City of West Linn
Planning & Development • 22500 Salamo Rd #1000 • West Linn, Oregon 97068
Telephone 503.656.4211 • Fax 503.656.4106 • westlinnoregon.gov

DEVELOPMENT REVIEW APPLICATION

For Office Use Only		
STAFF CONTACT	PROJECT NO(S). SU-14-01 / VA-14-01	
NON-REFUNDABLE FEE(S) 2900 -	REFUNDABLE DEPOSIT(S) 5000 -	TOTAL 7900 -

Type of Review (Please check all that apply):

- [ ] Annexation (ANX)
- [ ] Appeal and Review (AP) *
- [ ] Conditional Use (CUP)
- [ ] Design Review (DR)
- [ ] Easement Vacation
- [ ] Extraterritorial Ext. of Utilities
- [ ] Final Plat or Plan (FP)
- [ ] Flood Management Area
- [ ] Hillside Protection & Erosion Control
- [ ] Historic Review
- [ ] Legislative Plan or Change
- [ ] Lot Line Adjustment (LLA) */**
- [ ] Minor Partition (MIP) (Preliminary Plat or Plan)
- [ ] Non-Conforming Lots, Uses & Structures
- [ ] Planned Unit Development (PUD)
- [ ] Pre-Application Conference (PA) */**
- [ ] Street Vacation
- [x] Subdivision (SUB)
- [ ] Temporary Uses *
- [ ] Time Extension *
- [x] Variance (VAR) CLASS II
- [ ] Water Resource Area Protection/Single Lot (WAP)
- [ ] Water Resource Area Protection/Wetland (WAP)
- [ ] Willamette & Tualatin River Greenway (WRG)
- [ ] Zone Change

Home Occupation, Pre-Application, Sidewalk Use, Sign Review Permit, and Temporary Sign Permit applications require different or additional application forms, available on the City website or at City Hall.

Site Location/Address: 1770 Ostman Road

Assessor's Map No.: 3 1E 3AB
Tax Lot(s): 200
Total Land Area: 1.03 acres

Brief Description of Proposal: Four-lot subdivision (Renaissance at Willamette) with Class II variances for driveway spacing on Ostman Road.

Applicant Name: (please print) Renaissance Homes Contact: Amy Schnell
Address: 16771 Boones Ferry Road
City State Zip: Lake Oswego, OR 97035
Phone: Contact Applicant's Consultant
Email: Contact Applicant's Consultant

Owner Name (required): (please print) Thomas Nordurft
Address: 15588 S Saddle Lane
City State Zip: Oregon City, OR 97045
Phone: Contact Applicant's Consultant
Email: Contact Applicant's Consultant

Consultant Name: (please print) AKS Engineering & Forestry Contact: Monty Hurley
Address: 13910 SW Galbreath Drive, Suite 100
City State Zip: Sherwood, OR 97140
Phone: 503.925.8799
Email: monty@aks-eng.com

RECEIVED
JAN 21 2014
PLANNING & BUILDING
CITY OF WEST LINN
INIT. TIME

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Applicant's signature — 1/14/14 Date — Thomas D. Nordurft Owner's signature **(required)** — 1/13/14 Date

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Applicant's signature — 1/14/14 Date — Thomas D. Nordurft Owner's signature (required) — 1/13/14 Date

Development Review Application For Renaissance at Willamette

Date:	January 2014
Submitted to:	City of West Linn Planning Department 22500 Salamo Rd #1000 West Linn, OR 97068
Owner:	Thomas Nordurft 15588 S Saddle Lane Oregon City, OR 97035
Applicant:	Renaissance Homes 16771 Boones Ferry Road Lake Oswego, OR 97035

AKS Engineering & Forestry
13910 SW Galbreath Drive, Suite 100
Sherwood, OR 97140
P: (503) 925-8799
F: (503) 925-8969
www.aks-eng.com

Development Review Application For Renaissance at Willamette

Table of Contents

Application Contents:

- City Development Review Application
- Written Narrative
- Preliminary Title Report and Property Vesting Deed
- County Assessor's Map
- Neighborhood Meeting Documentation
- Pre-application Conference Meeting Notes

Included Separately with Application:

- Preliminary Plans – 22" x 34" (3 Sets)
- Reduced Plans – 11" x 17" (3 Sets)
- Preliminary Stormwater Report (3 copies)
- City Application Fee (1 check)

CITY LAND USE APPLICATION FORM

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Applicant's signature — Date: 1/14/14
Owner's signature (required) — Date: 1/13/14

Written Narrative

DEVELOPMENT REVIEW APPLICATION FOR RENAISSANCE AT WILLAMETTE

DATE:	January 2014
SUBMITTED TO:	City of West Linn Planning Department 22500 Salamo Rd #1000 West Linn, OR 97068
OWNER:	Thomas Nordurft 15588 S Saddle Lane Oregon City, OR 97035
APPLICANT:	Renaissance Homes 16771 Boones Ferry Road Lake Oswego, OR 97035
APPLICANT'S REPRESENTATIVE:	AKS Engineering & Forestry, LLC 13910 SW Galbreath Drive, Suite 100 Sherwood, OR 97140 Contact(s):Monty Hurley (monty@aks-eng.com) Phone: (503) 925-8799 Fax: (503) 925-8969
SITE LOCATION:	Northwest corner of Willamette Falls Drive and Ostman Road
SITE ADDRESS:	1770 Ostman Road, West Linn, OR 97068
ASSESSOR'S INFORMATION:	Assessor's Map 3 1E 3AB Tax Lot 200
SITE SIZE:	+/- 1.03 acres
ZONING:	R-10

I. Executive Summary

This application is for a 4 lot subdivision on a 1.03 acre parcel located at 1770 Ostman Road, to the north of Willamette Falls Drive. The parcel is zoned R-10 (single family residential, 10,000 square foot minimum lot size), and each lot will be ± 10,000 sf. All lots will be accessed from Ostman Road, as required by City staff. The applicant is requesting Class II variances to reduce the minimum distance between the curb cut for Lot 4 and Willamette Falls Drive (100 feet) and the minimum distance between adjacent curb cuts (driveways) along Ostman Road for the new lots (75 feet). A Neighborhood Meeting with the Willamette Neighborhood Association was held on January 8, 2014 to discuss the project, at which time neighbors expressed their opposition to shared driveways and their preference for the individual driveways with variances.

The project includes ROW dedication and half street improvements along Ostman Road and Willamette Falls Drive, including 6 foot wide sidewalks, planter strips with street trees, and street lights along both streets. Willamette Falls Drive improvements will also include a 6 foot wide bike lane and centerline striping. A stormwater swale will be located along Ostman Road. Each lot will have a private stormwater infiltration chamber trench, rain garden, or approved equivalent. Public utility and stormwater easements will be provided, and the existing water main along Ostman Road between Willamette Falls Drive and Bexhill Road will be replaced.

The site includes an existing single family residence and two accessory structures, which would be removed following approval of the subdivision. The majority of the site is grass, with a few small trees and grape vines. The site slopes downhill from northeast to southwest at an average of 8%. Per City staff, there are no natural hazards or environmental constraints on-site. The only significant tree on the site is already dead (as confirmed by the City Arborist) and will be removed.

According to projections developed by Metro, the population of West Linn is estimated to reach approximately 31,500 by the year 2035, a 23% increase over the 2012 US Census estimate of 25,600. Approval of this subdivision application would help the City meet the housing demands projected for the City of West Linn, on a site that can be served by all urban facilities and services. The CDC provides the standards and regulations which guide, control, and permit the physical development of properties. Findings demonstrating compliance with the applicable portions of the CDC are provided in this written document and within other documentation included in the application package.

The required findings included in this written narrative, together with the accompanying documentation, demonstrate that the application is consistent with the applicable provisions of the City of West Linn Community Development Code. The evidence in the record is substantial and supports the City's approval of the application.

II. Site Description

The project site is located to the north of Willamette Falls Drive and west of Ostman Road, and consists of one tax lot (Clackamas County Assessor's Map 3 1E 3AB, Tax Lot 200) that is ± 1.03 acres. Topography slopes to the southwest at approximately 8%. Vegetation consists primarily of short grasses and sparse trees. The site includes a single family residence and 2 accessory structures, all of which will be demolished as part of the application.

Sheet 2 (Existing Conditions) of the preliminary plans shows the zoning of surrounding properties, while Sheet 13 (Aerial Photograph Plan) shows the surrounding uses.

Surrounding Area / Zoning

North/Northeast: The site is adjacent to single family residences, which are zoned R-10.
South: A mix of office & warehouse uses (zoned Mixed Use) are located across Willamette Falls Drive.
East: Single family residential development (zoned R-7 and R-10) is located across Ostman Rd.
West: The site is adjacent to the Arbor Cove residential subdivision (developed in 2007), which is zoned R-4.5.

