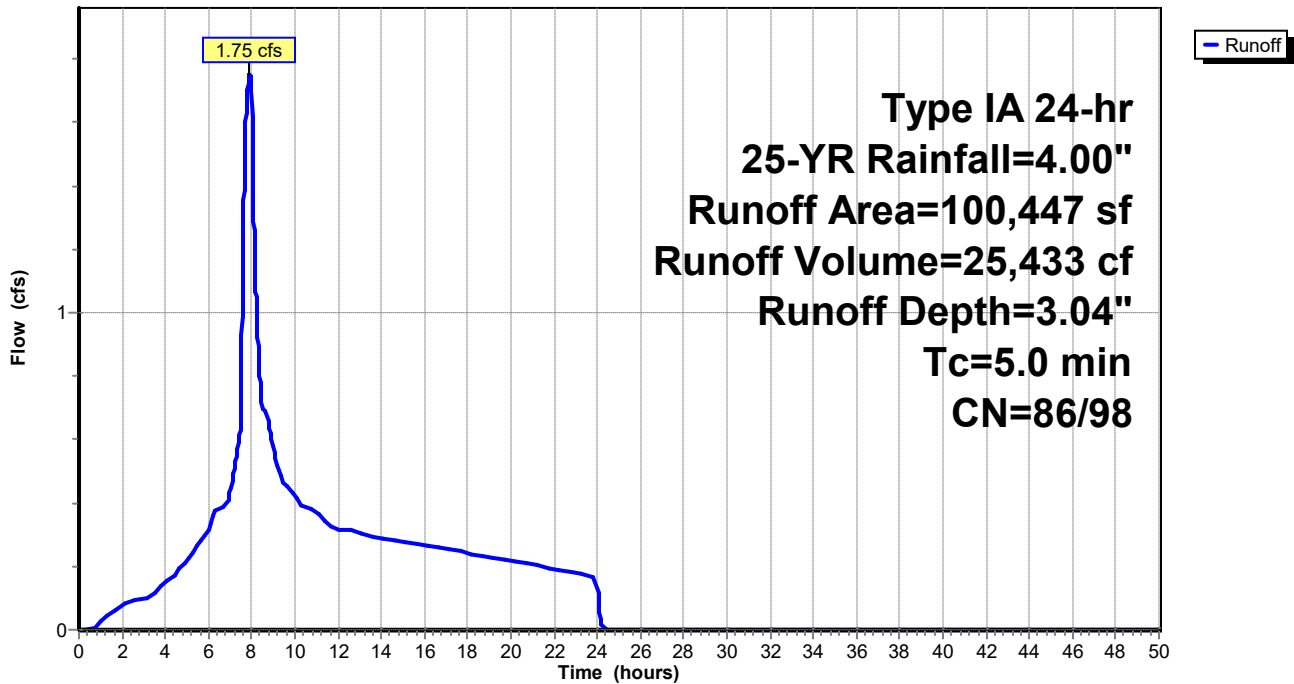
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=4.00"

	Area (sf)	CN	Description
*	40,551	98	Impervious
*	59,896	86	Pervious
	100,447	91	Weighted Average
	59,896	86	59.63% Pervious Area
	40,551	98	40.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 201b: Upstream

Hydrograph



Summary for Pond P1: Onsite Pond

Inflow Area = 158,426 sf, 44.69% Impervious, Inflow Depth = 3.09" for 25-YR event
 Inflow = 2.81 cfs @ 7.90 hrs, Volume= 40,807 cf
 Outflow = 1.56 cfs @ 8.24 hrs, Volume= 40,807 cf, Atten= 44%, Lag= 20.2 min
 Primary = 1.56 cfs @ 8.24 hrs, Volume= 40,807 cf

Routing by Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
 Peak Elev= 202.98' @ 8.24 hrs Surf.Area= 1,684 sf Storage= 4,916 cf

Plug-Flow detention time= 47.7 min calculated for 40,799 cf (100% of inflow)
 Center-of-Mass det. time= 47.8 min (752.7 - 705.0)

Volume	Invert	Avail.Storage	Storage Description
#1	199.70'	6,697 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
199.70	1,301	0	0
200.00	1,339	396	396
201.00	1,462	1,401	1,797
202.00	1,577	1,520	3,316
203.00	1,686	1,632	4,948
203.50	1,750	859	5,807
204.00	1,813	891	6,697

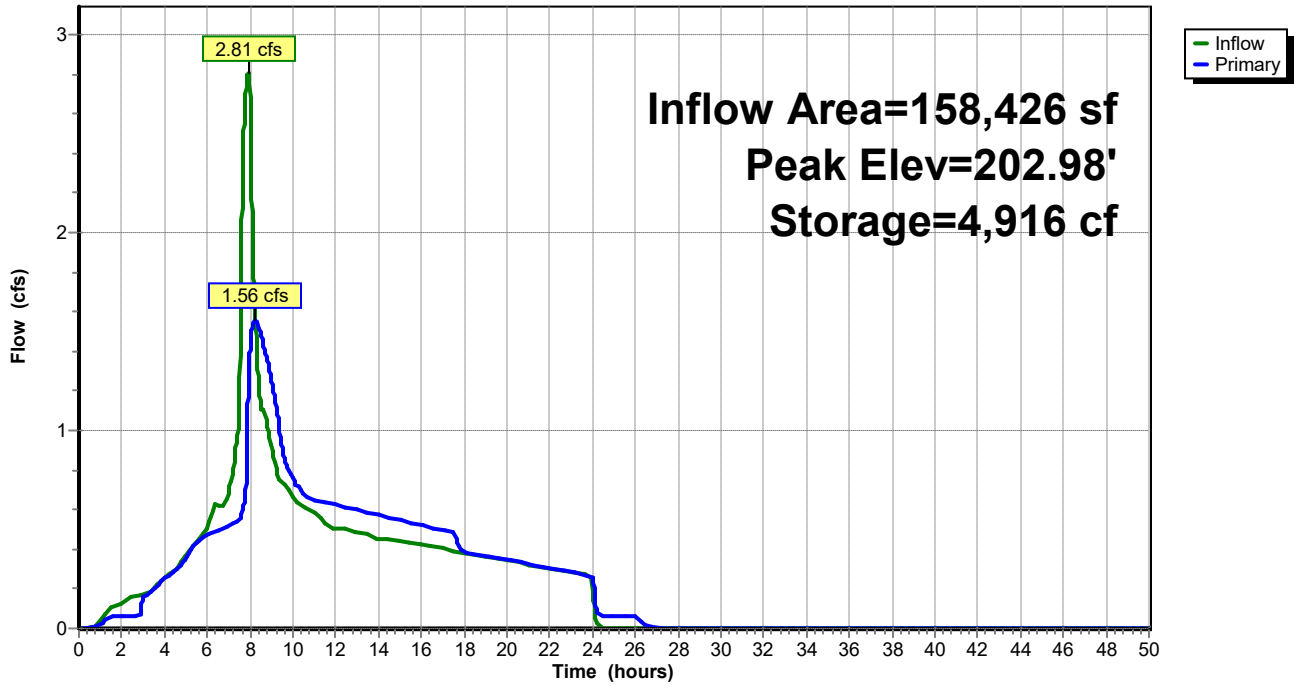
Device	Routing	Invert	Outlet Devices
#1	Primary	197.70'	12.0" Round Outlet Pipe L= 40.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 197.70' / 197.50' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	198.00'	3.3" Vert. Low Orifice C= 0.620
#3	Device 2	200.05'	24.0" x 24.0" Horiz. Low Grate Inlet C= 0.620 Limited to weir flow at low heads
#4	Device 1	201.85'	5.7" Vert. High Orifice C= 0.620
#5	Device 1	199.70'	2.000 in/hr Growing Media Infiltration over Surface area above 197.70' Excluded Surface area = 0 sf

Primary OutFlow Max=1.56 cfs @ 8.24 hrs HW=202.98' (Free Discharge)

- 1=Outlet Pipe (Passes 1.56 cfs of 8.04 cfs potential flow)
- 2=Low Orifice (Orifice Controls 0.65 cfs @ 10.95 fps)
- 3=Low Grate Inlet (Passes 0.65 cfs of 34.08 cfs potential flow)
- 4=High Orifice (Orifice Controls 0.83 cfs @ 4.70 fps)
- 5=Growing Media Infiltration (Exfiltration Controls 0.08 cfs)

Pond P1: Onsite Pond

Hydrograph



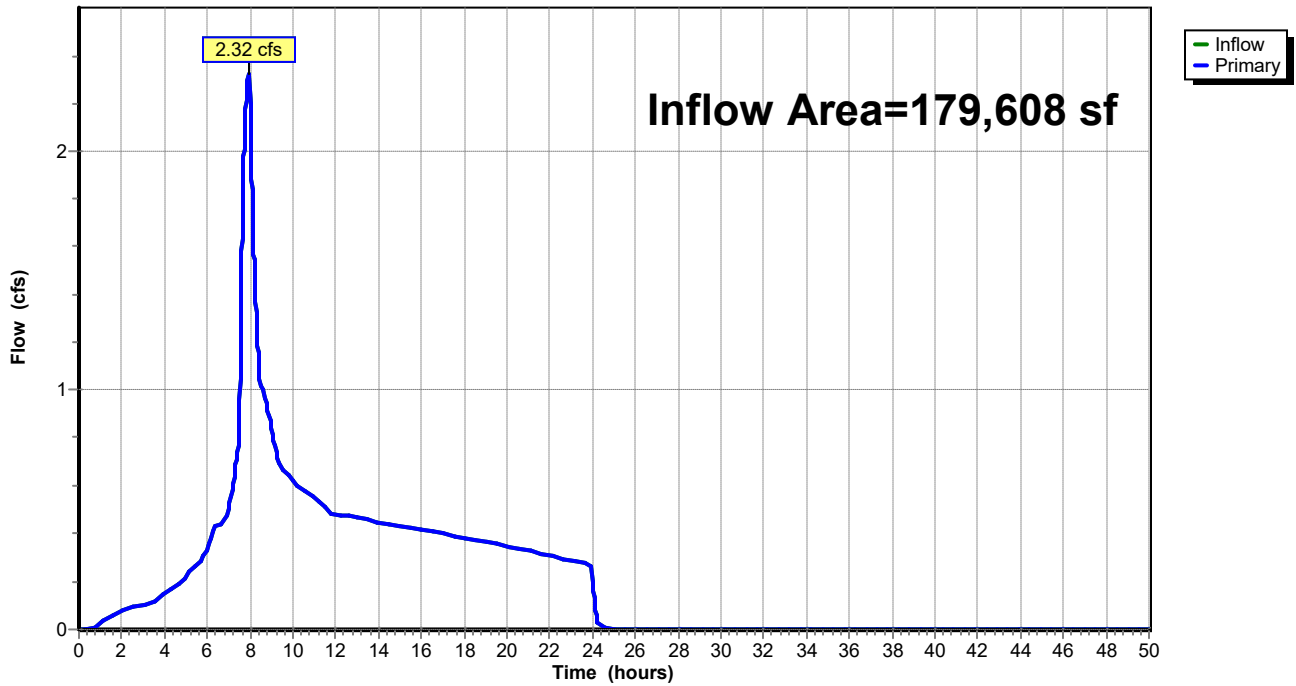
Summary for Link L1: Pre-Developed and Offsite Flows

Inflow Area = 179,608 sf, 22.73% Impervious, Inflow Depth = 2.41" for 25-YR event
Inflow = 2.32 cfs @ 7.95 hrs, Volume= 36,012 cf
Primary = 2.32 cfs @ 7.95 hrs, Volume= 36,012 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

Link L1: Pre-Developed and Offsite Flows

Hydrograph



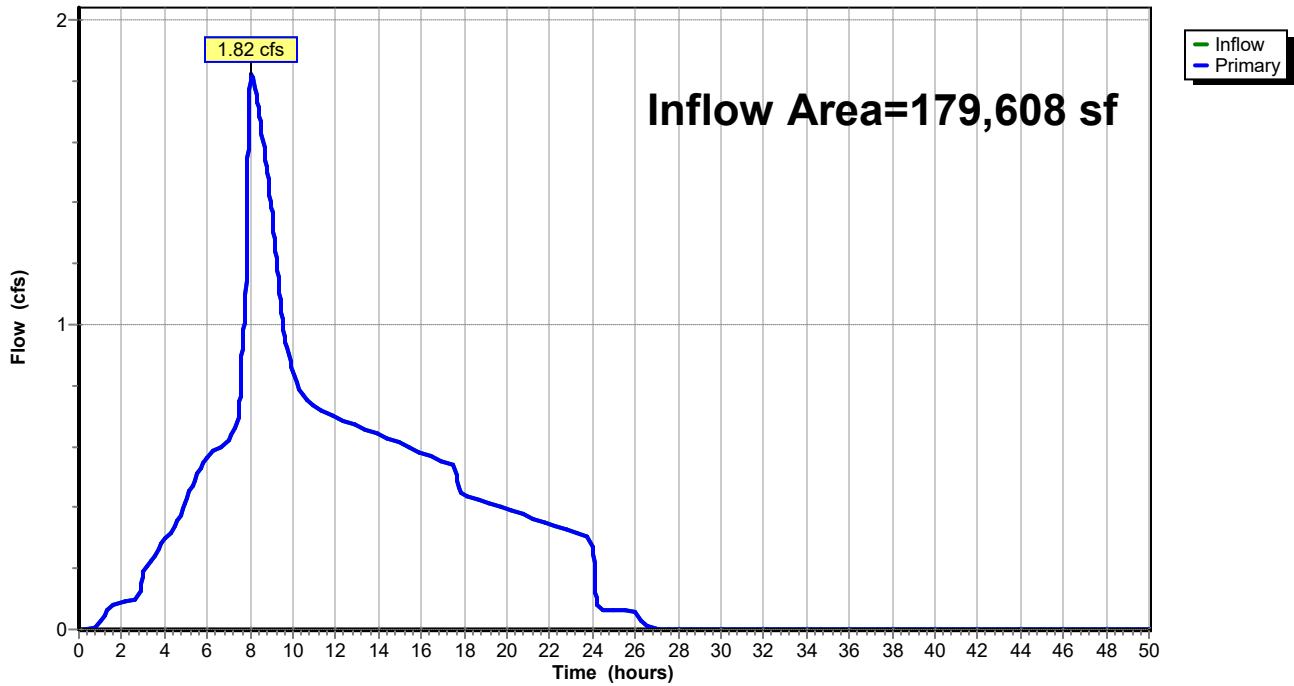
Summary for Link L2: Post-Developed and Offsite Flows

Inflow Area = 179,608 sf, 47.45% Impervious, Inflow Depth = 3.12" for 25-YR event
Inflow = 1.82 cfs @ 8.07 hrs, Volume= 46,768 cf
Primary = 1.82 cfs @ 8.07 hrs, Volume= 46,768 cf, Atten= 0%, Lag= 0.0 min

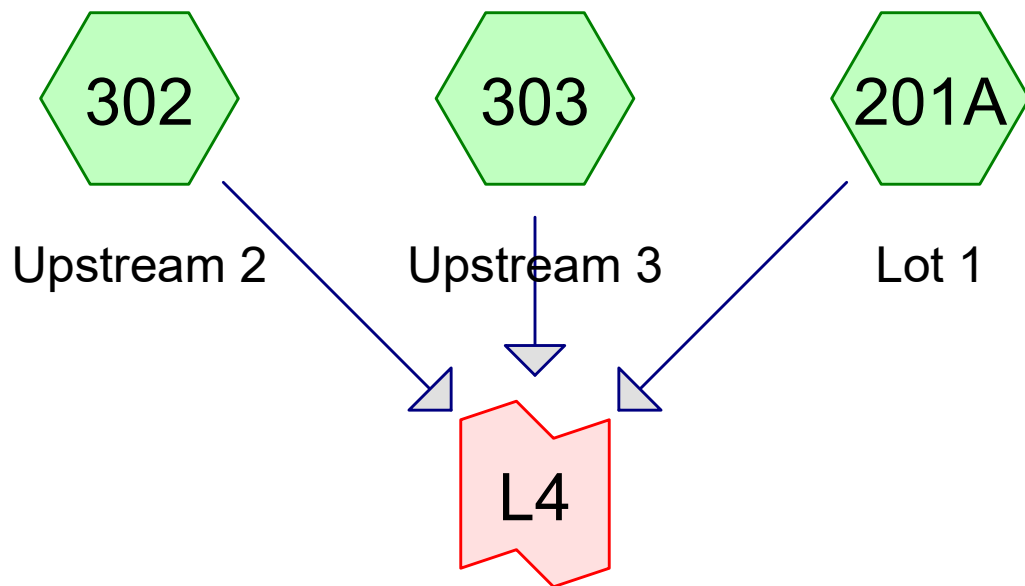
Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

Link L2: Post-Developed and Offsite Flows

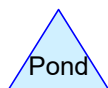
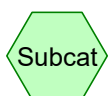
Hydrograph



	Project:	Myrtlewood Subdivision Bypass Analysis													
	Project:	Conveyance Calculations													
	Date:	8/24/2021													
	Calc'd By:	Evans													
									Pipe Information and Calculations						
Segment	Design Section	Q (Calc'd)	"Q"	Pipe Dia. (inch) "D"	Pipe Dia. (ft) "D"	Manning's number "n"	Slope "S" %	Slope "S"	Area Full (Calc'd) "Af"	Wetted Perimeter (Calc'd) "WPF"	Hydraulic Radius (Calc'd) "Rf"	Velocity Full (Calc'd) "Vf"	Flow Rate Full (Calc'd) "Qf"	% Pipe Capacity Used (Calc'd) "Q/Qf"	
Bypass Pipes #1-3	Onsite	70.30		42	3.50	0.013	0.56	0.0056	9.621	10.996	0.875	7.846	75.492	93.1%	
Bypass Pipe #4	Onsite	77.90		42	3.50	0.013	0.60	0.0060	9.621	10.996	0.875	8.122	78.142	99.7%	
Bypass Culverts #1-3	Crater Lane	25.97		27	2.25	0.013	0.87	0.0087	3.976	7.069	0.563	7.285	28.965	89.6%	



Triple Culvert Bypass



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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
2,264,160	98	Impervious (201A, 302, 303)
3,625,487	86	Pervious (302, 303)
5,889,647	91	TOTAL AREA

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Type IA 24-hr 25-YR Rainfall=4.00"

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Summary for Subcatchment 201A: Lot 1

Runoff = 0.06 cfs @ 7.88 hrs, Volume= 903 cf, Depth= 3.77"

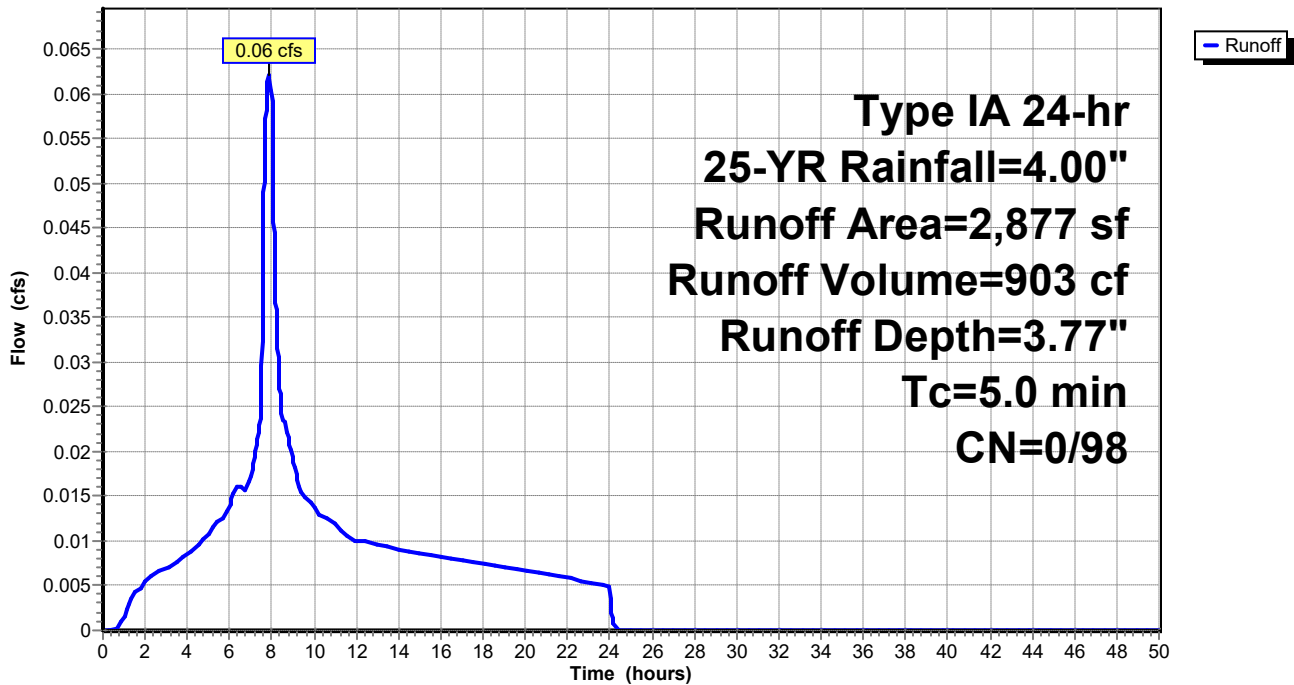
Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=4.00"

Area (sf)	CN	Description
* 2,877	98	Impervious
2,877	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment 201A: Lot 1

Hydrograph



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Type IA 24-hr 25-YR Rainfall=4.00"

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Page 4

Summary for Subcatchment 302: Upstream 2

Runoff = 7.69 cfs @ 7.94 hrs, Volume= 113,829 cf, Depth= 3.18"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=4.00"

	Area (sf)	CN	Description
*	223,598	98	Impervious
*	205,821	86	Pervious
	429,419	92	Weighted Average
	205,821	86	47.93% Pervious Area
	223,598	98	52.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	100	0.0206	1.23		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.50"
0.8	143	0.0206	2.91		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.1	57	0.0200	6.42	5.04	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.7	217	0.0140	5.37	4.22	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
3.0	382	0.0022	2.13	1.67	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.3	54	0.0050	3.21	2.52	Pipe Channel, 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013
0.1	28	0.0050	3.72	4.57	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.6	132	0.0050	3.72	4.57	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
7.0	1,113	Total			

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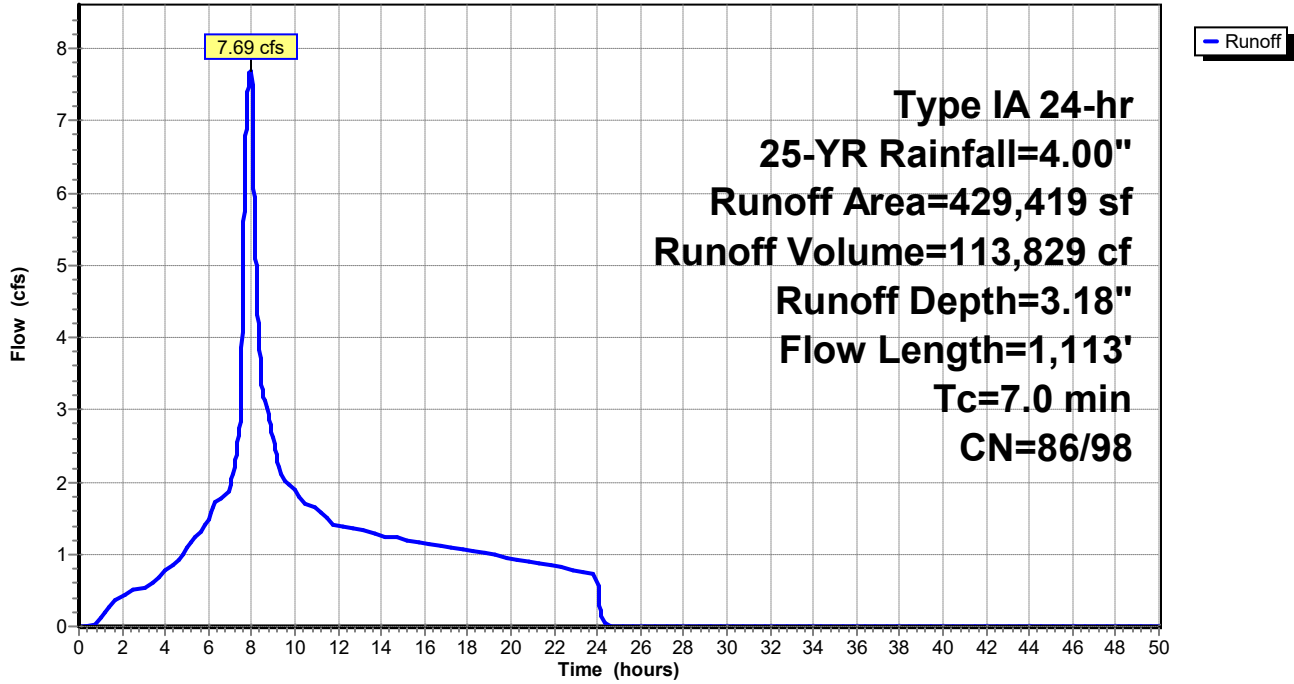
Type IA 24-hr 25-YR Rainfall=4.00"

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Subcatchment 302: Upstream 2

Hydrograph



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Summary for Subcatchment 303: Upstream 3

Runoff = 70.30 cfs @ 8.01 hrs, Volume= 1,364,968 cf, Depth= 3.00"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-50.00 hrs, dt= 0.01 hrs
Type IA 24-hr 25-YR Rainfall=4.00"

	Area (sf)	CN	Description
*	2,037,685	98	Impervious
*	3,419,666	86	Pervious
	5,457,351	90	Weighted Average
	3,419,666	86	62.66% Pervious Area
	2,037,685	98	37.34% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.7	100	0.1710	0.35		Sheet Flow, Grass: Short n= 0.150 P2= 2.50"
6.0	1,035	0.1710	2.89		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.8	2,328	0.0468	4.39		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.6	359	0.0307	10.42	18.41	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.1	35	0.0089	4.97	6.09	Pipe Channel, 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013
0.1	28	0.0152	6.78	9.46	Pipe Channel, 16.0" Round Area= 1.4 sf Perim= 4.2' r= 0.33' n= 0.013
0.2	61	0.0152	6.78	9.46	Pipe Channel, 16.0" Round Area= 1.4 sf Perim= 4.2' r= 0.33' n= 0.013
0.5	239	0.0150	7.28	12.87	Pipe Channel, 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.2	114	0.0150	9.54	37.93	Pipe Channel, 27.0" Round Area= 4.0 sf Perim= 7.1' r= 0.56' n= 0.013
0.6	323	0.0150	8.82	27.71	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.2	129	0.0150	8.82	27.71	Pipe Channel, 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013
0.4	159	0.0080	6.97	27.70	Pipe Channel, 27.0" Round Area= 4.0 sf Perim= 7.1' r= 0.56' n= 0.013
0.3	139	0.0100	8.36	41.02	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.1	63	0.0100	8.36	41.02	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.3	118	0.0100	7.79	30.97	Pipe Channel, 27.0" Round Area= 4.0 sf Perim= 7.1' r= 0.56' n= 0.013
0.3	134	0.0100	7.79	30.97	Pipe Channel, 27.0" Round Area= 4.0 sf Perim= 7.1' r= 0.56' n= 0.013
0.4	199	0.0100	8.36	41.02	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.3	133	0.0100	8.36	41.02	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63'

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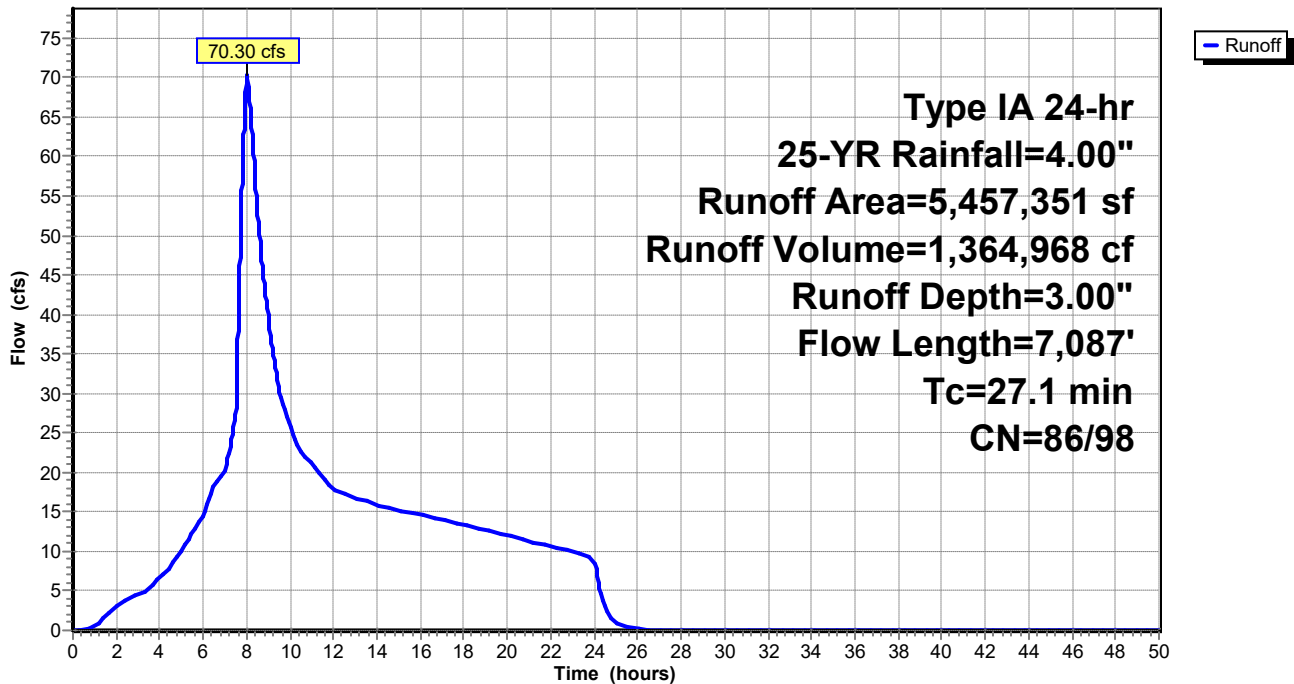
n= 0.013

0.2	128	0.0239	12.92	63.41	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.6	205	0.0050	5.91	29.00	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.3	164	0.0128	9.45	46.41	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.7	297	0.0081	7.52	36.92	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.3	132	0.0086	7.75	38.04	Pipe Channel, 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.013
0.4	222	0.0083	8.60	60.77	Pipe Channel, 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.013
0.5	243	0.0078	8.33	58.91	Pipe Channel, 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.013

27.1 7,087 Total

Subcatchment 303: Upstream 3

Hydrograph



0780-003 Conveyance Check

Prepared by Emerio Design LLC

HydroCAD® 10.00-24 s/n 04804 © 2018 HydroCAD Software Solutions LLC

Type IA 24-hr 25-YR Rainfall=4.00"

Printed 8/24/2021

Page 9

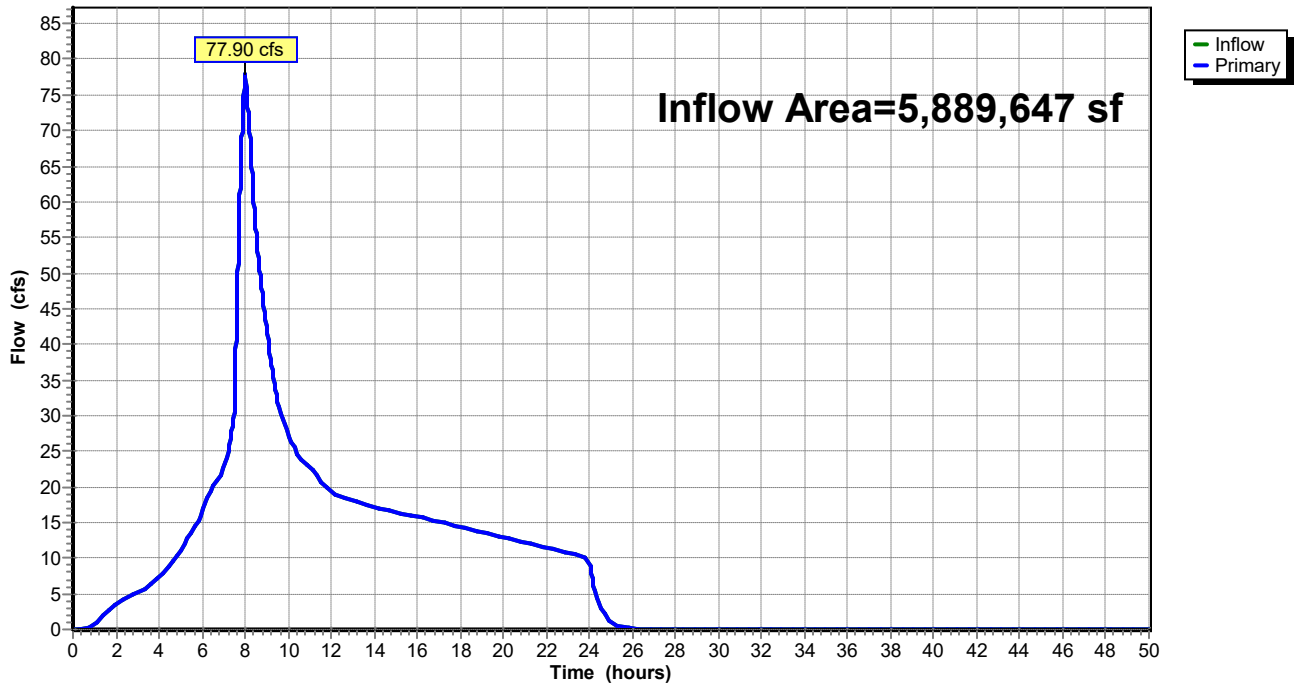
Summary for Link L4: Triple Culvert Bypass

Inflow Area = 5,889,647 sf, 38.44% Impervious, Inflow Depth = 3.01" for 25-YR event
Inflow = 77.90 cfs @ 8.01 hrs, Volume= 1,479,701 cf
Primary = 77.90 cfs @ 8.01 hrs, Volume= 1,479,701 cf, Atten= 0%, Lag= 0.0 min