III. Applicable Review Criteria

CHAPTER 85 – GENERAL PROVISIONS

85.200 APPROVAL CRITERIA
No tentative subdivision or partition plan shall be approved unless adequate public facilities will be available to provide service to the partition or subdivision area prior to final plat approval and the Planning Commission or Planning Director, as applicable, finds that the following standards have been satisfied, or can be satisfied by condition of approval.

A. Streets.

1. General. The location, width and grade of streets shall be considered in their relation to existing and planned streets, to the generalized or reasonable layout of streets on adjacent undeveloped parcels, to topographical conditions, to public convenience and safety, to accommodate various types of transportation (automobile, bus, pedestrian, bicycle), and to the proposed use of land to be served by the streets. The functional class of a street aids in defining the primary function and associated design standards for the facility. The hierarchy of the facilities within the network in regard to the type of traffic served (through or local trips), balance of function (providing access and/or capacity), and the level of use (generally measured in vehicles per day) are generally dictated by the functional class. The street system shall assure an adequate traffic or circulation system with intersection angles, grades, tangents, and curves appropriate for the traffic to be carried. Streets should provide for the continuation, or the appropriate projection, of existing principal streets in surrounding areas and should not impede or adversely affect development of adjoining lands or access thereto.
To accomplish this, the emphasis should be upon a connected continuous pattern of local, collector, and arterial streets rather than discontinuous curvilinear streets and cul-de-sacs. Deviation from this pattern of connected streets should only be permitted in cases of extreme topographical challenges including excessive slopes (35 percent-plus), hazard areas, steep drainageways, wetlands, etc. In such cases, deviations may be allowed but the connected continuous pattern must be reestablished once the

topographic challenge is passed. Streets should be oriented with consideration of the sun, as site conditions allow, so that over 50 percent of the front building lines of homes are oriented within 30 degrees of an east-west axis.

Internal streets are the responsibility of the developer. All streets bordering the development site are to be developed by the developer with, typically, half-street improvements or to City standards prescribed by the City Engineer. Additional travel lanes may be required to be consistent with adjacent road widths or to be consistent with the adopted Transportation System Plan (TSP) and any adopted updated plans.

An applicant may submit a written request for a waiver of abutting street improvements if the TSP prohibits the street improvement for which the waiver is requested. Those areas with numerous (particularly contiguous) under-developed or undeveloped tracts will be required to install street improvements. When an applicant requests a waiver of street improvements and the waiver is granted, the applicant shall pay an in-lieu fee equal to the estimated cost, accepted by the City Engineer, of the otherwise required street improvements. As a basis for this determination, the City Engineer shall consider the cost of similar improvements in recent development projects and may require up to three estimates from the applicant. The amount of the fee shall be established prior to the Planning Commission's decision on the associated application. The in-lieu fee shall be used for in kind or related improvements.

Streets shall also be laid out to avoid and protect tree clusters and significant trees, but not to the extent that it would compromise connectivity requirements per this subsection (A)(1), or bring the density below 70 percent of the maximum density for the developable net area. The developable net area is calculated by taking the total site acreage and deducting Type I and II lands; then up to 20 percent of the remaining land may be excluded as necessary for the purpose of protecting significant tree clusters or stands as defined in CDC 55.100(B)(2).

Response: As shown on the preliminary plans, the application includes ROW dedication and frontage/street improvements along two existing streets (Ostman Road and Willamette Falls Drive), which have been designed based on City requirements and input from City staff. No new streets are necessary to serve the project site. As such, this standard is met.

2. Right-of-way and roadway widths. In order to accommodate larger tree-lined boulevards and sidewalks, particularly in residential areas, the standard right-of-way widths for the different street classifications shall be within the range listed below. But instead of filling in the right-of-way with pavement, they shall accommodate the amenities (e.g., boulevards, street trees, sidewalks). The exact width of the right-of-way shall be determined by the City Engineer or the approval authority. The following ranges will apply:

Street Classification	***Right-of-Way***
Highway 43	*60 – 80*
Major arterial	*60 – 80*
Minor arterial	*60 – 80*
Major collector	*60 – 80*
Collector	*60 – 80*
Local street	*40 – 60*
Cul-de-sac	*40 – 60*
Radii of cul-de-sac	*48 – 52*
Alley	*16*

Response: As shown on the preliminary street profiles and cross-sections, the proposed ROW and roadway widths along Ostman Road (a collector) and Willamette Falls Drive (a minor arterial) will meet the above standards, with a reduced width for Ostman Road (55 feet) allowed per City comments at the pre-application conference. As such, these standards are met.

3. Street widths. Street widths shall depend upon which classification of street is proposed. The classifications and required cross sections are established in Chapter 8 of the adopted TSP. Streets are classified as follows.

***Principal arterials** are typically State highways that provide the high level roadway capacity to local land uses. These routes connect over the longest distance (sometimes miles long) and are less frequent than other arterials or collectors. These highways generally span several jurisdictions and often have Statewide importance (as defined in the ODOT State Highway Classification).*

These facilities should provide for a high level of transit service and include transit priority measures to expedite bus travel.

***Arterial streets** serve to interconnect the City. These streets link major commercial, residential, industrial and institutional areas. Arterial streets are typically spaced about one mile apart to assure accessibility and reduce the incidence of traffic using collectors or local streets for through traffic in lieu of a well-placed arterial street. Access control is the key feature of an arterial route. Arterials are typically multiple miles in length.*

***Collector streets** provide both access and circulation within and between residential and commercial/industrial areas. Collectors differ from arterials in that they provide more of a Citywide circulation function and do not require as extensive control of access and that they penetrate residential neighborhoods, distributing trips from the neighborhood and local street system. Collectors are typically greater than one-half to one mile in length.*

***Neighborhood routes** are usually long relative to local streets and provide connectivity to collectors or arterials. Since neighborhood routes have greater connectivity, they generally have more traffic than local streets and are used by residents in the area to access the neighborhood, but do not serve Citywide/large area circulation. They are typically about one-quarter to one-half mile in total length. Traffic from cul-de-sacs and other local streets may drain onto neighborhood routes to gain access to collectors or arterials. Because traffic needs are greater than a local street, certain measures should be considered to retain the neighborhood character and livability of these streets. Neighborhood traffic management measures are often appropriate (including devices such as speed humps, traffic circles and other devices – refer to later section in this chapter). However, it should not be construed that neighborhood routes automatically get speed humps or any other measures. While these streets have special needs, neighborhood traffic management is only one means of retaining neighborhood character and vitality.*

***Local streets** have the sole function of providing access to immediately adjacent land. Service to through traffic movement on local streets is deliberately discouraged by design.*

The following table identifies appropriate street width (curb to curb) in feet for various street classifications. The desirable width shall be required unless the applicant or his engineer can demonstrate that site conditions, topography, or site design require the reduced minimum width.

City of West Linn Roadway Cross-Section Standards

Street Element	*Characteristic*	*Width/Options*
Vehicle Lane Widths (minimum widths)	*Arterial* *Collector* *Neighborhood* *Local* *Turn Lane*	*11 feet* *10 feet* *10 feet* *12 feet* *10-14 feet*

On-Street Parking	*Arterials* *Collectors* *Neighborhood* *Local*	*Limited (in commercial areas)* *Some (unstriped)* *Some (8 feet)* *Some (unstriped)*
Bicycle Lanes (minimum widths)	*New Construction* *Reconstruction*	*5 to 6 feet* *5 to 6 feet*
Sidewalks (minimum width) (See note below)	*Arterial* *Collector* *Neighborhood/Local*	*6 feet* *6 feet* *6 feet*
Landscape Strips	*Can be included in all streets*	*6 feet*
Medians	*5-Lane* *3-Lane* *2-Lane*	*Optional* *Optional* *Consider if appropriate*
Neighborhood Traffic Management	*Arterials* *Collectors* *Neighborhood* *Local*	*Not recommended* *Under special conditions* *Should consider if appropriate* *Should consider if appropriate*
Transit	*Arterial/Collectors* *Neighborhood Route* *Local*	*Appropriate* *Only in special circumstances* *Not recommended*

NOTE: Commercial/OBC zone development on arterials requires a 12-foot-wide sidewalk which includes three feet for street trees, hydrants, street furniture, etc. Commercial/OBC zone development on local streets requires an 8-foot-wide sidewalk with no planter strip, but shall include cut-outs for street trees. In both commercial and residential areas where site constraints exist, sidewalks and planter strips may be reduced to the minimum necessary (e.g., four feet for sidewalks and no planter strip) to accommodate walking and significant natural features such as mature trees, steep embankment, grade problems, and existing structures, or to match existing sidewalks or right-of-way limitations. These natural features are to be preserved to the greatest extent possible. Requests for this configuration shall require the endorsement of the City Engineer. The City Engineer has the authority to require that street widths match adjacent street widths.