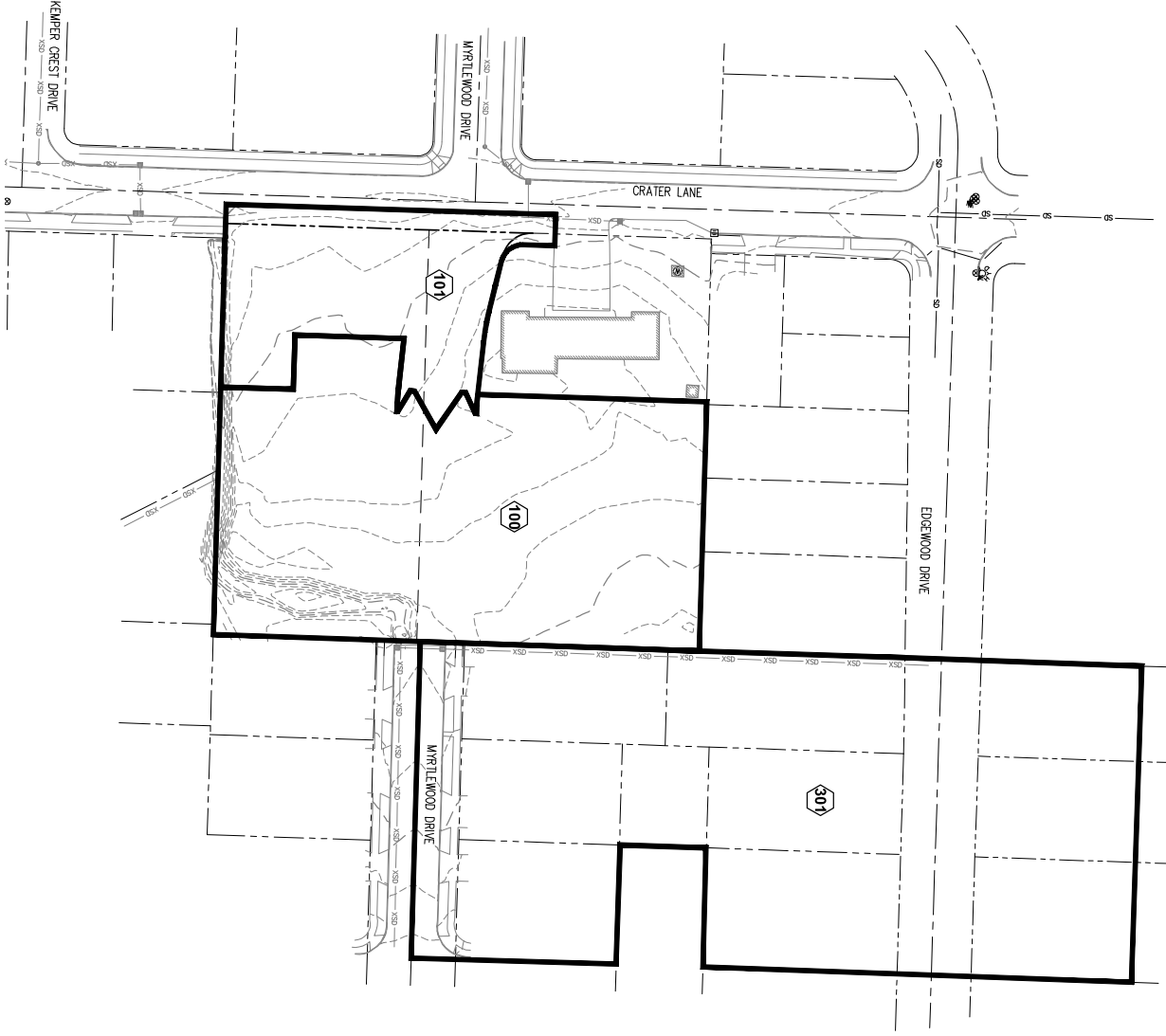
Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.01 hrs

Link L4: Triple Culvert Bypass

Hydrograph



Appendix D:



SHEET
1
3

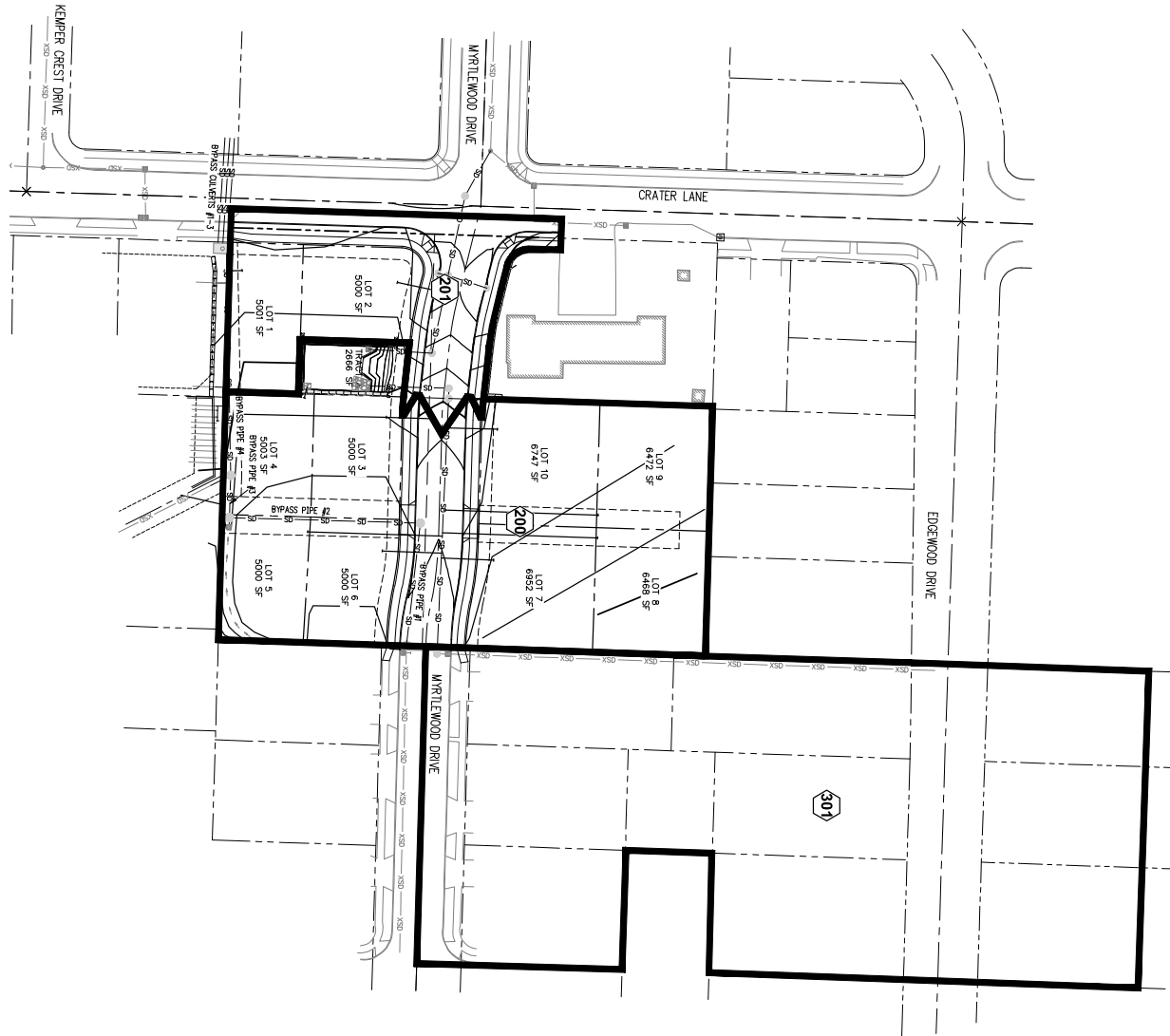
EMERIO
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BEAVERTON, OREGON 97008
TEL: (503) 746-8812
FAX: (503) 834-8992
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REVISIONS	
NO.	DESCRIPTION

**PRE-DEVELOPED BASIN
MAP**

MYRTLEWOOD SUBDIVISION
A 10 LOT SUBDIVISION OF
ADJUSTED TAX LOT 3202
TAX MAP 3 2 07
CITY OF NEWBERG, OREGON



SHEET
2
OF
3

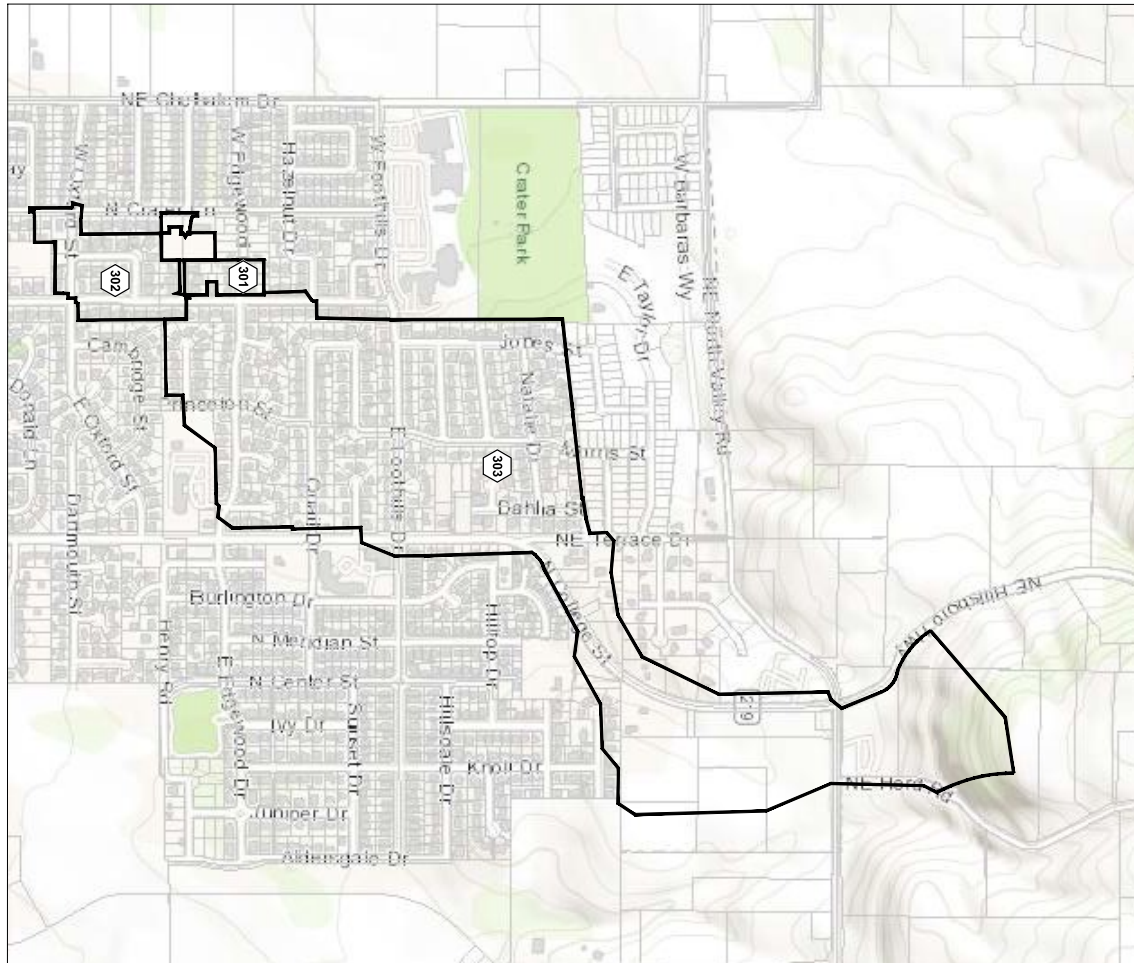
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REVISIONS		
NO.	DATE	DESCRIPTION

**POST-DEVELOPED
TREATMENT BASIN MAP**

MYRTLEWOOD SUBDIVISION
A 10 LOT SUBDIVISION OF
ADJUSTED TAX LOT 3202
TAX MAP 3 2 07
CITY OF NEWBERG, OREGON



SHEET
3
OF
3

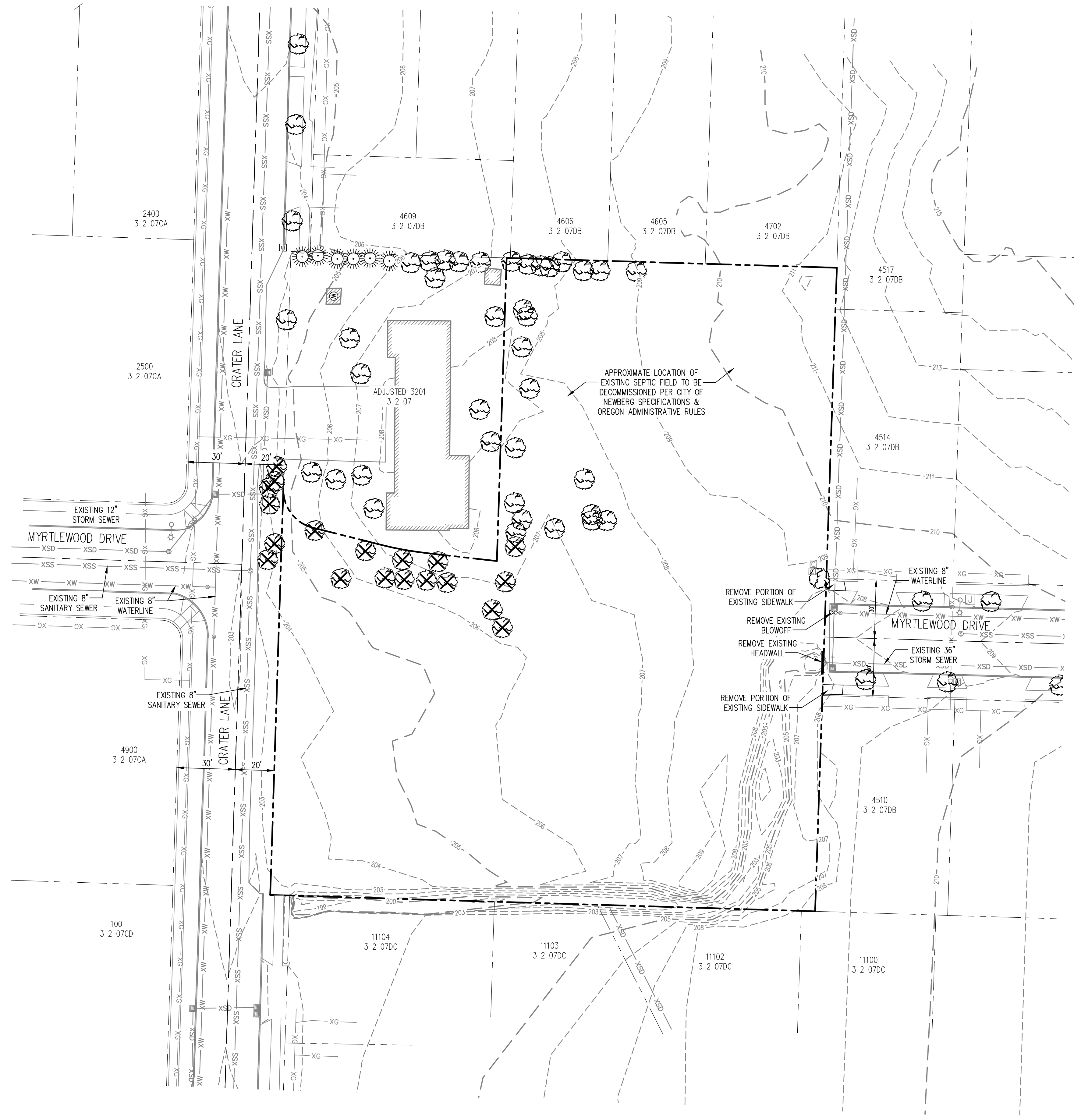
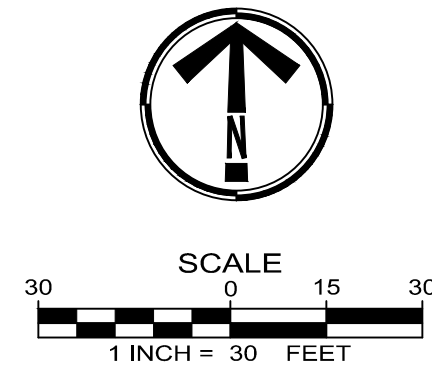
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REVISIONS	
NO.	DESCRIPTION

UPSTREAM BASIN MAP

MYRTLEWOOD SUBDIVISION
A 10 LOT SUBDIVISION OF
ADJUSTED TAX LOT 3202
TAX MAP 3 2 07
CITY OF NEWBERG, OREGON



EXISTING CONDITIONS &
PRELIMINARY DEMOLITION PLAN
SCALE: 1" = 30'

MYRTLEWOOD SUBDIVISION
A 10 LOT SUBDIVISION OF
ADJUSTED TAX LOT 3202
TAX MAP 3 2 07
CITY OF NEWBERG, OREGON

PRELIMINARY PLAT
EXISTING CONDITIONS &
PRELIMINARY
DEMOLITION PLAN

NO.	DATE	DESCRIPTION

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First American

First American Title Insurance Company

775 NE Evans Street
McMinnville, OR 97128
Phn - (503)376-7363
Fax - (866)800-7294

**PUBLIC RECORD REPORT
FOR NEW SUBDIVISION OR LAND PARTITION**

THIS REPORT IS ISSUED BY THE ABOVE-NAMED COMPANY ("THE COMPANY") FOR THE EXCLUSIVE USE OF:

Steve Edelman
16869 Southwest 65th Avenue, Suite 115
Lake Oswego, OR 97035
Phone: (503)473-8870
Fax: (503)473-8872

Date Prepared : August 18, 2021
Effective Date : 8:00 A.M on August 16, 2021
Order No. : 1039-3806661
Subdivision : **CRATER LANE PROJECT**

The information contained in this report is furnished by First American Title Insurance Company (the "Company") as an information service based on the records and indices maintained by the Company for the county identified below. This report is not title insurance, is not a preliminary title report for title insurance, and is not a commitment for title insurance. No examination has been made of the Company's records, other than as specifically set forth in this report. Liability for any loss arising from errors and/or omissions is limited to the lesser of the fee paid or the actual loss to the Customer, and the Company will have no greater liability by reason of this report. This report is subject to the Definitions, Conditions and Stipulations contained in it.

REPORT

- A. The Land referred to in this report is located in the County of Yamhill, State of Oregon, and is described as follows:

As fully set forth on Exhibit "A" attached hereto and by this reference made a part hereof.

- B. As of the Effective Date, the tax account and map references pertinent to the Land are as follows:

As fully set forth on Exhibit "A" attached hereto and by this reference made a part hereof.

- C. As of the Effective Date and according to the Public Records, we find title to the land apparently vested in:

As fully set forth on Exhibit "B" attached hereto and by this reference made a part hereof

- D. As of the Effective Date and according to the Public Records, the Land is subject to the following liens and encumbrances, which are not necessarily shown in the order of priority:

As fully set forth on Exhibit "C" attached hereto and by this reference made a part hereof.

EXHIBIT "A"
(Land Description Map Tax and Account)

A portion of that tract of land conveyed to Linda Jean Hamlett Living Trust by Deed recorded as Document No. 200917448, Yamhill County Deed Records, being situated in the Southeast Quarter of Section 7, Township 3 South, Range 2 West of the Willamette Meridian, City of Newberg, County of Yamhill, State of Oregon, being more particularly described as follows:

Beginning at the Southwest corner of said Hamlett tract being on the Easterly right of way line of Crater Lane (20.0 feet from centerline); thence along said Easterly right of way line, North 01°50'32" East, 208.50 feet; thence 27.15 feet on the arc of a nontangent 20.00 foot radius curve (the radius point bears South 88°09'28" East) through a central angle of 77°47'31": (the chord bears South 37°03'13" East, 25.12 feet); thence South 75°56'59" East, 36.76 feet to a point of curvature; thence 22.95 feet on the arc of a 173.00 foot radius curve to the left through a central angle of 07°36'05" (the chord bears South 79°45'01" East, 22.93 feet); thence South 83°33'03" East, 36.39 feet; thence North 01°50'32" East, 155.56 feet to the Northerly line of said Hamlett tract, also being the Southerly line of the Plat of EDGEWOOD ESTATES; thence along said Southerly plat line and its Easterly extension, South 88°17'44" East, 169.38 feet to the Northeast corner of said Hamlett tract on the Westerly line of the Plat of THE MEADOWS NO. 4; thence along said Westerly plat line, South 01°56'04" West, 330.26 feet to the Southeast corner of said Hamlett tract on the Northerly line of the Plat of COTTONWOOD MEADOWS NO. 2; thence along said Northerly plat line, North 88°16'45" West, 279.51 feet to the Point of Beginning.

Map No.: R3207 03202
Tax Account No.: 428451

EXHIBIT "B"
(Vesting)

Greenwing Restorations, LLC, an Oregon limited liability company

EXHIBIT "C"
(Liens and Encumbrances)

1. Taxes for the fiscal year 2021-2022 a lien due, but not yet payable.
2. City liens, if any, of the City of Newberg.
3. The rights of the public in and to that portion of the premises herein described lying within the limits of streets, roads and highways.
4. Line of Credit Trust Deed, including the terms and provisions thereof, given to secure an indebtedness of up to [REDACTED]
Grantor: Greenwing Restorations, LLC, an Oregon limited liability company
Beneficiary: Transpacific dk Investments 1, LLC, an Oregon limited liability company
Trustee: WFG National Title Insurance Company
Dated: July 20, 2021
Recorded: July 21, 2021
Recording Information: Instrument No. 202115021, Deed and Mortgage Records
5. Any conveyance or encumbrance by Greenwing Restorations, LLC should be executed pursuant to their Operating Agreement , a copy of which should be submitted to this office for inspection.
6. Unrecorded leases or periodic tenancies, if any.

NOTE: Taxes for the year 2020-2021 PAID IN FULL

Tax Amount:	\$1,252.86
Map No.:	
Property ID:	428451
Tax Code No.:	29.0

DEFINITIONS, CONDITIONS AND STIPULATIONS

1. **Definitions.** The following terms have the stated meaning when used in this report:
 - (a) "Customer": The person or persons named or shown as the addressee of this report.
 - (b) "Effective Date": The effective date stated in this report.
 - (c) "Land": The land specifically described in this report and improvements affixed thereto which by law constitute real property.
 - (d) "Public Records": Those records which by the laws of the state of Oregon impart constructive notice of matters relating to the Land.

2. **Liability of the Company.**
 - (a) THIS REPORT IS NOT AN INSURED PRODUCT OR SERVICE OR A REPRESENTATION OF THE CONDITION OF TITLE TO REAL PROPERTY. IT IS NOT AN ABSTRACT, LEGAL OPINION, OPINION OF TITLE, TITLE INSURANCE COMMITMENT OR PRELIMINARY REPORT, OR ANY FORM OF TITLE INSURANCE OR GUARANTY. THIS REPORT IS ISSUED EXCLUSIVELY FOR THE BENEFIT OF THE APPLICANT THEREFOR, AND MAY NOT BE USED OR RELIED UPON BY ANY OTHER PERSON. THIS REPORT MAY NOT BE REPRODUCED IN ANY MANNER WITHOUT FIRST AMERICAN'S PRIOR WRITTEN CONSENT. FIRST AMERICAN DOES NOT REPRESENT OR WARRANT THAT THE INFORMATION HEREIN IS COMPLETE OR FREE FROM ERROR, AND THE INFORMATION HEREIN IS PROVIDED WITHOUT ANY WARRANTIES OF ANY KIND, AS-IS, AND WITH ALL FAULTS. AS A MATERIAL PART OF THE CONSIDERATION GIVEN IN EXCHANGE FOR THE ISSUANCE OF THIS REPORT, RECIPIENT AGREES THAT FIRST AMERICAN'S SOLE LIABILITY FOR ANY LOSS OR DAMAGE CAUSED BY AN ERROR OR OMISSION DUE TO INACCURATE INFORMATION OR NEGLIGENCE IN PREPARING THIS REPORT SHALL BE LIMITED TO THE FEE CHARGED FOR THE REPORT. RECIPIENT ACCEPTS THIS REPORT WITH THIS LIMITATION AND AGREES THAT FIRST AMERICAN WOULD NOT HAVE ISSUED THIS REPORT BUT FOR THE LIMITATION OF LIABILITY DESCRIBED ABOVE. FIRST AMERICAN MAKES NO REPRESENTATION OR WARRANTY AS TO THE LEGALITY OR PROPRIETY OF RECIPIENT'S USE OF THE INFORMATION HEREIN.
 - (b) No costs (including, without limitation attorney fees and other expenses) of defense, or prosecution of any action, is afforded to the Customer.
 - (c) In any event, the Company assumes no liability for loss or damage by reason of the following:
 - (1) Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records.
 - (2) Any facts, rights, interests or claims which are not shown by the Public Records but which could be ascertained by an inspection of the land or by making inquiry of persons in possession thereof.
 - (3) Easements, liens or encumbrances, or claims thereof, which are not shown by the Public Records.
 - (4) Discrepancies, encroachments, shortage in area, conflicts in boundary lines or any other facts which a survey would disclose.
 - (5) (i) Unpatented mining claims; (ii) reservations or exceptions in patents or in Acts authorizing the issuance thereof, (iii) water rights or claims or title to water.
 - (6) Any right, title, interest, estate or easement in land beyond the lines of the area specifically described or referred to in this report, or in abutting streets, roads, avenues, alleys, lanes, ways or waterways.
 - (7) Any law, ordinance or governmental regulation (including but not limited to building and zoning laws, ordinances or regulations) restricting, regulating, prohibiting or relating to (i) the occupancy, use or enjoyment on the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the Public Records at the effective date hereof.
 - (8) Any governmental police power not excluded by 2(d)(7) above, except to the extent that notice of the exercise thereof or a notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the Public Records at the effective date hereof.
 - (9) Defects, liens, encumbrances, adverse claims or other matters created, suffered, assumed, agreed to or actually known by the Customer.

3. **Charge.** The charge for this report does not include supplemental reports, updates or other additional services of the Company.

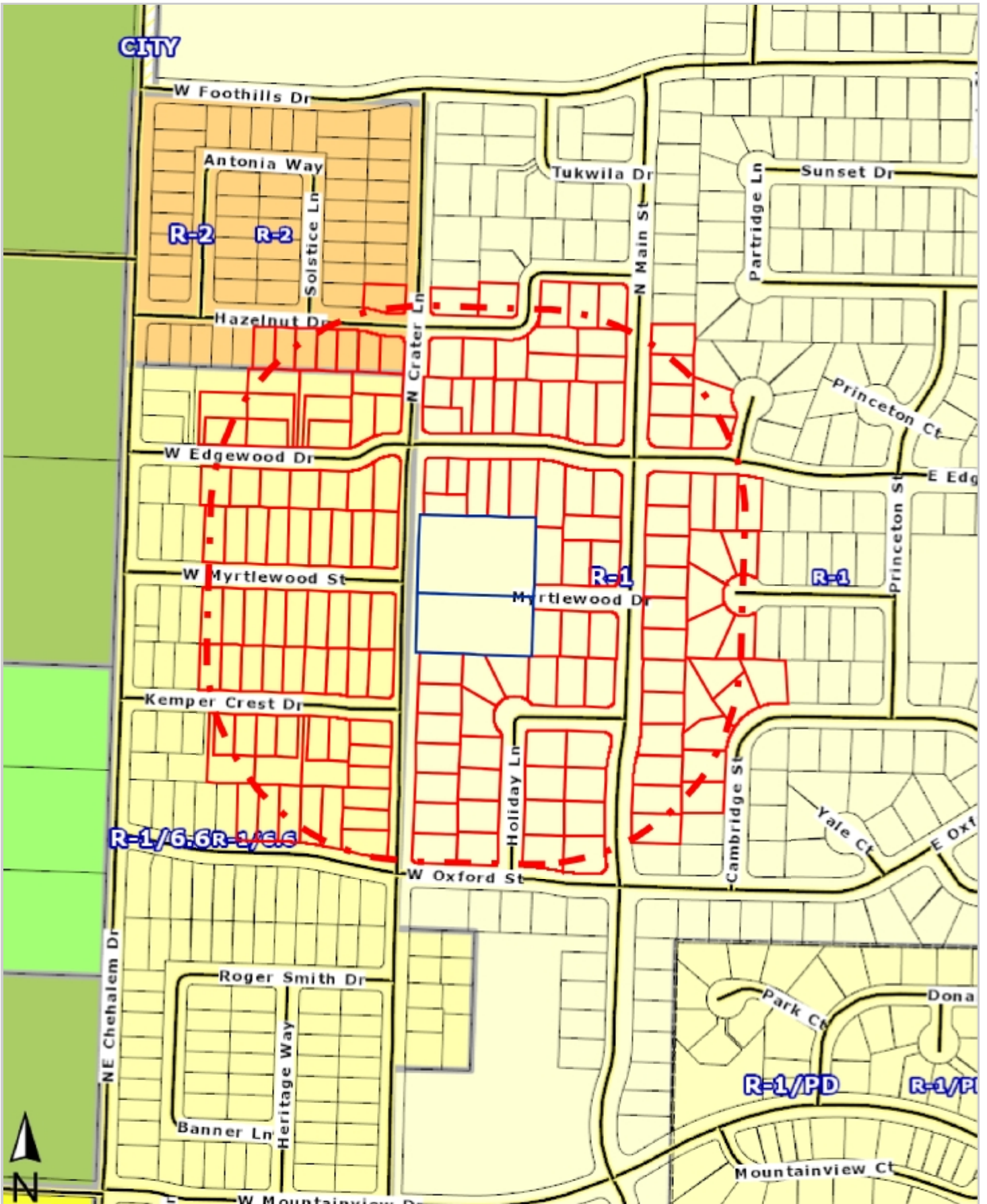


First American

First American Title Insurance Company
775 NE Evans Street
McMinnville, OR 97128

Illegal Restrictive Covenants

Please be advised that any provision contained in this document, or in a document that is attached, linked, or referenced in this document, that under applicable law illegally discriminates against a class of individuals based upon personal characteristics such as race, color, religion, sex, sexual orientation, gender identity, familial status, disability, national origin, or any other legally protected class, is illegal and unenforceable by law.



TICOR TITLE™

This map/plat is being furnished as an aid in locating the herein described land in relation to adjoining streets, natural boundaries and other land, and is not a survey of the land depicted. Except to the extent a policy of title insurance is expressly modified by endorsement, if any, the company does not insure dimensions, distances, location of easements, acreage or other matters shown thereon.

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528390	2.5	1874	6850 440B Birchaven Ln	Newberg		Probst, Brian	Brian	Probst	Probst	97132 320 W Myrtlewood St	Newberg	OR	97132 2005 R-1/6.6
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528392	2.5	1969	6307 305 Hazlett Dr	Newberg		Nix, Jennifer	Jennifer	Nix	Nix	97132 305 Hazlett Dr	Newberg	OR	97132 2009 R-2
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528394	2.5	2060	5013 1776 5th Ave E	Newberg		Miller, Barbara	Barbara	Miller	Barbara	97132 1776 5th Ave E	Newberg	OR	97132 2005 R-2
528395	2.5	2185	5022 312 Hazlett Dr	Newberg		Rosenberry, Timothy	Timothy	Rosenberry	Matthew	97132 312 Hazlett Dr	Newberg	OR	97132 2005 R-2
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528399	2.5	1916	5002 414 Hazlett Dr	Newberg		Gaut, Stefan	Stefan	Gaut	Stefan	97132 414 Hazlett Dr	Newberg	OR	97132 2005 R-2
528400	2.5	2484	5741 311 W Kemper Crest Dr	Newberg		Reed, Frank	Frank	Reed	Jenna	97132 303 Kemper Crest Dr	Newberg	OR	97132 2005 R-1/6.6
528401	2.5	2078	5513 2250 SW Fairview Dr	Newberg		Metzdorf, Renee L	Renee	Metzdorf	Derek	97132 311 Kemper Crest Dr	Newberg	OR	97132 2005 R-1/6.6
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529569	2.5	2483	5501 401 Kemper Crest Dr	Newberg	Becker, Christina D	Bruce	Becker	Christina	Becker	97132 401 Kemper Crest Dr	Newberg	97132 2005 R-1/6.6
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529702	3	2094	5501 PO Box 857	Newberg	Kemper Crest LLC	Kemper Crest LLC	Kemper Crest LLC	Mark	Kemper Crest LLC	97132 412 Kemper Crest Dr	Newberg	97132 2005 R-1/6.6
529705	3	2187	8720 412 Kemper Crest Dr	Newberg	Swenson, Steven M	Swenson	Swenson	Steven	Swenson	97132 412 Kemper Crest Dr	Newberg	97132 2005 R-1/6.6
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529714	2.3	2229	5000 342 Kemper Crest Dr	Newberg	Church Bradley R	Church Vahl A	Church Bradley R	Thomas	Church Bradley R	97132 342 Kemper Crest Dr	Newberg	97132 2005 R-1/6.6
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529720	3	2758	8720 332 Kemper Crest Dr	Newberg	Killen, Lauralee C	Killen	Foster	Lauralee	Foster	97132 332 Kemper Crest Dr	Newberg	97132 2005 R-1/6.6
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529726	2.5	2478	5248 607 N Ironwood Dr	Newberg	Aquila Sylvia J Living Trust	Bates, Shannon L	Bates	Christopher A	Aquila Sylvia J Living Trust	85048 318 Kemper Crest Dr	Newberg	97132 2005 R-1/6.6
529729	2.5	2356	5993 2727 Carter Ln	Newberg	Boerio, Jeffrey P	Bates, Shannon L	Bates	Jeffrey	Boerio	97132 2727 N Carter Ln	Newberg	97132 2005 R-1/6.6
529732	2.5	2478	5157 2711 N Carter Ln	Newberg	Bechtold, Jamie R	Bauer, Kathryn E	Bechtold	Jamie	Bechtold	97132 2711 N Carter Ln	Newberg	97132 2005 R-1/6.6
529735	2.5	2086	5157 2709 N Carter Ln	Newberg	Shrock, David	Shrock, Jill E	Bauer	Nathan	Shrock	97132 2709 N Carter Ln	Newberg	97132 2005 R-1/6.6
529869	2	1731	5861 27 N Carter Ln	Newberg	Chase, Nathan R	Chase, Patricia	Chase	Nathan R	Chase	97132 2709 N Carter Ln	Newberg	97132 2005 R-1/6.6
530875	2.5	2485	6645 2703 N Carter Ln	Newberg	Almquist, Nancy N	Almquist, Nancy	Almquist	Paul	Almquist	97132 323 W Oxford St	Newberg	97132 2005 R-1/6.6
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530987	1.5	2090	6861 345 W Oxford St	Newberg	Roh, Charles	Roh	Roh	Charles	Roh	97132 403 W Oxford St	Newberg	97132 2005 R-1/6.6
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535457	2.5	2610	5548 2990 Carter Ln	Newberg	Key, Robert P	Key, Laura	Key	Robert	Key	97132 2990 N Carter Ln	Newberg	97132 2015 R-1/6.6
535460	2.5	2243	5244 229 W Edgewood Dr	Newberg	Caughlin, Justin	Caughlin, Hillary	Caughlin	Justin	Caughlin	97132 229 W Edgewood Dr	Newberg	97132 2015 R-1/6.6
535463	3	2613	6604 219 W Edgewood Dr	Newberg	Meadows, Benjamin A	Meadows, Cassandra L	Meadows	Benjamin	Meadows	97132 219 W Edgewood Dr	Newberg	97132 2015 R-1/6.6
535466	2.5	2854	6584 209 W Edgewood Dr	Newberg	Keenan, Alyssa E	Keenan, Alyssa R	Keenan	Samuel	Keenan	97132 209 W Edgewood Dr	Newberg	97132 2015 R-1/6.6
535469	3	2613	6917 210 W Edgewood Dr	Newberg	Fulcher, Justin	Fulcher, Kate	Fulcher	Justin	Fulcher	97132 210 W Edgewood Dr	Newberg	97132 2015 R-1/6.6
535472	2.5	2247	6878 220 W Edgewood Dr	Newberg	Edwards, Richard II	Edwards, Amanda	Edwards	Richard	Edwards II	97132 220 W Edgewood Dr	Newberg	97132 2014 R-1/6.6
535475	2.5	2247	4938 230 W Edgewood Dr	Newberg	Roberson, Gregory W	Roberson, Kimberly A	Roberson	Gregory	Roberson	97132 230 W Edgewood Dr	Newberg	97132 2015 R-1/6.6
535478	2.5	2159	4517 8682 SW Holy Ln Apt 503	Newberg	Barnes-Oddson, Matthew	Barnes-Oddson	Barnes-Oddson	Matthew	Barnes-Oddson	97132 240 N Carter Ln	Newberg	97132 2015 R-1/6.6
535481	2	2547	5135 2850 Carter Ln	Newberg	Francis, Brian G	Francis, Camille S	Francis	Brian	Francis	97132 2850 N Carter Ln	Newberg	97132 2015 R-1/6.6