Sidewalk Location	***Sidewalk Width***
Arterial in GC/OBC zone	*12 feet*
Collector/Local in GC/OBC zone	*8 feet*
Storefront on arterial	*12 feet*
Storefront on collector/local	*8 feet*
Residential Development	*6 feet (+ 6-foot planter strip)*

(GC = General Commercial; OBC = Office Business Center)

Response: As shown on the preliminary street profiles and cross-sections, street and frontage improvements along Ostman Road (a collector) and Willamette Falls Drive (a minor arterial) will meet the above standards. As such, this standard is met.

4. The decision-making body shall consider the City Engineer's recommendations on the desired right-of-way width, pavement width and street geometry of the various street types within the subdivision after consideration by the City Engineer of the following criteria:

- *a. The type of road as set forth in the Transportation Master Plan.*
- *b. The anticipated traffic generation.*
- *c. On-street parking requirements.*
- *d. Sidewalk and bikeway requirements.*
- *e. Requirements for placement of utilities.*
- *f. Street lighting.*
- *g. Drainage and slope impacts.*
- *h. Street trees.*
- *i. Planting and landscape areas.*
- *j. Existing and future driveway grades.*
- *k. Street geometry.*
- *l. Street furniture needs, hydrants.*

Response: City staff, including the City Engineer, detailed the required ROW widths for Ostman Road and Willamette Falls Drive during the project's pre-application conference, and has provided additional comments on the project's design. The project does not include the creation of any new/additional streets. As such, this standard is met.

5. Additionally, when determining appropriate street width, the decision-making body shall consider the following criteria:

- *a. When a local street is the only street serving a residential area and is expected to carry more than the normal local street traffic load, the designs with two travel and one parking lane are appropriate.*
- *b. Streets intended to serve as signed but unstriped bike routes should have the travel lane widened by two feet.*
- *c. Collectors should have two travel lanes and may accommodate some parking. Bike routes are appropriate.*
- *d. Arterials should have two travel lanes. On-street parking is not allowed unless part of a Street Master Plan. Bike lanes are required as directed by the Parks Master Plan and Transportation Master Plan.*

Response: The application will not result in any new/additional streets, and the improvements to Willamette Falls Drive and Ostman Road have been designed based on input from the City Engineer and other City staff. As such, this standard has been met.

6. Reserve strips. Reserve strips or street plugs controlling the access to streets are not permitted unless owned by the City.

Response: The proposal does not include any reserve strips or street plugs, because new streets are not being created. As such, this standard is not relevant.

7. Alignment. All streets other than local streets or cul-de-sacs, as far as practical, shall be in alignment with existing streets by continuations of the centerlines thereof. The staggering of street alignments resulting in "T" intersections shall, wherever practical, leave a minimum distance of 200 feet between the centerlines of streets having approximately the same direction and otherwise shall not be less than 100 feet.

Response: The application does not involve the creation of any new streets. Therefore this standard is not relevant.

8. Future extension of streets. Where necessary to give access to or permit a satisfactory future subdivision of adjoining land, streets shall be extended to the boundary of the subdivision and the resulting dead-end streets may be approved without turnarounds. (Temporary turnarounds built to Fire Department standards are required when the dead-end street is over 100 feet long.)

Response: The project site is located at the northwest corner of Ostman Road and Willamette Falls Drive, and does not involve the creation of any new streets. Therefore, this standard is not relevant.

9. Intersection angles. Streets shall be laid out to intersect angles as near to right angles as practical, except where topography requires lesser angles, but in no case less than 60 degrees unless a special intersection design is approved. Intersections which are not at right angles shall have minimum corner radii of 15 feet along right-of-way lines which form acute angles. Right-of-way lines at intersections with arterial streets shall have minimum curb radii of not less than 35 feet. Other street intersections shall have curb radii of not less than 25 feet. All radii shall maintain a uniform width between the roadway and the right-of-way lines. The intersection of more than two streets at any one point will not be allowed unless no alternative design exists.

Response: The application will not result in any new streets or intersections. Therefore, this standard is not relevant.

10. Additional right-of-way for existing streets. Wherever existing street rights-of-way adjacent to or within a tract are of inadequate widths based upon the standards of this chapter, additional right-of-way shall be provided at the time of subdivision or partition.

Response: As shown on the preliminary plans, the application includes required ROW dedication and frontage/street improvements along Ostman Road and Willamette Falls Drive The preliminary design is based the applicable standards and on input provided by City staff. As such, this standard has been met.

11. Cul-de-sacs.

a. New cul-de-sacs and other closed-end streets (not including stub streets intended to be connected) on sites containing less than five acres, or sites accommodating uses other than residential or mixed use development, are not allowed unless the applicant demonstrates that there is no feasible alternative due to:

1) Physical constraints (e.g., existing development, the size or shape of the site, steep topography, or a fish bearing stream or wetland protected by Chapter 32 CDC), or

2) Existing easements or leases.

b. New cul-de-sacs and other closed-end streets, consistent with subsection (A)(11)(a) of this section, shall not exceed 200 feet in length or serve more than 25 dwelling units unless the design complies with all adopted Tualatin Valley Fire and Rescue (TVFR) access standards and adequately provides for anticipated traffic, consistent with the Transportation System Plan (TSP).

c. New cul-de-sacs and other closed-end streets (not including stub streets intended to be connected) on sites containing five acres or more that are proposed to accommodate residential or mixed use development are prohibited unless barriers (e.g., existing development, steep topography, or a fish bearing stream or wetland protected by Chapter 32 CDC, or easements, leases or covenants established prior to May 1, 1995) prevent street extensions. In that case, the street

shall not exceed 200 feet in length or serve more than 25 dwelling units, and its design shall comply with all adopted TVFR access standards and adequately provide for anticipated traffic, consistent with the TSP.

d. Applicants for a proposed subdivision, partition or a multifamily, commercial or industrial development accessed by an existing cul-de-sac/closed-end street shall demonstrate that the proposal is consistent with all applicable traffic standards and TVFR access standards.

e. All cul-de-sacs and other closed-end streets shall include direct pedestrian and bicycle accessways from the terminus of the street to an adjacent street or pedestrian and bicycle accessways unless the applicant demonstrates that such connections are precluded by physical constraints or that necessary easements cannot be obtained at a reasonable cost.

f. All cul-de-sacs/closed-end streets shall terminate with a turnaround built to one of the following specifications (measurements are for the traveled way and do not include planter strips or sidewalks).

Response: The application will not create any new cul-de-sacs or other closed-end streets. Therefore, this standard is not relevant.

12. Street names. No street names shall be used which will duplicate or be confused with the names of existing streets within the City. Street names that involve difficult or unusual spellings are discouraged. Street names shall be subject to the approval of the Planning Commission or Planning Director, as applicable. Continuations of existing streets shall have the name of the existing street. Streets, drives, avenues, ways, boulevards, and lanes shall describe through streets. Place and court shall describe cul-de-sacs. Crescent, terrace, and circle shall describe loop or arcing roads.

Response: The application does not include any new streets or street names. Properties will be addressed from Ostman Road. Therefore, this standard is not relevant.

13. Grades and curves. Grades shall not exceed 8 percent on major or secondary arterials, 10 percent on collector streets, or 15 percent on any other street unless by variance. Willamette Drive/Highway 43 shall be designed to a minimum horizontal and vertical design speed of 45 miles per hour, subject to Oregon Department of Transportation (ODOT) approval. Arterials shall be designed to a minimum horizontal and vertical design speed of 35 miles per hour. Collectors shall be designed to a minimum horizontal and vertical design speed of 30 miles per hour. All other streets shall be designed to have a minimum centerline radii of 50 feet. Super elevations (i.e., banking) shall not exceed four percent. The centerline profiles of all streets may be provided where terrain constraints (e.g., over 20 percent slopes) may result in considerable deviation from the originally proposed alignment.

Response: The application will not create any new arterials or collectors, and all improvements to Ostman Road and Willamette Falls Drive will meet the above standards. As such, this standard is met.

14. Access to local streets. Intersection of a local residential street with an arterial street may be prohibited by the decision-making authority if suitable alternatives exist for providing interconnection of proposed local residential streets with other local streets. Where a subdivision or partition abuts or contains an existing or proposed major arterial street, the decision-making authority may require marginal access streets, reverse-frontage lots with suitable depth, visual barriers, noise barriers, berms, no-access reservations along side and rear property lines, and/or other measures necessary for adequate protection of residential properties from incompatible land uses, and to ensure separation of through traffic and local traffic.

Response: The application does not involve the creation of any public streets, and all lots will be accessed from Ostman Road.

15. Alleys. Alleys shall be provided in commercial and industrial districts unless other permanent provisions for access to off-street parking and loading facilities are made as approved by the decision-making authority. While alley intersections and sharp changes in alignment should be avoided, the corners of necessary alley intersections shall have radii of not less than 10 feet. Alleys may be provided in residential subdivisions or multi-family projects. The decision to locate alleys shall consider the relationship and impact of the alley to adjacent land uses. In determining whether it is appropriate to require alleys in a subdivision or partition, the following factors and design criteria should be considered:

a. The alley shall be self-contained within the subdivision. The alley shall not abut undeveloped parcels which are not part of the project proposal. The alley will not stub out to abutting undeveloped parcels which are not part of the project proposal.

b. The alley will be designed to allow unobstructed and easy surveillance by residents and police.

c. The alley should be illuminated. Lighting should include non-omni-directional pole mounted high or low pressure sodium lights every 100 to 200 feet.

d. The alley should be a semi-private space where strangers are tacitly discouraged.

e. Speed bumps may be installed in sufficient number to provide a safer environment for children at play and to discourage through or speeding traffic.

f. Alleys should be a minimum of 14 feet wide, paved with no curbs.

Response: The application is residential in nature, and does not include any alleys. Therefore, this standard is not relevant.

16. Sidewalks. Sidewalks shall be installed per CDC 92.010(H), Sidewalks. The residential sidewalk width is six feet plus planter strip as specified below. Sidewalks in commercial zones shall be constructed per subsection (A)(3) of this section. See also subsection C of this section. Sidewalk width may be reduced with City Engineer approval to the minimum amount (e.g., four feet wide) necessary to respond to site constraints such as grades, mature trees, rock outcroppings, etc., or to match existing sidewalks or right-of-way limitations.

Response: As shown on the preliminary plans, the required 6 foot sidewalks and planter strips/swales will be provided on both Ostman Road and Willamette Falls Drive. As such, this standard has been met.

17. Planter strip. The planter strip is between the curb and sidewalk providing space for a grassed or landscaped area and street trees. The planter strip shall be at least 6 feet wide to accommodate a fully matured tree without the boughs interfering with pedestrians on the sidewalk or vehicles along the curbline. Planter strip width may be reduced or eliminated, with City Engineer approval, when it cannot be corrected by site plan, to the minimum amount necessary to respond to site constraints such as grades, mature trees, rock outcroppings, etc., or in response to right-of-way limitations.

Response: Based on comments from City staff at the pre-application conference and subsequent discussions, a 6 foot planter strip (including curb) has been provided along Willamette Falls Drive, and a 12 foot wide stormwater swale (including curb) has been provided along Ostman Road. As such, this standard is met.

18. Streets and roads shall be dedicated without any reservations or restrictions.

Response: The proposed ROW dedication and street/frontage improvements do not have any reservations or restrictions. As such, this standard is met.

19. All lots in a subdivision shall have access to a public street. Lots created by partition may have access to a public street via an access easement pursuant to the standards and limitations set forth for such accessways in Chapter 48 CDC.

Response: All 4 lots will be accessed from Ostman Road, which is a public street. As such, this standard is met.

20. Gated streets. Gated streets are prohibited in all residential areas on both public and private streets. A driveway to an individual home may be gated.

Response: The application will not result in any gated streets. Therefore, this standard is not applicable.

21. Entryway treatments and street isle design. When the applicant desires to construct certain walls, planters, and other architectural entryway treatments within a subdivision, the following standards shall apply:

a. All entryway treatments except islands shall be located on private property and not in the public right-of-way.

b. Planter islands may be allowed provided there is no structure (i.e., brick, signs, etc.) above the curbline, except for landscaping. Landscaped islands shall be set back a minimum of 24 feet from the curbline of the street to which they are perpendicular.

c. All islands shall be in public ownership. The minimum aisle width between the curb and center island curbs shall be 14 feet. Additional width may be required as determined by the City Engineer.

d. Brick or special material treatments are acceptable at intersections with the understanding that the City will not maintain these sections except with asphalt overlay, and that they must meet the Americans with Disabilities Act (ADA) standards. They shall be laid out to tie into existing sidewalks at intersections.

e. Maintenance for any common areas and entryway treatments (including islands) shall be guaranteed through homeowners association agreements, CC&Rs, etc.

f. Under Chapter 52 CDC, subdivision monument signs shall not exceed 32 square feet in area.

Response: The application does not include any subdivision entryways, street isles, or planter islands, as all 4 lots will be adjacent to one another and will be accessed from Ostman Road via individual driveways. Therefore, this standard is not applicable.

22. Based upon the determination of the City Manager or the Manager's designee, the applicant shall construct or cause to be constructed, or contribute a proportionate share of the costs, for all necessary off-site improvements identified by the transportation analysis commissioned to address CDC 85.170(B)(2) that are required to mitigate impacts from the proposed subdivision. The proportionate share of the costs shall be determined by the City Manager or Manager's designee, who shall assume that the proposed subdivision provides improvements in rough proportion to identified impacts of the subdivision. Off-site transportation improvements will include bicycle and pedestrian improvements as identified in the adopted City of West Linn TSP.

Response: The application includes all required ROW dedication and frontage/street improvements. In addition, an existing water main along Ostman Road between Willamette

Falls Drive and Bexhill Road will be replaced by the applicant, and all applicable SDC's will be paid. As such, this standard is met.

B. Blocks and lots.

1. General. The length, width, and shape of blocks shall be designed with due regard for the provision of adequate building sites for the use contemplated; consideration of the need for traffic safety, convenience, access, circulation, and control; and recognition of limitations and opportunities of topography and solar access.

2. Sizes. The recommended block size is 400 feet in length to encourage greater connectivity within the subdivision. Blocks shall not exceed 800 feet in length between street lines, except for blocks adjacent to arterial streets or unless topographical conditions or the layout of adjacent streets justifies a variation. Designs of proposed intersections shall demonstrate adequate sight distances to the City Engineer's specifications. Block sizes and proposed accesses must be consistent with the adopted TSP.

3. Lot size and shape. Lot size, width, shape, and orientation shall be appropriate for the location of the subdivision, for the type of use contemplated, for potential utilization of solar access, and for the protection of drainageways, trees, and other natural features. No lot shall be dimensioned to contain part of an existing or proposed street. All lots shall be buildable, and the buildable depth should not exceed two and one-half times the average width. "Buildable" describes lots that are free of constraints such as wetlands, drainageways, etc., that would make home construction impossible. Lot sizes shall not be less than the size required by the zoning code unless as allowed by planned unit development (PUD). Depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for the off-street parking and service facilities required by the type of use proposed.

4. Access. Access to subdivisions, partitions, and lots shall conform to the provisions of Chapter 48 CDC, Access, Egress and Circulation.

Response: The application involves a 4 lot subdivision at the intersection of two existing public streets, and does not involve the creation of additional blocks or streets. The total length of the 4 lots' frontage along Ostman Road will be less than 400 feet, with each lot approximately 80 feet in width. All 4 lots will be accessed from Ostman Road, which has previously indicated (during the pre-application conference) would be a condition of approval. Access to all 4 lots meets the applicable standards of Chapter 48, with the exception of the proposed reduction to the minimum distances between driveways that are being pursued through the Class II variance process (as discussed above). As such, this standard is met.

5. Through lots and parcels. Through lots have frontage on a street at the front and rear of the lot. They are also called double-frontage lots. Through lots and parcels shall be avoided except where they are essential to provide separation of residential development from arterial streets or adjacent non-residential activities, or to overcome specific disadvantages of topography and orientation. A planting screen or impact mitigation easement at least 10 feet wide, and across which there shall be no right of access, may be required along the line of building sites abutting such a traffic artery or other incompatible use.

Response: This application does not include through lots. Therefore, this standard is not relevant.

6. Lot and parcel side lines. The lines of lots and parcels, as far as is practicable, should run at right angles to the street upon which they face, except that on curved streets they should be radial to the curve.

Response: As shown on the preliminary plans, the interior lot lines for Lots 1-4 will run at right angles to Ostman Road. As such, this standard is met.