Land Use Notice

FILE # SUB221-0002

PROPOSAL: 10 Lot Residential Subdivision

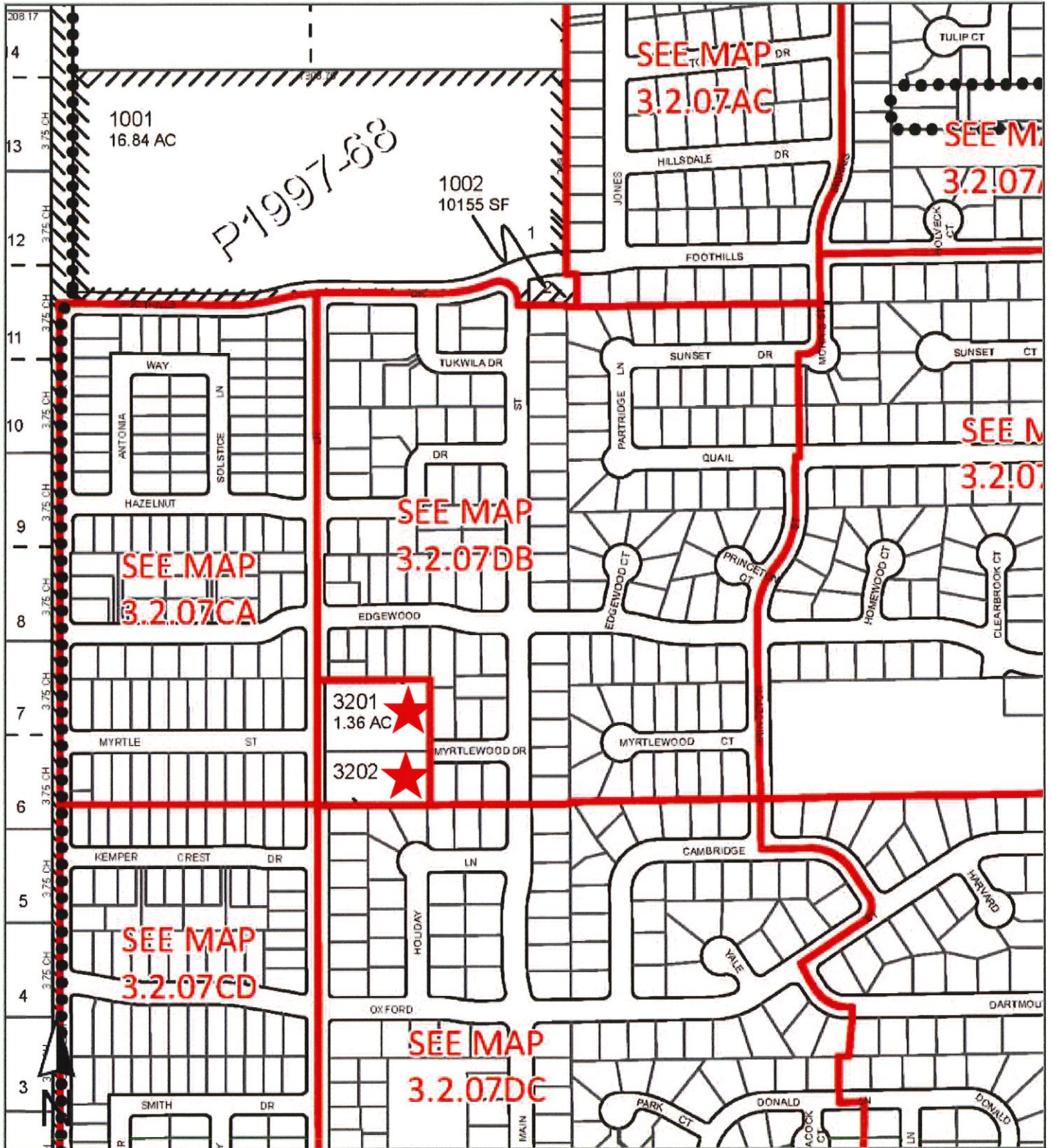
FOR FURTHER INFORMATION, CONTACT:

City of Newberg

Community Development Department

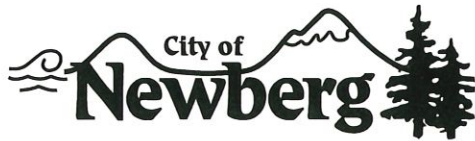
414 E. First Street

Phone: 503-537-1240



ParcelID: 428451
2900 N Crater Ln
Newberg, OR 97132

This map/plot is being furnished as an aid in locating the herein described land in relation to adjoining streets, natural boundaries and other land, and is not a survey of the land depicted. Except to the extent a policy of title insurance is expressly modified by endorsement, if any, the company does not insure dimensions, distances, location of easements, acreage or other matters shown thereon.



Community Development Department

P.O. Box 970 • 414 E First Street • Newberg, Oregon 97132
503-537-1240. Fax 503-537-1272 www.newbergoregon.gov

WE WANT YOUR COMMENTS ON A PROPOSED NEW DEVELOPMENT IN YOUR NEIGHBORHOOD

A property owner in your neighborhood submitted an application to the City of Newberg to subdivide a parcel of land from *one (1)* lot into *ten (10)* separate lots. You are invited to take part in the City's review of this project by sending in your written comments. You also may request that the Planning Commission hold a hearing on the application. For more details about giving comments, please see the back of this sheet.

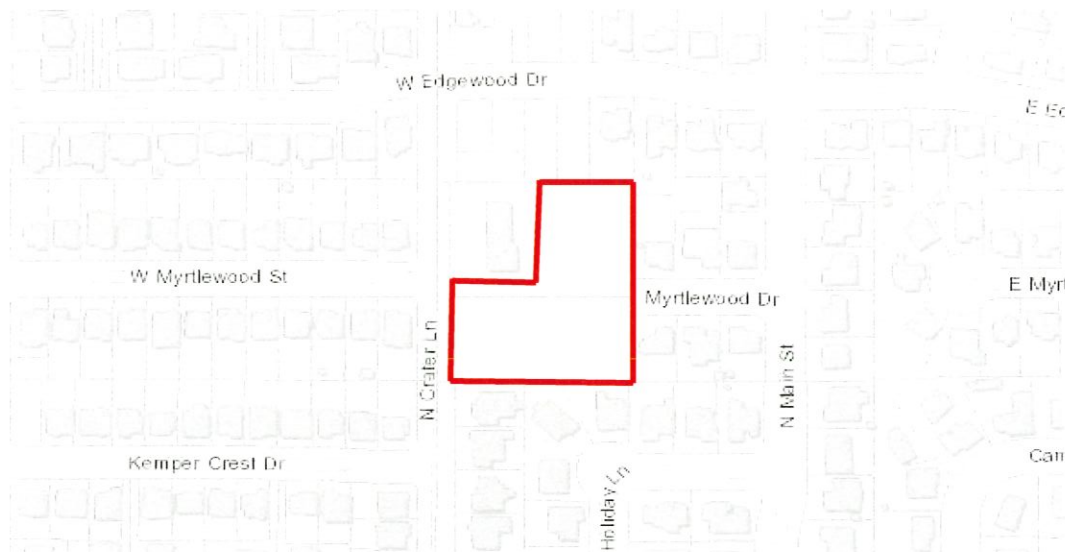
The development would include a 10 Lot residential subdivision in the Low-Density Residential District (R-1) with lots ranging between 4,244 square feet to 5,956 square feet in size, with an average lot size of 5,023 square feet. Myrtlewood Drive will be extended through the site to connect with N Crater Ln. and a stormwater pond will be provided as part of the development. The proposal will be developed pursuant to the applicable criteria of the City of Newberg Municipal Code (NMC) requirements.

APPLICANT: *Emerio Design, LLC – Steve Miller*
TELEPHONE: *(503) 746 - 8812*

PROPERTY OWNER: *Fred L. Sparks and Estate of Linda Jean Hamlett*

LOCATION: *2900 N Crater Ln.*

TAX LOT NUMBER: *Tax Map 3-2-07; Tax Lot 3202*



Working Together For A Better Community-Serious About Service"

<https://www.codepublishing.com/OR/Newberg/#!/Newberg15/Newberg15.html>

We are mailing you information about this project because you own land within 500 feet of the proposed new project. We invite you to send any written comments for or against the proposal within 14 days from the date this notice is mailed. You also may request that the Newberg Planning Commission hold a hearing on the application by sending a written request during this 14-day period and identifying the issues you would like the Planning Commission to address.

If you mail your comments to the City, please put the following information on the outside of the envelope:

Written Comments: File No. SUB221-0002
Newberg Community Development Department
PO Box 970
Newberg, OR 97132

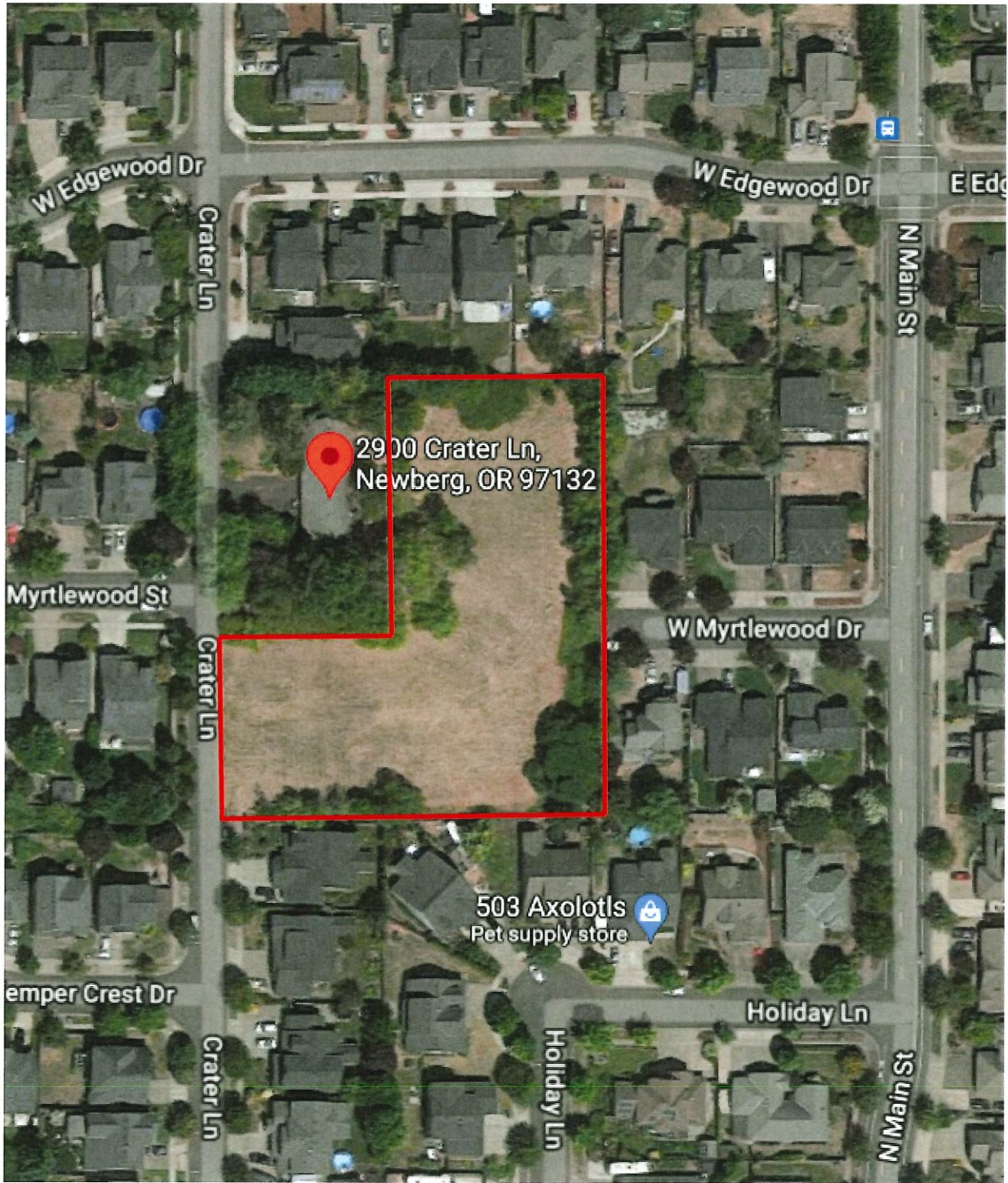
All written comments must be turned in by 4:30 p.m. on XXXX XX, 2021. Any issue which might be raised in an appeal of this case to the Land Use Board of Appeals (LUBA) must be submitted to the City in writing before this date. You must include enough detail to enable the decision maker an opportunity to respond. The applicable criteria used to make a decision on this application for preliminary subdivision plan approval are found in Newberg Development Code 15.235.050(A).

You can look over all the information about this project or drop comments off at Newberg City Hall, 414 E. First Street. You can also buy copies of the information for a cost of 25 cents a page. If you have any questions about the project, you can call the Newberg Planning Division at 503-537-1240.

The Community Development Director will make a decision at the end of a 14-day comment period. If you send in written comments about this project, you will be sent information about any decision made by the City relating to this project.

Date Mailed: **XXXX XX, 2021**

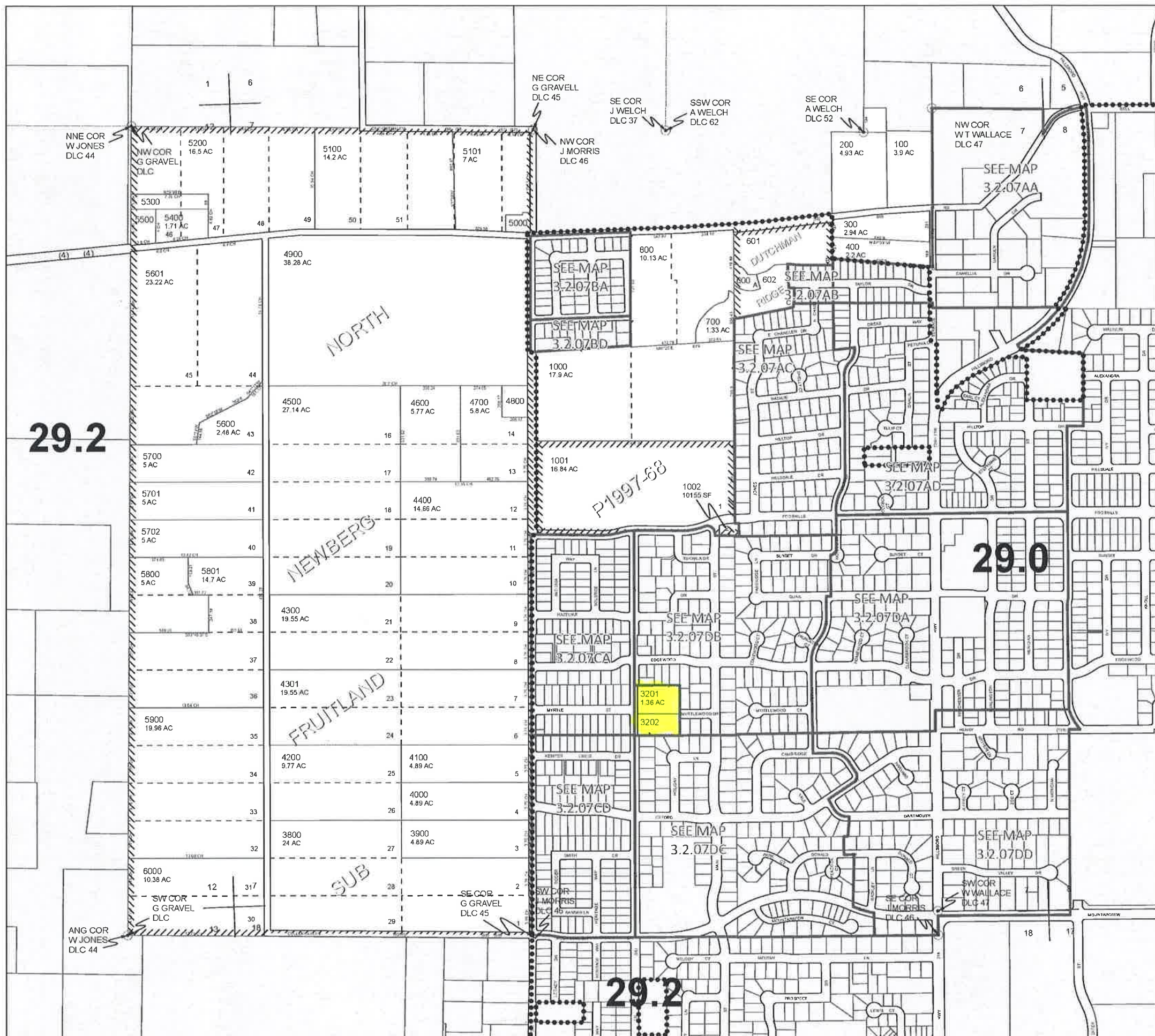
2900 SW CARTER LN. VICINITY MAP





ASSESSMENT & TAX
CARTOGRAPHY

SECTION 7 T.3S. R.2W. W.M.
YAMHILL COUNTY OREGON
1" = 400'



- CANCELLED TAXLOTS:
- 3704 1801
 - 3703 1800
 - 3702 1700
 - 3701 1600
 - 3700 1500
 - 3600 1400
 - 3500 1300
 - 3400 1200
 - 3300 1100
 - 3203 1003
 - 3200 500
 - 3100
 - 3002
 - 3001
 - 3000
 - 2900
 - 2800
 - 2700
 - 2600
 - 2503
 - 2502
 - 2501
 - 2500
 - 2400
 - 2300
 - 2200
 - 2100
 - 2000
 - 1901
 - 1900

DATE PRINTED: 11/14/2019

This product is for Assessment and Taxation (A&T) purposes only and has not been prepared or is suitable for legal, engineering, surveying or any purposes other than assessment and taxation.

Wetland Delineation for 2900 Crater Lane Newberg, Oregon

(Township 3 South, Range 2 West, Section 7,
Tax Lots 3201 (portion) and 3202)

Prepared for

Nick Daniken

Greenwing Companies

16869 SW 65th Ave., Suite 115

Lake Oswego, OR 97035

Prepared by

Michael See

Amy Hawkins

John van Staveren

Pacific Habitat Services, Inc.

Wilsonville, Oregon 97070

(503) 570-0800

(503) 570-0855 FAX

PHS Project Number: 7299

August 2021



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I. INTRODUCTION

Pacific Habitat Services, Inc. (PHS) conducted a wetland delineation for the property located at 2900 Crater Lane, in Newberg, Yamhill County, Oregon (Township 3 South, Range 2 West, Section 7, Tax Lots 3201 (portion) and 3202. This report presents the results of PHS's wetland delineation within the study area. Figures, including a map depicting the location of wetlands within the study area, are located in Appendix A. Data sheets documenting on-site conditions are in Appendix B. Ground-level photos of the site are located in Appendix C. A discussion of the wetland delineation methodology, provided for the client, is in Appendix D.

II. RESULTS AND DISCUSSION

A. Landscape Setting and Land Use

The study area is located at 2900 Crater Lane Newberg, Oregon. The site is surrounded by residential development with Crater Lane forming the western boundary of the study area. An existing house is in the northwestern portion of tax lot 3201; however this area is not part of the study area.

The study area consists of generally flat topography that gently slopes from east to west, with elevations approximately between 210 and 205 feet. Most of the site is regularly mowed and consists of weedy herbaceous upland species. Woody vegetation, including big leaf maple (*Acer macrophyllum*, FACU), beaked hazelnut (*Corylus cornuta*, FACU), plum (*Prunus* sp. (UPL)), English hawthorn (*Crataegus monogyna*, FAC), Oregon ash, (*Fraxinus latifolia*, FACW), and Himalayan blackberry (*Rubus armeniacus*, FAC) are present along the eastern and southern boundaries of the tax lot.

The Natural Resources Conservation Services (NRCS) mapped soils within the study area include Woodburn silt loam, 0 to 3 percent slopes, and Wapato silty clay loam, 0 to 3 percent slopes. Wapato silty clay loam is considered a hydric soil.

B. Site Alterations

The Google Earth historical photos of the study area from 1994 through 2020 show no significant changes within the site. Single-family homes were constructed east of the study area between 1994 and 2000; by 2015, single-family homes surround the study area.

A portion of the study area has been recently disturbed to prepare the site for construction of a residential development; however, based on topography, and sample points within the vicinity of the disturbance, wetlands or waters do not appear to be located within this portion of the study area.

C. Precipitation Data and Analysis

The study area was delineated on July 22 and August 4, 2021; precipitation data for the months preceding these dates are summarized below.

Table 1 compares the most recent monthly precipitation amounts recorded in Newberg (at the Rex 1 S, OR station) to the average monthly precipitation recorded in Newberg, as well as to the normal precipitation range as identified in the Natural Resource Conservation Service’s (NRCS) WETS climate table for the Rex 1 S, OR station.

These data show that when rainfall amounts have varied most significantly from the mean, the amounts may also have fallen outside the normal range of variability for this area. For this period, April 2021 was below the normal range of variation; and May and June 2021 were within the normal range of variation. Data was missing for observed July rainfall; therefore PHS’ was unable to determine whether rainfall is above or below the normal range for that month.

Table 1: Comparison of average and observed monthly precipitation in Newberg, prior to the July/August 2021 delineation fieldwork.

Month	Average Precipitation ¹	30% Chance Will Have		Observed Precipitation ²	Percent of Normal
		Less Than Average ¹	More Than Average ¹		
April*	3.16	2.25	3.74	0.65	21%
May	2.44	1.47	2.96	1.69	69%
June	1.62	0.96	1.97	1.57	97%
July	0.54	0.16	0.59	Missing ³	Unknown ³

- Notes: 1. Source: NRCS WETS Table for Rex 1 S, OR station (<http://agacis.rcc-acis.org>)
 2. Source: NRCS monthly precipitation data (<http://agacis.rcc-acis.org>)
 3. Rainfall data missing/unavailable at the time of this report
 *----Monthly rainfall was below the ‘normal’ range
 **----Monthly rainfall was above the ‘normal’ range

Total observed precipitation for the water year up to month prior to the field work (October 1, 2020, through July 31, 2021) was 33.53 inches, which was approximately 119 percent of the normal for those months. As stated above, the Rex 1 S station is missing data for July and August; the rainfall data below is from the next closest rainfall data station, Newberg 0.3 N, OR.

Table 2: Daily precipitation totals for two weeks prior to and including the day of fieldwork (July 22 and August 4, 2021).

Date	Precipitation (inches)	Date	Precipitation (inches)	Date	Precipitation (inches)	Date	Precipitation (inches)
7-8	0.00	7-15	0.00	7-22	S	7-29	0.00
7-9	0.00	7-16	0.00	7-23	M	7-30	M
7-10	M	7-17	0.00	7-24	M	7-31	0.00
7-11	0.00	7-18	0.00	7-25	M	8-1	0.00
7-12	M	7-19	0.00	7-26	0.00	8-2	0.00
7-13	0.00	7-20	0.00	7-27	0.00	8-3	0.00
7-14	0.00	7-21	0.00	7-28	0.00	8-4	0.00

M = missing data
 S = snow (this data appears to have been entered incorrectly by NOAA)

Precipitation was significantly below normal for the water year before and during the wetland delineation fieldwork; however PHS believes that “normal conditions for this site still prevailed even given the dryer than normal conditions. Since precipitation was below normal in the months leading up to the fieldwork, soils were probed to a depth of 20 inches to ensure that a dry season water table was not present.

D. Methods

PHS conducted the wetland delineation on the site based on the presence of wetland hydrology, hydric soils, and hydrophytic vegetation, in accordance with the Routine On-site Determination, as described in the *Corps of Engineers Wetland Delineation Manual, Wetlands Research Program Technical Report Y-87-1* (“The 1987 Manual”) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region*. PHS conducted the wetland delineation within the study area on July 22 and August 4, 2021.

The entire study area was investigated for the presence of wetlands or other waters. One waters (Tributary A) was delineated within the study area. The OHWM of the tributary was determined using changes in topography and vegetation. Portions of the tributary are vegetated; as such, data was taken the northern portion of the tributary, as it enters the study area. Vegetated areas are less than 10% of the overall channel (data points 3 and 4; Photos D, E, F, H and I).

The vegetation throughout the site generally consists of various facultative or dryer grasses and weedy forbs. PHS took data in areas that are topographically higher than the tributary to verify that no wetlands are present within the study area. The upland areas do not exhibit surface indicators of wetlands (i.e. ponded surface water, geomorphic position, or stunted/stressed vegetation, FACW or wetter vegetation, etc.).

E. Description of all Wetlands and Other Non-Wetland Waters

Tributary A

Tributary A, located in the east-central and southern portion of the study area, is approximately 1,789 square feet (0.04 acre) in size. Tributary A’s Cowardin classification is riverine, lower perennial, permanently flooded (R2UBH); the Hydrogeomorphic (HGM) classification is Riverine.

Tributary A enters the study area via a culvert from underneath Myrtlewood Drive along the eastern study area boundary, flowing west, then south along the boundary of the tax lot. At the time of the delineation, the tributary had flowing water between 2 and 6 inches deep. Tributary A continues offsite to the west, entering a culvert under Crater Lane, and eventually reaches Chehalem Creek downstream.

Dominant vegetation along the banks of the tributary includes willows (*Salix sp* (FAC-FACW), Oregon ash, barnyard grass (*Echinochloa crus-galli*, FAC), English hawthorn, Himalayan blackberry, reed canarygrass (*Phalaris arundinacea*, FACW), and sweet vernal grass (*Anthoxanthum odorata*, FACU). Soils within Tributary A meet the hydric soil criteria for Depleted Matrix (F3) or Redox Dark Surface (F6) (sample point 3).

F. Deviation from Local and/or National Wetland Inventories

The National Wetland Inventory (NWI) does not map wetland or waters within the study area, however, PHS delineated Tributary A within the study area. This discrepancy may be due to land cover as NWI maps are generated primarily on the basis of interpretation of color infrared aerial photographs (scale of 1:58,000), with limited “ground truthing” to confirm the interpretations..

There is no Local Wetland Inventory for Newberg.

G. Mapping Method

PHS flagged the limits of the wetlands within the study area with blue pin flags; lime green tape was used for sample point locations. Wetlands and sample points were then surveyed by PHS using a Trimble Geo7x GPS unit with submeter accuracy.

H. Additional Information

None.

I. Results and Conclusions

PHS delineated Tributary A within the study area. The total area of waters within the study area boundary is 1,789 square feet (0.04 acre). The Cowardin and HGM classifications are stated in Section E.

J. Required Disclaimer

This report documents the investigation, best professional judgment and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with OAR 141-090-0005 through 141-090-0055.

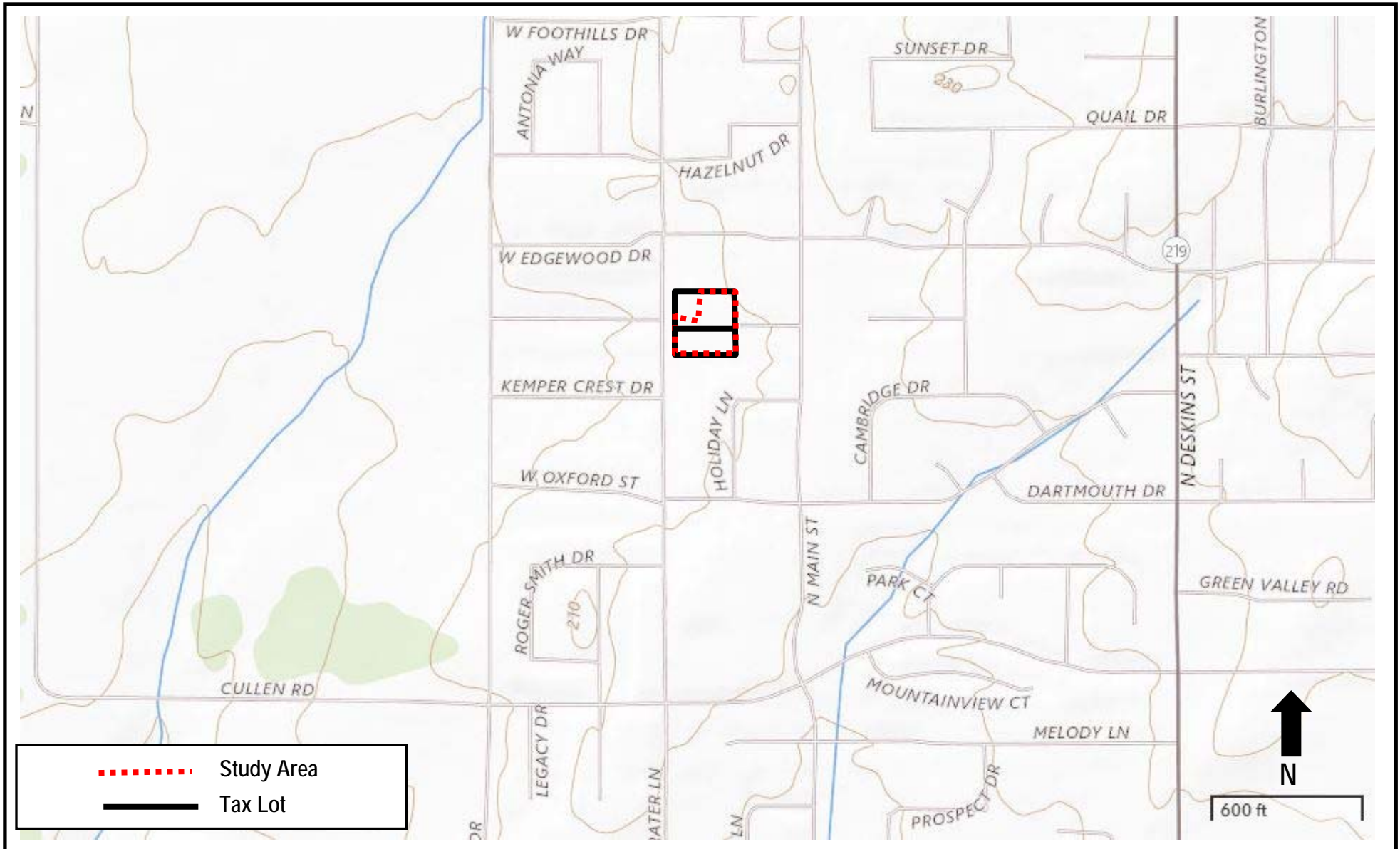
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<https://viewer.nationalmap.gov/basic/?basemap=b1&category=ustopo&title=US%20Topo%20Download>

Appendix A

Figures





Project# 7299
Date 8/9/21



Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

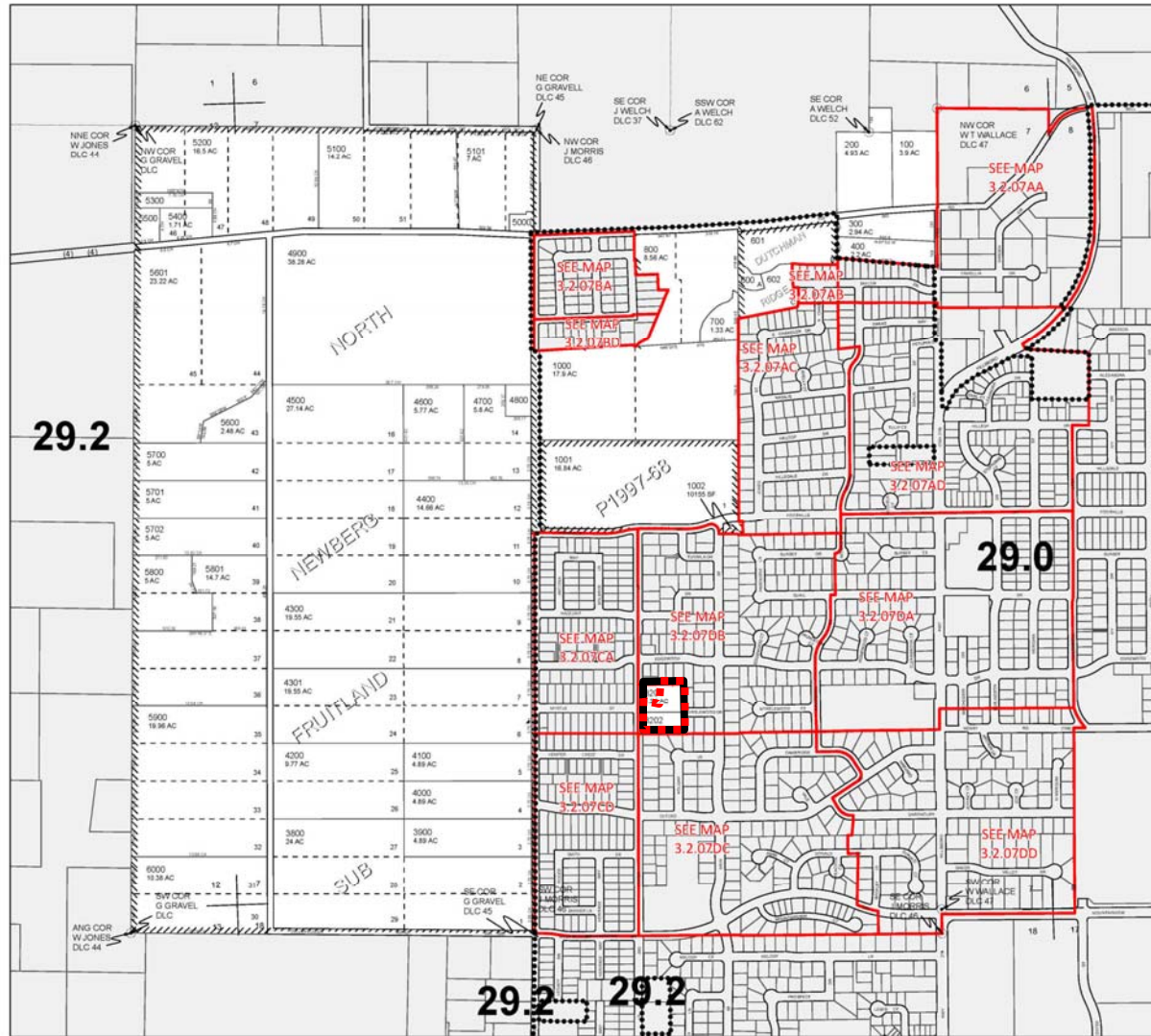
General Location and Topography
2900 Crater Lane, Newberg, Oregon
United States Geological Survey (USGS) Newberg, Oregon 7.5 quadrangle, 2020
(viewer.nationalmap.gov/basic)