7. Flag lots. Flag lots can be created where it can be shown that no other reasonable street access is possible to achieve the requested land division. A single flag lot shall have a minimum street frontage of 15 feet for its accessway. Where two to four flag lots share a common accessway, the minimum street frontage and accessway shall be eight feet in width per lot. Common accessways shall have mutual maintenance agreements and reciprocal access and utility easements. The following dimensional requirements shall apply to flag lots:

a. Setbacks applicable to the underlying zone shall apply to the flag lot.

b. Front yard setbacks may be based on the rear property line of the parcel which substantially separates the flag lot from the street from which the flag lot gains access. Alternately, the house and its front yard may be oriented in other directions so long as some measure of privacy is ensured, or it is part of a pattern of development, or it better fits the topography of the site.

c. The lot size shall be calculated exclusive of the accessway; the access strip may not be counted towards the area requirements.

d. The lot depth requirement contained elsewhere in this code shall be measured from the rear property line of the parcel which substantially separates the flag lot from the street from which the flag lot gains access.

e. As per CDC 48.030, the accessway shall have a minimum paved width of 12 feet.

f. If the use of a flag lot stem to access a lot is infeasible because of a lack of adequate existing road frontage, or location of existing structures, the proposed lot(s) may be accessed from the public street by an access easement of a minimum 15-foot width across intervening property.

Response: The application does not involve the creation of any flag lots. Therefore, this standard is not relevant.

8. Large lots. In dividing tracts into large lots or parcels which, at some future time, are likely to be redivided, the approval authority may require that the blocks be of such size and shape, and be so divided into building sites, and contain such easements and site restrictions as will provide for extension and opening of streets at intervals which will permit a subsequent division of any tract into lots or parcels of smaller size. Alternately, in order to prevent further partition of oversized lots, restrictions may be imposed on the subdivision or partition plat.

Response: All 4 lots will be ± 10,000 sf, which is the minimum lot size for the R-10 zone. As such, the lots are unlikely to be redivided in the future. Therefore, this standard is not relevant.

C. Pedestrian and bicycle trails.

1. Trails or multi-use pathways shall be installed, consistent and compatible with federal ADA requirements and with the Oregon Transportation Planning Rule, between subdivisions, cul-de-sacs, and streets that would otherwise not be connected by streets due to excessive grades, significant tree(s), and other constraints natural or manmade. Trails shall also accommodate bicycle or pedestrian traffic between neighborhoods and activity areas such as schools, libraries, parks, or commercial districts. Trails shall also be required where designated by the Parks Master Plan.

2. The all-weather surface (asphalt, etc.) trail should be eight feet wide at minimum for bicycle use and six feet wide at minimum for pedestrian use. Trails within 10 feet of a wetland or natural drainageway shall not have an all-weather surface, but shall have a soft surface as approved by the Parks Director. These trails shall be contained within a corridor dedicated to the City that is wide enough to provide trail users with a sense of defensible space. Corridors that are too narrow, confined, or with vegetative cover may be threatening and discourage use. Consequently, the minimum corridor width shall be 20 feet. Sharp curves, twists, and blind corners on the trail are to be avoided as much as possible to enhance

defensible space. Deviations from the corridor and trail width are permitted only where topographic and ownership constraints require it.

3. Defensible space shall also be enhanced by the provision of a three- to four-foot-high matte black chain link fence or acceptable alternative along the edge of the corridor. The fence shall help delineate the public and private spaces.

4. The bicycle or pedestrian trails that traverse multi-family and commercial sites should follow the same defensible space standards but do not need to be defined by a fence unless required by the decision-making authority.

5. Except for trails within 10 feet of a wetland or natural drainageway, soft surface or gravel trails may only be used in place of a paved, all-weather surface where it can be shown to the Planning Director that the principal users of the path will be recreational, non-destination-oriented foot traffic, and that alternate paved routes are nearby and accessible.

6. The trail grade shall not exceed 12 percent except in areas of unavoidable topography, where the trail may be up to a 15 percent grade for short sections no longer than 50 feet. In any location where topography requires steeper trail grades than permitted by this section, the trail shall incorporate a short stair section to traverse the area of steep grades.

Response: The project will result in 6 foot wide public sidewalks along both Ostman Road and Willamette Falls Drive, which will provide unimpeded access to the surrounding pedestrian, bicycle, and vehicular transportation network. As such, additional pedestrian and bicycle trails are not required.

D. Transit facilities.

1. The applicant shall consult with Tri-Met and the City Engineer to determine the appropriate location of transit stops, bus pullouts, future bus routes, etc., contiguous to or within the development site. If transit service is planned to be provided within the next two years, then facilities such as pullouts shall be constructed per Tri-Met standards at the time of development. More elaborate facilities, like shelters, need only be built when service is existing or imminent. Additional rights-of-way may be required of developers to accommodate buses.

2. The applicant shall make all transit-related improvements in the right-of-way or in easements abutting the development site as deemed appropriate by the City Engineer.

3. Transit stops shall be served by striped and signed pedestrian crossings of the street within 150 feet of the transit stop where feasible. Illumination of the transit stop and crossing is required to enhance defensible space and safety. ODOT approval may be required.

4. Transit stops should include a shelter structure bench plus eight feet of sidewalk to accommodate transit users, non-transit-related pedestrian use, and wheelchair users. Tri-Met must approve the final configuration.

Response: Tri-Met Line 154 is a local route that runs south on Ostman Road past the project site, before heading east on Willamette Falls Drive towards the Oregon City Transit Center. There is an existing bus stop at Ostman Road and Willamette Drive. City staff has not identified the need for improvements to this existing bus stop, or the provision of an 8 foot sidewalk. Should Tri-Met require additional improvements, they may be incorporated into the project design. As such, this standard is met.

E. Lot grading. Grading of building sites shall conform to the following standards unless physical conditions demonstrate the propriety of other standards:

1. All cuts and fills shall comply with the excavation and grading provisions of the Uniform Building Code and the following:

a. Cut slopes shall not exceed one and one-half feet horizontally to one foot vertically (i.e., 67 percent grade).

b. Fill slopes shall not exceed two feet horizontally to one foot vertically (i.e., 50 percent grade). Please see the following illustration.

2. The character of soil for fill and the characteristics of lot and parcels made usable by fill shall be suitable for the purpose intended.

3. If areas are to be graded (more than any four-foot cut or fill), compliance with CDC 85.170(C) is required.

4. The proposed grading shall be the minimum grading necessary to meet roadway standards, and to create appropriate building sites, considering maximum allowed driveway grades.

5. Where landslides have actually occurred, where the area is identified as a hazard site in the West Linn Comprehensive Plan Report, or where field investigation by the City Engineer confirms the existence of a severe landslide hazard, development shall be prohibited unless satisfactory evidence is additionally submitted by a registered geotechnical engineer which certifies that methods of rendering a known hazard site safe for construction are feasible for a given site. The City Engineer's field investigation shall include, but need not be limited to, the following elements:

a. Occurrences of geotropism.

b. Visible indicators of slump areas.

c. Existence of known and verified hazards.

d. Existence of unusually erosive soils.

e. Occurrences of unseasonably saturated soils.

The City Engineer shall determine whether the proposed methods or designs are adequate to prevent landslide or slope failure. The City Engineer may impose conditions consistent with the purpose of these ordinances and with standard engineering practices including limits on type and intensity of land use, which have been determined necessary to assure landslide or slope failure does not occur.

6. All cuts and fills shall conform to the Uniform Building Code.

7. On land with slopes in excess of 12 percent, cuts and fills shall be regulated as follows:

a. Toes of cuts and fills shall be set back from the boundaries of separate private ownerships at least three feet, plus one-fifth of the vertical height of the cut or fill. Where an exception is required from that requirement, slope easements shall be provided.

b. Cuts shall not remove the toe of any slope where a severe landslide or erosion hazard exists (as described in subsection (G)(5) of this section).

c. Any structural fill shall be designed by a registered engineer in a manner consistent with the intent of this code and standard engineering practices, and certified by that engineer that the fill was constructed as designed.

d. Retaining walls shall be constructed pursuant to Section 2308(b) of the Oregon State Structural Specialty Code.

e. Roads shall be the minimum width necessary to provide safe vehicle access, minimize cut and fill, and provide positive drainage control.

8. Land over 50 percent slope shall be developed only where density transfer is not feasible. The development will provide that:

a. At least 70 percent of the site will remain free of structures or impervious surfaces.

b. Emergency access can be provided.

c. Design and construction of the project will not cause erosion or land slippage.

d. Grading, stripping of vegetation, and changes in terrain are the minimum necessary to construct the development in accordance with subsection J of this section.

Response: As shown on the preliminary plans, lot grading is not necessary. Some grading is necessary to complete required frontage improvements. All grading will be done in compliance to the standards as listed above. The standard has been met.

F. Water.

1. A plan for domestic water supply lines or related water service facilities shall be prepared consistent with the adopted Comprehensive Water System Plan, plan update, March 1987, and subsequent superseding revisions or updates.
2. Adequate location and sizing of the water lines.
3. Adequate looping system of water lines to enhance water quality.
4. For all non-single-family developments, there shall be a demonstration of adequate fire flow to serve the site.
5. A written statement, signed by the City Engineer, that water service can be made available to the site by the construction of on-site and off-site improvements and that such water service has sufficient volume and pressure to serve the proposed development's domestic, commercial, industrial, and fire flows.