FIGURE
1



ASSESSMENT & TAX
CARTOGRAPHY

SECTION 7 T.3S. R.2W. W.M.
YAMHILL COUNTY OREGON
1" = 400'



CANCELLED TAXLOTS:

3704	1801
3703	1800
3702	1700
3701	1600
3700	1500
3600	1400
3500	1300
3400	1200
3300	1100
3203	1003
3200	1000
3100	500
3002	
3001	
3000	
2900	
2800	
2700	
2600	
2503	
2502	
2501	
2500	
2400	
2300	
2200	
2100	
2000	
1901	
1900	

DATE PRINTED: 2/11/2020

This product is for Assessment and Taxation (A&T) purposes only and has not been prepared or is suitable for legal, engineering, surveying or any purposes other than assessment and taxation.



290 ft

- - - - - - Study Area
 - Tax Lot

Project# 7299
Date 8/9/21



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Tax Lot Map
2900 Crater Lane, Newberg, Oregon
The Oregon Map (ormap.net)

FIGURE
2

Wetlands



August 10, 2021

Wetlands

- | | | |
|--|---|--|
|  Estuarine and Marine Deepwater |  Freshwater Emergent Wetland |  Lake |
|  Estuarine and Marine Wetland |  Freshwater Forested/Shrub Wetland |  Other |
| |  Freshwater Pond |  Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Project# 7299
Date 8/9/21



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Wilsonville, OR 97070

National Wetland Inventory
2900 Crater Lane, Newberg, Oregon
<https://www.fws.gov/wetlands/data/mapper.html>

FIGURE
3



- - - - - Study Area
 - Tax Lot

Soils Legend

2013A - Wapato silty clay loam, 0-3% slopes (hydric)

2310A - Woodburn silt loam, 0-3% slopes

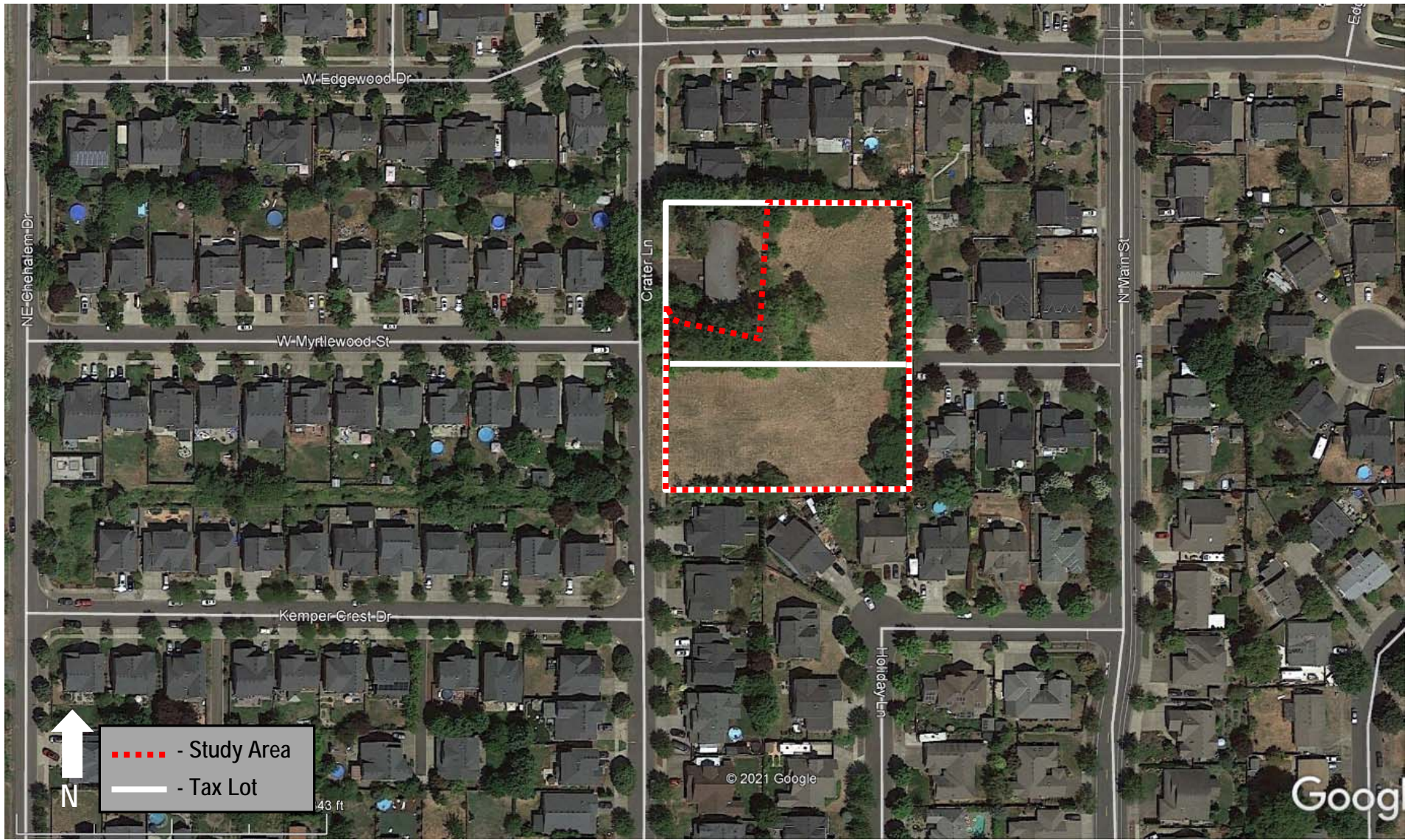
Project # 7299
Date 8/9/21



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Soils
2900 Crater Lane, Newberg, Oregon
Natural Resources Conservation Services, Web Soil Survey, 2021
(websoilsurvey.sc.egov.usda.gov)

FIGURE
4



Project# 7299
Date 8/9/21

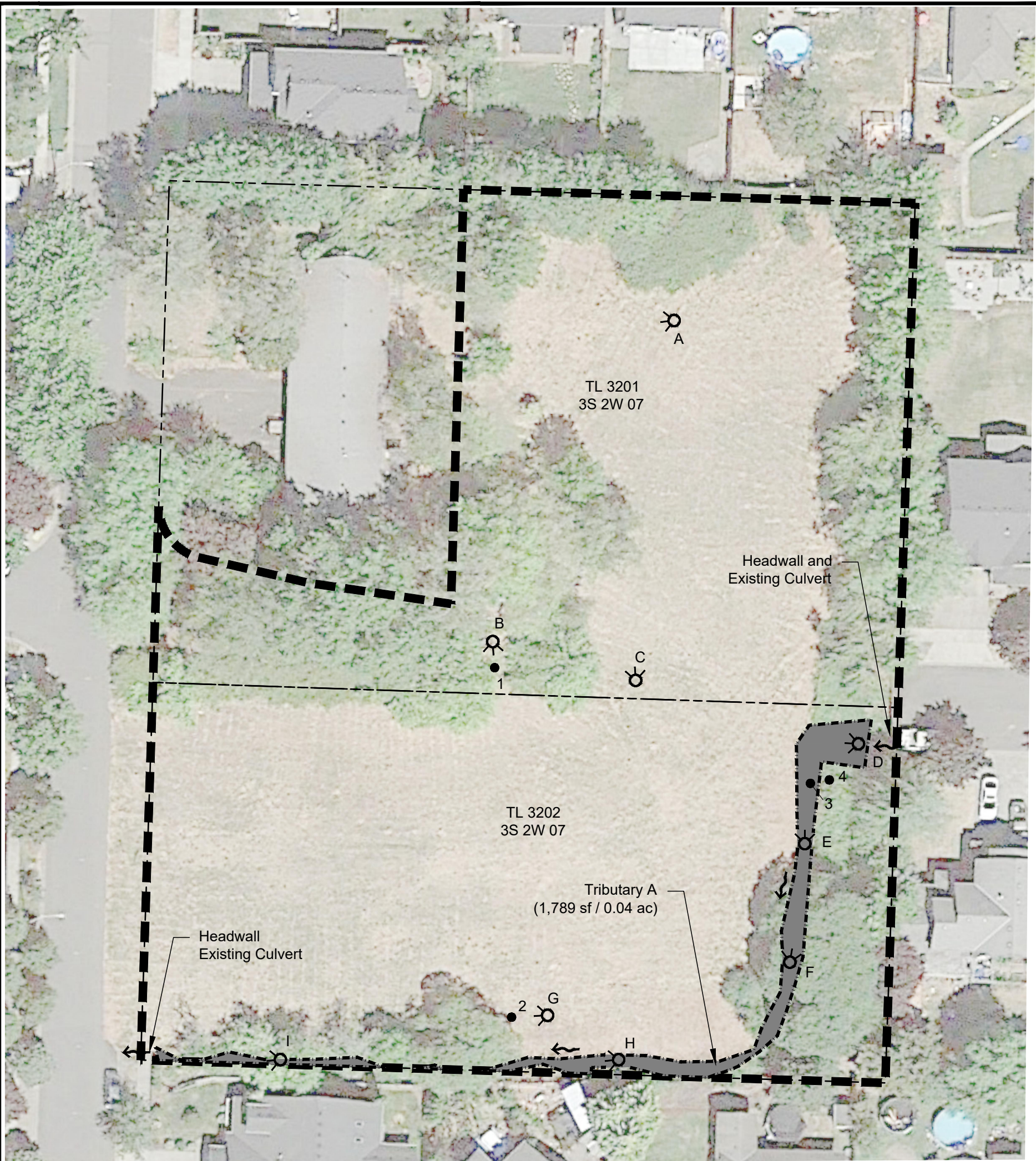


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Aerial Photo
2900 Crater Lane, Newberg, Oregon
GoogleEarth, 2021

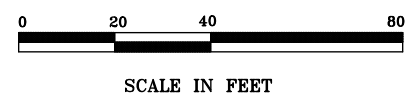
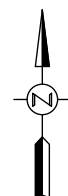
FIGURE

5



LEGEND

-  Study Area Boundary
(76,190 sf / 1.75 ac)
-  Waters of the State/US
(1,789 sf / 0.04 ac)
-  Ordinary High Water (OHW)
-  Direction of Flow
-  Sample Point
-  Photo Point
-  Tax Lot Line



Tributary and sample points were surveyed using a Trimble Geo7x GPS unit; accuracy is sub-meter.



Wetland Delineation
2900 Crater Lane - Newberg, Oregon

FIGURE
6

8-12-2021

Appendix B

Wetland Determination Data Sheets



WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: 2900 Crater Lane City/County: Newberg/Yamhill Sampling Date: 7/22/2021
 Applicant/Owner: Greenwing Companies State: OR Sampling Point: 1
 Investigator(s): MS Section, Township, Range: S7, T3S, R2W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR): LRR A Lat: 45.3211 Long: -122.9805 Datum: WGS84
 Soil Map Unit Name: Woodburn silt loam, 0 to 3 percent slopes NWI Classification: None
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No X (if no, explain in Remarks)
 Are vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y
 Are vegetation Soil or Hydrology naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is Sampled Area within a Wetland?	Yes <u> </u>	No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>			
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>			

Remarks:
Precipitation significantly below normal for water year.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
Tree Stratum (plot size: <u> </u>)				Number of Dominant Species	
1	<u> </u>	<u> </u>	<u> </u>	That are OBL, FACW, or FAC: <u>2</u> (A)	
2	<u> </u>	<u> </u>	<u> </u>	Total Number of Dominant	
3	<u> </u>	<u> </u>	<u> </u>	Species Across All Strata: <u>3</u> (B)	
4	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>67%</u> (A/B)	
Sapling/Shrub Stratum (plot size: <u>15</u>)				Prevalence Index Worksheet:	
1	<u>40</u>	<u>X</u>	<u>FAC</u>	Total % Cover of	Multiply by:
2	<u>5</u>	<u> </u>	<u>FACW</u>	OBL Species	x 1 = <u>0</u>
3	<u>5</u>	<u> </u>	<u>(UPL)</u>	FACW species	x 2 = <u>0</u>
4	<u>1</u>	<u> </u>	<u>FAC</u>	FAC Species	x 3 = <u>0</u>
5	<u> </u>	<u> </u>	<u> </u>	FACU Species	x 4 = <u>0</u>
	<u>51</u>	= Total Cover		UPL Species	x 5 = <u>0</u>
Herb Stratum (plot size: <u>5</u>)				Column Totals	<u>0</u> (A) <u>0</u> (B)
1	<u>30</u>	<u>X</u>	<u>FAC</u>	Prevalence Index =B/A = <u>#DIV/0!</u>	
2	<u>10</u>	<u>X</u>	<u>(UPL)</u>	Hydrophytic Vegetation Indicators:	
3	<u>1</u>	<u> </u>	<u>FACU</u>	1- Rapid Test for Hydrophytic Vegetation	
4	<u> </u>	<u> </u>	<u> </u>	<u>X</u> 2- Dominance Test is >50%	
5	<u> </u>	<u> </u>	<u> </u>	3-Prevalence Index is ≤ 3.0 ¹	
6	<u> </u>	<u> </u>	<u> </u>	4-Morphological Adaptations ¹ (provide supporting	
7	<u> </u>	<u> </u>	<u> </u>	data in Remarks or on a separate sheet)	
8	<u> </u>	<u> </u>	<u> </u>	5- Wetland Non-Vascular Plants ¹	
	<u>41</u>	= Total Cover		Problematic Hydrophytic Vegetation ¹ (Explain)	
Woody Vine Stratum (plot size: <u> </u>)				¹ Indicators of hydric soil and wetland hydrology must be present, unless	
1	<u> </u>	<u> </u>	<u> </u>	disturbed or problematic.	
2	<u> </u>	<u> </u>	<u> </u>	Hydrophytic	
	<u>0</u>	= Total Cover		Vegetation	
% Bare Ground in Herb Stratum <u> </u>				Yes <u>X</u> No <u> </u>	
Remarks:				Present?	

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Table with columns: Depth (Inches), Matrix (Color (moist), %), Redox Features (Color (moist), %, Type, Loc), Texture, Remarks. Row 1: 0-12, 10YR 3/2, 100, Silt Loam.

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

2Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils3:

Table listing hydric soil indicators (Histosol, Histic Epipedon, etc.) and problematic hydric soil indicators (2 cm Muck, Red Parent Material, etc.).

3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

Table listing primary and secondary wetland hydrology indicators (Surface Water, High Water Table, Saturation, etc.).