Response: Comments from the City in the pre-application conference notes state that there is sufficient water service available on Ostman Road to serve this site. The applicant will work with the City to replace approximately 500 feet of 6" existing water main with new 6" DI water line between Willamette Falls Drive and Bexhill Street, this is shown on the preliminary plans. The standard has been met.

G. Sewer.

1. A plan prepared by a licensed engineer shall show how the proposal is consistent with the Sanitary Sewer Master Plan (July 1989). Agreement with that plan must demonstrate how the sanitary sewer proposal will be accomplished and how it is gravity-efficient. The sewer system must be in the correct basin and should allow for full gravity service.
2. Sanitary sewer information will include plan view of the sanitary sewer lines, including manhole locations and depth or invert elevations.
3. Sanitary sewer lines shall be located in the public right-of-way, particularly the street, unless the applicant can demonstrate why the alternative location is necessary and meets accepted engineering standards.
4. Sanitary sewer line should be at a depth that can facilitate connection with down-system properties in an efficient manner.
5. The sanitary sewer line should be designed to minimize the amount of lineal feet in the system.
6. The sanitary sewer line shall avoid disturbance of wetland and drainageways. In those cases where that is unavoidable, disturbance shall be mitigated pursuant to Chapter 32 CDC, Water Resource Area Protection, all trees replaced, and proper permits obtained. Dual sewer lines may be required so the drainageway is not disturbed.
7. Sanitary sewer shall be extended or stubbed out to the next developable subdivision or a point in the street that allows for reasonable connection with adjacent or nearby properties.
8. The sanitary sewer system shall be built pursuant to DEQ, City, and Tri-City Service District sewer standards. The design of the sewer system should be prepared by a licensed engineer, and the applicant must be able to demonstrate the ability to satisfy these submittal requirements or standards at the pre-construction phase.
9. A written statement, signed by the City Engineer, that sanitary sewers with sufficient capacity to serve the proposed development and that adequate sewage treatment plant capacity is available to the City to serve the proposed development.

Response: The preliminary plans, prepared by a licensed engineer, show the sanitary sewer has been designed with direct connections to the existing sewer main in Ostman Road in an efficient manner, are gravity fed and avoid wetlands or drainageways. The sanitary sewer system has been designed to be consistent with the Sanitary Sewer Master Plan, and will be built pursuant to DEQ, City and Tri-City District sewer standards. The standard has been met.

H. Storm.

1. A stormwater quality and detention plan shall be submitted which complies with the submittal criteria and approval standards contained within Chapter 33 CDC. It shall include profiles of proposed drainageways with reference to the adopted Storm Drainage Master Plan.

2. Storm treatment and detention facilities shall be sized to accommodate a 25-year storm incident. A registered civil engineer shall prepare a plan and statement which shall be supported by factual data that clearly shows that there will be no adverse off-site impacts from increased intensity of runoff downstream or constriction causing ponding upstream. The plan and statement shall identify all on- or off-site impacts and measures to mitigate those impacts. The plan and statement shall, at a minimum, determine the off-site impacts from a 25-year storm.

3. Plans shall demonstrate how storm drainage will be collected from all impervious surfaces including roof drains. Storm drainage connections shall be provided to each dwelling unit/lot. The location, size, and type of material selected for the system shall correlate with the 25-year storm incident.

4. Treatment of storm runoff shall meet municipal code standards.

Response: Sheet 7 of the preliminary plans demonstrates how the storm drainage will be detained on each private lot and a street side swale has been located along Ostman Road. A preliminary stormwater report, included with this application, details how stormwater will be captured and directed to meet City standards. The standard has been met.

I. Utility easements. Subdivisions and partitions shall establish utility easements to accommodate the required service providers as determined by the City Engineer. The developer of the subdivision shall make accommodation for cable television wire in all utility trenches and easements so that cable can fully serve the subdivision.

Response: The preliminary plans show public utility easements have been provided along Ostman Road and Willamette Falls Drive, to provide for all necessary utilities, including cable television wire. The standard has been met.

J. Supplemental provisions.

1. Wetland and natural drainageways. Wetlands and natural drainageways shall be protected as required by Chapter 32 CDC, Water Resource Area Protection. Utilities may be routed through the protected corridor as a last resort, but impact mitigation is required.

Response: The site does not include any wetlands or natural drainageways. Therefore, these standards are not relevant.

2. Willamette and Tualatin Greenways. The approval authority may require the dedication to the City or setting aside of greenways which will be open or accessible to the public. Except for trails or paths, such greenways will usually be left in a natural condition without improvements. Refer to Chapter 28 CDC for further information on the Willamette and Tualatin River Greenways.

Response: This property is not adjacent to the Willamette River or the Tualatin River; greenways have not been identified for dedication on this site. Therefore, these standards are not relevant.

3. Street trees. Street trees are required as identified in the appropriate section of the municipal code and Chapter 54 CDC.

Response: Sheet 11 of the preliminary plans shows the street tree planting plan with locations and notes regarding choices, irrigation and maintenance to be in compliance with the Community Development Code. The standard has been met.

4. Lighting. To reduce ambient light and glare, high or low pressure sodium light bulbs shall be required for all subdivision street or alley lights. The light shall be shielded so that the light is directed downwards rather than omni-directional.

Response: The preliminary lighting plan and luminaire schedule is shown on sheet 12 of the preliminary plan set. Beta (Cree) LED lights will be provided per the recommendation of the City in the pre-application conference notes. The standard has been met.

5. Dedications and exactions. The City may require an applicant to dedicate land and/or construct a public improvement that provides a benefit to property or persons outside the property that is the subject of the application when the exaction is roughly proportional. No exaction shall be imposed unless supported by a determination that the exaction is roughly proportional to the impact of development.

Response: As shown on the preliminary plans, the project includes right-of-way improvements that are appropriate for this 4 lot subdivision. The standard has been met.

6. Underground utilities. All utilities, such as electrical, telephone, and television cable, that may at times be above ground or overhead shall be buried underground in the case of new development. The exception would be in those cases where the area is substantially built out and adjacent properties have above-ground utilities and where the development site's frontage is under 200 feet and the site is less than one acre. High voltage transmission lines, as classified by Portland General Electric or electric service provider, would also be exempted. Where adjacent future development is expected or imminent, conduits may be required at the direction of the City Engineer. All services shall be underground with the exception of standard above-grade equipment such as some meters, etc.

Response: As shown on the preliminary plans, new utilities will be placed underground. The standard has been met.

7. Density requirement. Density shall occur at 70 percent or more of the maximum density allowed by the underlying zoning. These provisions would not apply when density is transferred from Type I and II lands as defined in CDC 02.030. Development of Type I or II lands are exempt from these provisions. Land divisions of three lots or less would also be exempt.

Response:

Total Site Area:	1.02 acres x 43,500 sq ft = 44,370 sq ft
Lot size per 05.020 for R-10 :	10,000
Density:	44,370 / 10,000 = 4.44 lots

05.020 CLASSIFICATIONS OF ZONES

All areas within the corporate limits of the City of West Linn are hereby divided into zone districts, and the use of each tract and ownership of land within the corporate limits shall be limited to those uses permitted by the zoning classification applicable to each such tract as hereinafter designated. The zoning districts within the City of West Linn are hereby classified and designated as follows:

Zoning District	Zone Designation	Dwelling Units per Net Acre	Lot Size per Unit in Square Feet
Single-Family Residential detached	R-10	4.35	10,000

Response: Per CDC 05.020 (table and calculations above) the number of dwelling units per acre allowed in the R-10 zone is 4.35. This site is 1.02 acres, therefore 4 lots meets this standard.

8. Mix requirement. The "mix" rule means that developers shall have no more than 15 percent of the R-2.1 and R-3 development as single-family residential. The intent is that the majority of the site shall be developed as medium high density multi-family housing.

Response: This project is not in the R2.1 or R-3 zone. The standard does not apply.

9. Heritage trees/significant tree and tree cluster protection. All heritage trees, as defined in the Municipal Code, shall be saved. Diseased heritage trees, as determined by the City Arborist, may be removed at his/her direction. All non-heritage trees and clusters of trees (three or more trees with overlapping dripline; however, native oaks need not have an overlapping dripline) that are considered significant by virtue of their size, type, location, health, or numbers shall be saved pursuant to CDC 55.100(B)(2). Trees are defined per the municipal code as having a trunk six inches in diameter or 19 inches in circumference at a point five feet above the mean ground level at the base of the trunk.

Response: The site does not include any Heritage Trees. As confirmed by the City Arborist, the only significant tree on the site is already dead, and will be removed to allow for site development.

10. Annexation and street lights. Developer and/or homeowners association shall, as a condition of approval, pay for all expenses related to street light energy and maintenance costs until annexed into the City, and state that: "This approval is contingent on receipt of a final order by the Portland Boundary Commission, approving annexation of the subject property." This means, in effect, that any permits, public improvement agreements, final plats, and certificates of occupancy may not be issued until a final order is received. (Ord. 1377, 1995; Ord. 1382, 1995; Ord. 1401, 1997; Ord. 1403, 1997; Ord. 1408, 1998; Ord. 1425, 1998; Ord. 1442, 1999; Ord. 1463, 2000; Ord. 1526, 2005; Ord. 1544, 2007; Ord. 1584, 2008; Ord. 1590 § 1, 2009; Ord. 1604 § 64, 2011; Ord. 1613 § 20, 2013)

Response: This property is within the city limits. The standard has been met.

SUPLEMENTAL APPLICABLE CRITERIA

CHAPETER 11 – SINGLE-FAMILY RESIDENTIAL DETACHED, R-10

11.070 DIMENSIONAL REQUIREMENTS, USES PERMITTED OUTRIGHT AND USES PERMITTED UNDER PRESCRIBED CONDITIONS

Except as may be otherwise provided by the provisions of this code, the following are the requirements for uses within this zone:

1. *The minimum lot size shall be 10,000 square feet for a single-family detached unit.*

Response: These 4 lots are a minimum of 10,000 square feet. The standard has been met.

2. *The minimum front lot line length or the minimum lot width at the front lot line shall be 35 feet.*

Response: These 4 lots are a minimum of width of 35 feet at the front lot line. The standard has been met.

3. *The average minimum lot width shall be 50 feet.*

Response: The average of minimum lot width is 77 feet. The standard has been met.

4. *The lot depth comprising non-Type I and II lands shall be less than two and one-half times the width, and more than an average depth of 90 feet. (See diagram below.)*

Response: Each of these 4 lots have a depth less than 2.5 times their width and average more than 128 feet in depth. The standard has been met.

5. *Except as specified in CDC 25.070(C)(1) through (4) for the Willamette Historic District, the minimum yard dimensions or minimum building setback area from the lot line shall be:*

   a. *For the front yard, 20 feet; except for steeply sloped lots where the provisions of CDC 41.010 shall apply.*

   b. *For an interior side yard, seven and one-half feet.*

   c. *For a side yard abutting a street, 15 feet.*

   d. *For a rear yard, 20 feet.*

Response: Front, side and rear yard setbacks conforming to this standard are shown on page 5 of the preliminary plan set included with this application. The standard has been met.

6. *The maximum building height shall be 35 feet, except for steeply sloped lots in which case the provisions of Chapter 41 CDC shall apply.*

Response: Future homes built on this site will not exceed 35 feet in height and will be reviewed for compliance at the time of application for building permits. The standard has been met.

7. *The maximum lot coverage shall be 35 percent.*

Response: While specific house plans have not yet been chosen for this site, future lot coverage will not exceed the maximum of 35 percent and will be reviewed for compliance at the time of application for building permits. The standard has been met.

8. *The minimum width of an accessway to a lot which does not abut a street or a flag lot shall be 15 feet.*

Response: Accessways designed for these lots are 24 feet wide. The standard has been met.

9. The floor area ratio shall be 0.45. Type I and II lands shall not be counted toward lot area when determining allowable floor area ratio, except that a minimum floor area ratio of 0.30 shall be allowed regardless of the classification of lands within the property. That 30 percent shall be based upon the entire property including Type I and II lands. Existing residences in excess of this standard may be replaced to their prior dimensions when damaged without the requirement that the homeowner obtain a non-conforming structures permit under Chapter 66 CDC.

Response: Specific house plans have not yet been chosen for this site, floor area ratios will be meet standard above as require and reviewed for compliance at the time of building permit application. The standard has been met.

10. The sidewall provisions of Chapter 43 CDC shall apply. (Ord. 1175, 1986; Ord. 1298, 1991; Ord. 1377, 1995; Ord. 1538, 2006; Ord. 1614 § 2, 2013)

Response: Specific house plans have not yet been chosen for this site; however, sidewall provisions of Chapter 43 will be applied to the house designs and reviewed for compliance at the time of building permit application. The standard has been met

CHAPTER 33 – STORMWATER QUALITY DETENTION

33.040 APPROVAL CRITERIA

The Planning Director and City Engineer shall make written findings with respect to the following criteria when approving, approving with conditions, or denying applications for stormwater detention permits and stormwater quality permits.

As shown on page 7 of the preliminary plans there are two types of stormwater facilities on site. A private stormwater infiltration chamber trench, rain garden or approved equivalent with overflow per City standards, will be located on each lot. Stormwater lateral overflow lines will connect to existing storm lines at Willamette Falls Drive. Additionally, a public street side swale, collecting stormwater along Ostman Road will be designed and planted according to City standards. More detailed information may be found in the preliminary stormwater report included with this application.

A. Stormwater quality facilities shall meet non-point source pollution control standards required by the Public Works Design Standards.

Response: The stormwater facilities will be designed to meet non-point source pollution control standards as required by the Public Works Design Standards, additional details may be found in the preliminary stormwater report. The standard is met.

B. Design of stormwater detention and pollution reduction facilities and related detention and water quality calculations shall meet Public Works Design Standards and shall be prepared by a professional engineer licensed to practice in the State of Oregon.

Response: The preliminary stormwater report has been prepared by a professional engineer, licensed in to practice in the state of Oregon. The standard is met.

C. Soil stabilization techniques, erosion control, and adequate improvements to accommodate the intended drainage through the drainage basin shall be used. Storm drainage shall not be diverted from its natural watercourse unless no feasible alternatives exist. Interbasin transfers of storm drainage will not be permitted.

Response: Soil stabilization techniques, erosion control, and adequate improvements to accommodate the intended drainage through the drainage basin shall be used to design the stormwater quality facilities. Storm drainage will not be diverted from its natural watercourse. The standard is met.

D. Stormwater detention and treatment facilities shall encroach no further than 25 feet into the outside boundary of a water quality resource area. The area of encroachment must be replaced by adding an equal area to the water quality resource area on the subject property.

Response: Stormwater detention and treatment facilities are not located near the boundary of a water quality resource area. This standard is not relevant.

E. Stormwater detention and treatment facilities shall be vegetated with plants from the Metro's Native Plant List as described in CDC 33.070.

Response: The public stormwater swale located along Ostman Road will be vegetated with plants from Metro's Native Plant List. The standard is met.

F. Projects must either stockpile existing topsoil for reuse on the site or import topsoil, rather than amend subsoils. Soil amendments are allowed only where the applicant can demonstrate they are the only practical alternative for enabling the soil to support healthy plantings, promoting better stormwater treatment, or improving soil infiltration capacity (where appropriate).

Response: To the extent that existing top soil will be disturbed, it will be stockpiled for reuse on the site. The standard is met.

G. Interim erosion control measures, such as mulching, shall be placed immediately upon completion of grading of the facilities. (Ord. 1463, 2000)

Response: Sheet 6 of the preliminary plans shows an erosion and sediment control plan to be implemented. The standard is met.

33.060 MAINTENANCE AND ACCESS REQUIREMENTS

Maintenance and access requirements shall meet Public Works Design Standards. (Ord. 1463, 2000)

Response: Maintenance and access requirements to the stormwater detention and treatment facilities will meet Public Works Design Standards. The standard is met.

33.070 PLANT MATERIAL FOR WATER QUALITY FACILITIES

Metro's Native Plant List is incorporated by reference as a part of this chapter. The applicant shall submit a detailed planting plan using species from Metro's Native Plant List. The intent of this plan is to establish native vegetation to protect against erosion and sediment infiltration. A mix of low maintenance trees, shrubs, and groundcover is preferred with an even distribution.

A. The planting plan shall be prepared by a professional landscape architect if the development site contains more than 5,000 square feet of impervious area. The planting plan shall include a table listing the scientific names, size, and quantity of plants.
B. The plan shall include plant location, species, size, and quantity for stormwater detention and treatment facilities. Evergreen trees shall have a minimum height of four feet and deciduous trees shall be at least one-inch caliper in size at the time of planting. Shrubs shall be a minimum of one gallon in size at the time of planting. Spaces shall be filled at mature growth but not so that overplanting occurs and overcrowding results. Temporary irrigation systems or other means of ensuring establishment of the plantings must be specified.

C. Plantings shall be designed to minimize or eliminate the need for herbicides, fertilizers, pesticides, or soil amendments at any time before, during, or after construction, or on a long-term basis. Plantings shall be designed to minimize or eliminate the need for frequent mowing and irrigation.