Field Observations:

Surface Water Present? Yes _____ No X
Water Table Present? Yes _____ No X
Saturation Present? Yes _____ No X

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: 2900 Crater Lane City/County: Newberg/Yamhill Sampling Date: 7/22/2021
 Applicant/Owner: Greenwing Companies State: OR Sampling Point: 2
 Investigator(s): MS Section, Township, Range: S7, T3S, R2W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR): LRR A Lat: 45.3207 Long: -122.9805 Datum: WGS84
 Soil Map Unit Name: Wapato silty clay loam NWI Classification: None
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No X (if no, explain in Remarks)
 Are vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y
 Are vegetation Soil or Hydrology naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>	Is Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	

Remarks:
Precipitation significantly below normal for water year.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
Tree Stratum (plot size: <u> </u>)				Number of Dominant Species	
1				That are OBL, FACW, or FAC: <u>2</u> (A)	
2				Total Number of Dominant	
3				Species Across All Strata: <u>4</u> (B)	
4				Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>50%</u> (A/B)	
Sapling/Shrub Stratum (plot size: <u>15</u>)				Prevalence Index Worksheet:	
1	<u>40</u>	<u>X</u>	<u>FAC</u>	Total % Cover of	Multiply by:
2				OBL Species	x 1 = <u>0</u>
3				FACW species	x 2 = <u>0</u>
4				FAC Species	x 3 = <u>210</u>
5				FACU Species	x 4 = <u>280</u>
	<u>40</u>	= Total Cover		UPL Species	x 5 = <u>0</u>
				Column Totals	<u>140</u> (A) <u>490</u> (B)
Herb Stratum (plot size: <u>5</u>)				Prevalence Index =B/A = <u>3.50</u>	
1	<u>45</u>	<u>X</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators:	
2	<u>30</u>	<u>X</u>	<u>FAC</u>	<u> </u> 1- Rapid Test for Hydrophytic Vegetation	
3	<u>20</u>	<u>X</u>	<u>FACU</u>	<u> </u> 2- Dominance Test is >50%	
4	<u>5</u>		<u>FACU</u>	<u> </u> 3-Prevalence Index is ≤ 3.0 ¹	
5				<u> </u> 4-Morphological Adaptations ¹ (provide supporting	
6				data in Remarks or on a separate sheet)	
7				<u> </u> 5- Wetland Non-Vascular Plants ¹	
8				<u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)	
	<u>100</u>	= Total Cover		¹ Indicators of hydric soil and wetland hydrology must be present, unless	
Woody Vine Stratum (plot size: <u> </u>)				disturbed or problematic.	
1				Hydrophytic	
2				Vegetation	
	<u>0</u>	= Total Cover		Yes <u> </u> No <u>X</u>	
% Bare Ground in Herb Stratum <u> </u>				Present?	

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Table with columns: Depth (Inches), Matrix (Color (moist), %), Redox Features (Color (moist), %, Type, Loc), Texture, Remarks. Rows include 0-3, 3-8, and 8-12 inch depths.

1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

2Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils3:

Table listing various soil indicators such as Histosol (A1), Sandy Redox (S5), and 2 cm Muck (A10) with checkboxes for presence.

3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes X No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

Table listing primary and secondary hydrology indicators such as Surface Water (A1), High Water Table (A2), Water stained Leaves (B9), etc.

Field Observations:

Surface Water Present? Yes No X
Water Table Present? Yes No X
Saturation Present? Yes No X

Wetland Hydrology Present? Yes No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Probed to >20 inches - no moisture.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: 2900 Crater Lane City/County: Newberg/Yamhill Sampling Date: 8/4/2021
 Applicant/Owner: Greenwing Companies State: OR Sampling Point: 3
 Investigator(s): MS Section, Township, Range: S7, T3S, R2W
 Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave Slope (%): 1
 Subregion (LRR): LRR A Lat: 45.3209 Long: -122.9800 Datum: WGS84
 Soil Map Unit Name: Wapato silty clay loam NWI Classification: None
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No X (if no, explain in Remarks)
 Are vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y
 Are vegetation Soil or Hydrology naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is Sampled Area within a Wetland?	Yes <u> </u>	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>			
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>			

Remarks:
Precipitation significantly below normal for water year.
Although this area meets wetland criteria, it is below the OHWM of the tributary. Vegetation is <10% of the channel area, and is considered waters.

VEGETATION - Use scientific names of plants.

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
Tree Stratum (plot size: <u> </u>)				Number of Dominant Species	
1	<u> </u>	<u> </u>	<u> </u>	That are OBL, FACW, or FAC: <u>2</u> (A)	
2	<u> </u>	<u> </u>	<u> </u>	Total Number of Dominant	
3	<u> </u>	<u> </u>	<u> </u>	Species Across All Strata: <u>2</u> (B)	
4	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
Sapling/Shrub Stratum (plot size: <u>5</u>)				Prevalence Index Worksheet:	
1	<u>3</u>	<u> </u>	<u>FAC</u>	Total % Cover of <u> </u> Multiply by:	
2	<u> </u>	<u> </u>	<u> </u>	OBL Species <u> </u> x 1 = <u>0</u>	
3	<u> </u>	<u> </u>	<u> </u>	FACW species <u> </u> x 2 = <u>0</u>	
4	<u> </u>	<u> </u>	<u> </u>	FAC Species <u> </u> x 3 = <u>0</u>	
5	<u> </u>	<u> </u>	<u> </u>	FACU Species <u> </u> x 4 = <u>0</u>	
	<u>3</u>	= Total Cover		UPL Species <u> </u> x 5 = <u>0</u>	
Herb Stratum (plot size: <u>5</u>)				Column Totals <u>0</u> (A) <u>0</u> (B)	
1	<u>45</u>	<u>X</u>	<u>FAC</u>	Prevalence Index =B/A = <u>#DIV/0!</u>	
2	<u>30</u>	<u>X</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators:	
3	<u>20</u>	<u> </u>	<u>(OBL)</u>	<u> </u> 1- Rapid Test for Hydrophytic Vegetation	
4	<u>5</u>	<u> </u>	<u>FAC</u>	<u>X</u> 2- Dominance Test is >50%	
5	<u>10</u>	<u> </u>	<u>OBL</u>	<u> </u> 3-Prevalence Index is ≤ 3.0 ¹	
6	<u>10</u>	<u> </u>	<u>FACW</u>	<u> </u> 4-Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet)	
7	<u> </u>	<u> </u>	<u> </u>	<u> </u> 5- Wetland Non-Vascular Plants ¹	
8	<u> </u>	<u> </u>	<u> </u>	<u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)	
	<u>120</u>	= Total Cover		¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Woody Vine Stratum (plot size: <u> </u>)				Hydrophytic Vegetation Present?	
1	<u> </u>	<u> </u>	<u> </u>	Yes <u>X</u> No <u> </u>	
2	<u> </u>	<u> </u>	<u> </u>		
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u> </u>					

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/2	100					Silt Loam	
2-5	10YR 2/2	100			C	M	Sandy Loam	
5-8	10YR 3/1	90	10YR 3/6	10	C	M	Silty Clay Loam	Medium
8-15	N3/	80	7.5YR 4/6	20	C	M, PL	Silty Clay Loam	Coarse

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<p>Restrictive Layer (if present):</p> <p>Type: _____</p> <p>Depth (inches): _____</p> <p>Remarks: Probed to >20 inches - no moisture.</p>	<p>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
---	--

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Geomorphic Position (D2)
	<input checked="" type="checkbox"/> Shallow Aquitard (D3)
	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
	<input type="checkbox"/> Frost-Heave Hummocks (D7)

<p>Field Observations:</p> <p>Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>2</u></p> <p>Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>4</u></p> <p>Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)</p>	<p>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
---	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Approximately 2" of surface water was present within 5' of the sample point.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: 2900 Crater Lane City/County: Newberg/Yamhill Sampling Date: 8/4/2021
 Applicant/Owner: Greenwing Companies State: OR Sampling Point: 4
 Investigator(s): MS Section, Township, Range: S7, T3S, R2W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0
 Subregion (LRR): LRR A Lat: 45.3210 Long: -122.9800 Datum: WGS84
 Soil Map Unit Name: Wapato silty clay loam NWI Classification: None
 Are climatic/hydrologic conditions on the site typical for this time of year? Yes No X (if no, explain in Remarks)
 Are vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? (Y/N) Y
 Are vegetation Soil or Hydrology naturally problematic? If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is Sampled Area within a Wetland?	Yes <u> </u>	No <u>X</u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>			
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>			

Remarks:
Precipitation significantly below normal for water year.

VEGETATION - Use scientific names of plants.

Tree Stratum (plot size: <u>30</u>)	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1 <u>Cedrus deodara</u>	<u>20</u>	<u>X</u>	<u>(UPL)</u>	
2 <u> </u>	<u> </u>	<u> </u>	<u> </u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3 <u> </u>	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species That are OBL, FACW, or FAC: <u>75%</u> (A/B)
4 <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index Worksheet:
5 <u> </u>	<u>20</u>	= Total Cover		
Sapling/Shrub Stratum (plot size: <u>15</u>)				OBL Species <u> </u> x 1 = <u>0</u>
1 <u>Rubus armeniacus</u>	<u>70</u>	<u>X</u>	<u>FAC</u>	FACW species <u> </u> x 2 = <u>0</u>
2 <u> </u>	<u> </u>	<u> </u>	<u> </u>	FAC Species <u> </u> x 3 = <u>0</u>
3 <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACU Species <u> </u> x 4 = <u>0</u>
4 <u> </u>	<u> </u>	<u> </u>	<u> </u>	UPL Species <u> </u> x 5 = <u>0</u>
5 <u> </u>	<u>70</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)
Herb Stratum (plot size: <u>5</u>)				Prevalence Index =B/A = <u>#DIV/0!</u>
1 <u>Juncus effusus</u>	<u>45</u>	<u>X</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <u> </u> 1- Rapid Test for Hydrophytic Vegetation <u>X</u> 2- Dominance Test is >50% <u> </u> 3-Prevalence Index is ≤ 3.0 ¹ <u> </u> 4-Morphological Adaptations ¹ (provide supporting data in Remarks or on a separate sheet) <u> </u> 5- Wetland Non-Vascular Plants ¹ <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
2 <u>Echinochloa crus-galli</u>	<u>30</u>	<u>X</u>	<u>FAC</u>	
3 <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4 <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5 <u> </u>	<u> </u>	<u> </u>	<u> </u>	
6 <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7 <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8 <u> </u>	<u>75</u>	= Total Cover		
Woody Vine Stratum (plot size: <u> </u>)				
1 <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2 <u> </u>	<u> </u>	<u> </u>	<u> </u>	
	<u>0</u>	= Total Cover		
% Bare Ground in Herb Stratum <u> </u>				

Remarks:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3	7.5YR 3/2	100					Silt Loam	
3-8	10YR 4/2	95	10YR 5/6	5	C	M	Silty Clay Loam	
8-12	10YR 4/2	85	10YR 5/6	15	C	M	Silty Clay Loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): >12
 Saturation Present? Yes No Depth (inches): >12
 (includes capillary fringe)

Wetland Hydrology Present?
 Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Probed to >20 inches - no moisture.

Appendix C

Site Photos





Photo A:

Looking west at north-central portion of site.

Photo B:

Looking south at sample point 1, in central portion of site.



Project # 7299

Date 8/10/21



Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photo documentation

2900 Crater Lane, Newberg, Oregon

Photos taken July 22, 2021



Photo C:

Looking north at the central portion of the site.

Photo D:

Looking west at Tributary A as it enters the study area.



Project # 7299
Date 8/10/21



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Wilsonville, OR 97070

Photo documentation
2900 Crater Lane, Newberg, Oregon
Photos taken July 22, 2021



Photo E:

Looking north at the northeastern portion of Tributary A.

Photo F

Looking north at the central-eastern portion of Tributary A.



Project # 7299,
8/10/21



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9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photo documentation
2900 Crater Lane, Newberg, Oregon
Photos taken July 22, 2021



Photo G:

Looking west at sample point 2., in southern portion of site.

Photo H:

Looking west at the southwestern portion of Tributary A.



Project 7299
Date 8/10/21



Pacific Habitat Services, Inc.
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Wilsonville, OR 97070

Photo documentation
2900 Crater Lane, Newberg, Oregon
Photos taken July 22, 2021



Photo I:

Looking west at the western portion of Tributary A.

Project # 7299

Date 8/10/21



Pacific Habitat Services, Inc.
9450 SW Commerce Circle, Suite 180
Wilsonville, OR 97070

Photo documentation

2900 Crater Lane, Newberg, Oregon

Photos taken July 22, 2021

Appendix D

Wetland Definitions and Methodology



WATERS OF THE STATE AND WETLAND DEFINITION AND CRITERIA

Regulatory Jurisdiction

Wetlands and water resources in Oregon are regulated by the Oregon Department of State Lands (DSL) under the Removal-Fill Law (ORS 196.800-196.990) and by the U.S. Army Corps of Engineers (COE) through Section 404 of the Clean Water Act.

The primary source documents for wetland delineations within Oregon is the *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (U.S. Army Corps of Engineers, 2010), which are required by both DSL and COE.

Waters of This State and Wetland Definition

Waters of This State are defined as “all natural waterways, tidal and non-tidal bays, intermittent streams, constantly flowing streams, lakes, wetlands, that portion of the Pacific Ocean that is in the boundaries of this state, all other navigable and non-navigable bodies of water in this state and those portions of the ocean shore, as defined in ORS 390.605, where removal or fill activities are regulated under a state-assumed permit program as provided in 33 U.S.C. 1344(g) of the Federal Water Pollution Control Act, as amended.” (DSL 2014)

Wetlands are defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (DSL 2014).

Wetland Criteria

Based on the above definition, three major factors characterize a wetland: hydrology, substrate, and biota.

Wetland Hydrology

Wetland hydrology is related to duration of saturation, frequency of saturation, and critical depth of saturation. The 1987 manual defines wetland hydrology as inundation or saturation within a major portion of the root zone (usually above 12 inches), typically for at least 12.5% of the growing season. The wetland hydrology criterion can be met, however, if saturation within the major portion of the root zone is present for only 5% of the growing season, depending on other evidence.

The growing season is defined as the portion of the year when soil temperatures at 12.0 inches below the soil surface are higher than biological zero (41 degrees Fahrenheit, 5 degrees Celsius), but also allows approximation from frost free days, based on air temperature. The growing season for any given site or location is determined from US Natural Resources Conservation Service, (formerly Soil Conservation Service) data and information.

Wetland hydrologic indicators include the following: visual observation of inundation or saturation, watermarks, drift lines, sediment deposits, and/or oxidized rhizospheres with living roots. Oxidized rhizospheres are defined as yellowish-red zones around the roots and rhizomes of some plants that grow in frequently saturated soils. Other indicators of hydrology, including algal mats or crust, iron deposits, surface soil cracks, sparsely vegetated concave surface, salt crust, aquatic invertebrates, hydrogen sulfide odor, reduced iron, iron reduction in tilled soils, and stunted or stressed plants can also be used to determine the presence of wetland hydrology.

Wetland Substrate (Soils)

Most wetlands are characterized by hydric soils. Hydric soils are those that are ponded, flooded, or saturated for long enough during the growing season to develop anaerobic conditions. Periodic saturation of soils causes alternation of reduced and oxidized conditions, which leads to the formation of redoximorphic features (gleying and mottling). Mineral hydric soils will be either gleyed or will have bright mottles and/or low matrix chroma. The redoximorphic feature known as gley is a result of greatly reduced soil conditions, which result in a characteristic grayish, bluish or greenish soil color. The term mottling is used to describe areas of contrasting color within a soil matrix. The soil matrix is the portion of the soil layer that has the predominant color. Soils that have brightly colored mottles and a low matrix chroma are indicative of a fluctuating water table.

Hydric soil indicators include organic content of greater than 50% by volume, and/or presence of redoximorphic features and dark soil matrix, as determined by the use of a Munsell Soil Color Chart. This chart establishes the chroma, value and hue of soils based on comparison with color chips. Mineral hydric soil must meet one of the 16 definitions for hydric soil indicators, or be classified as a “problem soil” in the Regional Supplement.

Wetland Biota (Vegetation)

Wetland biota is defined as hydrophytic vegetation. A hydrophyte is a plant species that is capable of growing in substrates that are periodically deficient in oxygen as a result of saturated soil conditions. The U.S. Fish and Wildlife Service, in the *National List of Plant Species that Occur in Wetlands*, has established five basic groups of vegetation based on their frequency of occurrence in wetlands. These categories, referred to as the "wetland indicator status", are as follows: obligate wetland plants (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and obligate upland (UPL). Table 1 gives a definition of the plant indicator codes.

Table 1. Description of Wetland Plant Indicator Status Codes

Indicator Code	Status
OBL	Obligate wetland. Plants that always occur in standing water or in saturated soils.
FACW	Facultative wetland. Plants that nearly always occur in areas of prolonged flooding or require standing water or saturated soils but may, on rare occasions, occur in non-wetlands.
FAC	Facultative. Plants that occur in a variety of habitats, including wetland and mesic to xeric non-wetland habitats but commonly occur in standing water or saturated soils.
FACU	Facultative upland. Plants that typically occur in xeric or mesic non-wetland habitats but may frequently occur in standing water or saturated soils.
UPL	Obligate upland. Plants that rarely occur in water or saturated soils.

Observations of hydrology, soils, and vegetation, were made using the "Routine On-site" delineation method as defined in the 1987 manual and the Regional Supplement for areas that were not currently in agricultural production. One-foot diameter soil pits were excavated to 20 inches and soil profiles were examined for hydric soil and wetland hydrology field indicators. In addition, a visual absolute-cover estimate of the dominant species of the plant community was performed using soil pit locations as a center of reference. Dominant plant species are based on estimates of absolute cover for herbaceous, and shrub species within a 5 foot radius of the sample point, and basal area cover for tree and woody vine species within a 30 foot radius of the sample point. Plant species in each vegetative layer, which are estimated at less than 20% of the total cover, are not considered to be dominant. The wetland indicator status is then used to determine if there is an overall dominance (greater than 50%) of wetland or upland plant species. If less than 50% of the dominant species are hydrophytic, then the prevalence index may be used to determine if the subdominant species are hydrophytic. If the prevalence index is less than or equal to 3, hydrophytic vegetation criterion is met.

During data collection, the soil profiles were examined for hydric soil and wetland hydrology field indicators. Plant species and cover were recorded. Data was recorded on standard data sheets, which contain the information specified in the 1987 Corps Manual and the Regional Supplement.