D. The applicant is responsible for implementing the planting plan during the next fall or spring planting season following permit approval. Prior to planting, noxious vegetation shall be removed. All soil areas must be covered with specified plants and mulch to prevent erosion.

E. Plantings shall be incorporated into a public improvement guarantee agreement, which includes a maintenance bond as required by CDC 91.010(C). The maintenance bond is required for any project involving stormwater quality and detention facilities. (Ord. 1463, 2000)

Response: A planting plan for the street side swale along Ostman Road to meet the quality, design, and maintenance standards as outlined above will be provided with the final construction plan set for public improvements. The standard is met.

CHAPTER 42 – CLEAR VISION AREAS

42.020 CLEAR VISION AREAS REQUIRED, USES PROHIBITED
A. A clear vision area shall be maintained on the corners of all property adjacent to an intersection as provided by CDC 42.040 and 42.050.
B. A clear vision area shall contain no planting, fence, wall, structure or temporary or permanent obstruction (except for an occasional utility pole or tree) exceeding three feet in height, measured from the top of the curb, or, where no curb exists, from the street centerline grade, except that trees exceeding this height may be located in this area, provided all branches below eight feet are removed. (Ord. 1192, 1987)

42.030 EXCEPTIONS
The following described area in Willamette shall be exempt from the provisions of this chapter. The parcels of land zoned General Commercial which abut Willamette Falls Drive, located between 10th and 16th Streets. Beginning at the intersection of Willamette Falls Drive and 11th Street on 7th Avenue to 16th Street; on 16th Street to 9th Avenue; on 9th Avenue to 14th Street to the Tualatin River; following the Tualatin River and Willamette River to 12th Street; on 12th Street to 4th Avenue; on 4th Avenue to 11th Street; on 11th Street to Willamette Falls Drive. This described area does not include the northerly side of Willamette Falls Drive.

42.040 COMPUTATION; STREET AND ACCESSWAY 24 FEET OR MORE IN WIDTH
The clear vision area for all street intersections and street and accessway intersections (accessways having 24 feet or more in width) shall be that triangular area formed by the right-of-way or property lines along such lots and a straight line joining the right-of-way or property line at points which are 30 feet distant from the intersection of the right-of-way line and measured along such lines.

42.050 COMPUTATION; ACCESSWAY LESS THAN 24 FEET IN WIDTH

The clear vision area for street and accessway intersections (accessways having less than 24 feet in width) shall be that triangular area whose base extends 30 feet along the street right-of-way line in both directions from the centerline of the accessway at the front setback line of a single-family and two-family residence, and 30 feet back from the property line on all other types of uses.

Response: Clear vision areas of 30 feet will be maintained at the corner of Ostman and Willamette Falls Drive, as shown on page 8 of the preliminary plans. The standard has been met.

CHAPTER 44 – FENCES

44.020 SIGHT-OBSCURING FENCE; SETBACK AND HEIGHT LIMITATIONS

A. A sight- or non-sight-obscuring fence may be located on the property line or in a yard setback area subject to the following:

1. The fence is located within:

a. A required front yard area, and it does not exceed three feet, except pillars and driveway entry features subject to the requirements of Chapter 42 CDC, Clear Vision Areas, and approval by the Planning Director;

b. A required side yard which abuts a street and it is within that portion of the side yard which is also part of the front yard setback area and it does not exceed three feet;

c. A required side yard which abuts a street and it is within that portion of the side yard which is not also a portion of the front yard setback area and it does not exceed six feet provided the provisions of Chapter 42 CDC are met;

d. A required rear yard which abuts a street and it does not exceed six feet; or

e. A required side yard area which does not abut a street or a rear yard and it does not exceed six feet.

Response: Fences are not included in this application. Any future fences to be constructed will meet the above standards. The standard has been met.

B. Fence or wall on a retaining wall. When a fence is built on a retaining wall or an artificial berm, the following standards shall apply:

1. When the retaining wall or artificial berm is 30 inches or less in height from finished grade, the maximum fence or wall height on top of the retaining wall shall be six feet.

2. When the retaining wall or earth berm is greater than 30 inches in height, the combined height of the retaining wall and fence or wall from finished grade shall not exceed eight and one-half feet.

3. Fences or walls located on top of retaining walls or earth berms in excess of 30 inches above finished grade may exceed the total allowed combined height of eight and one-half feet; provided, that the fence or wall is located a minimum of two feet from the retaining wall and the fence or wall height shall not exceed six feet.

Response: Fences or walls on a retaining wall are not part of this project. The standard is not relevant.

44.030 SCREENING OF OUTDOOR STORAGE

A. All service, repair, and storage activities carried on in connection with any commercial, business or industrial activity and not conducted within an enclosed building shall be screened from view of all adjacent properties and adjacent streets by a sight-obscuring fence.

B. The sight-obscuring fence shall be in accordance with provisions of Chapter 42 CDC, Clear Vision Areas, and shall be subject to the provisions of Chapter 55 CDC, Design Review.

Response: This is a residential project; service, repair or storage activities in connection with commercial, business or industrial activity is not a part this residential subdivision. This standard is not relevant.

44.040 LANDSCAPING

Landscaping which is located on the fence line and which impairs sight vision shall not be located within the clear vision area as provided in Chapter 42 CDC.

Response: Landscaping along a fence line will not be located within the clear vision area. The standard has been met.

44.050 STANDARDS FOR CONSTRUCTION

A. The structural side of the fence shall face the owner's property; and

B. The sides of the fence abutting adjoining properties and the street shall be maintained. (Ord. 1291, 1990)

Response: Fences are not a part of this project. Any future fences will be constructed to meet the standards above. The standard has been met.

CHAPTER 54 – LANDSCAPING

54.020 APPROVAL CRITERIA

A. Every development proposal requires inventorying existing site conditions which include trees and landscaping. In designing the new project, every reasonable attempt should be made to preserve and protect existing trees and to incorporate them into the new landscape plan. Similarly, significant landscaping (e.g., bushes, shrubs) should be integrated. The rationale is that saving a 30-foot-tall mature tree helps maintain the continuity of the site, they are qualitatively superior to two or three two-inch caliper street trees, they provide immediate micro-climate benefits (e.g., shade), they soften views of the street, and they can increase the attractiveness, marketability, and value of the development.

B. To encourage tree preservation, the parking requirement may be reduced by one space for every significant tree that is preserved in the parking lot area for a maximum reduction of 10 percent of the required parking. The City Parks Supervisor or Arborist shall determine the significance of the tree and/or landscaping to determine eligibility for these reductions.

C. Developers must also comply with the municipal code chapter on tree protection.

D. Heritage trees. Heritage trees are trees which, because of their age, type, notability, or historical association, are of special importance. Heritage trees are trees designated by the City Council following review of a nomination. A heritage tree may not be removed without a public hearing at least 30 days prior to the proposed date of removal. Development proposals involving land with heritage tree(s) shall be required to protect and save the tree(s). Further discussion of heritage trees is found in the municipal code.

Response: There are not any heritage trees on the project site. The City Arborist evaluated the site and determined that the only significant tree is dying and that it does not need to be saved. A tree removal and preservation sheet is included in the preliminary plans. The standard has been met.

F. Landscaping (trees) in new subdivision.

1. Street trees shall be planted by the City within the planting strips (minimum six-foot width) of any new subdivision in conformity with the street tree plan for the area, and in accordance with the planting specifications of the Parks and Recreation Department. All trees shall be planted during the first planting season after occupancy. In selecting types of trees, the City Arborist may determine the appropriateness of the trees to local conditions and whether that tree has been overplanted, and whether alternate species should be selected. Also see subsection (C) of this section.

2. The cost of street trees shall be paid by the developer of the subdivision.

3. The fee per street tree, as established by the City, shall be based upon the following:

a. The cost of the tree;

b. Labor and equipment for original placement;

c. Regular maintenance necessary for tree establishment during the initial two-year period following the City schedule of maintenance; and

d. A two-year replacement warranty based on the City's established failure rate. (Ord. 1408, 1998; Ord. 1463, 2000)

Response: Street trees will selected, planted and maintained to meet the standards above at the cost to the homebuilder. A preliminary street tree plan is included with this application. The standard has been met.

54.030 PLANTING STRIPS FOR MODIFIED AND NEW STREETS

All proposed changes in width in a public street right-of-way or any proposed street improvement shall, where feasible, include allowances for planting strips. Plans and specifications for planting such areas shall be integrated into the general plan of street improvements. This chapter requires any multi-family, commercial, or public facility which causes change in public right-of-way or street improvement to comply with the street tree planting plan and standards.

Response: The preliminary plans show a 6 foot wide planter strip (including curb) along the improvements of Willamette Falls Drive. A public street side stormwater swale will be designed and installed to City standards, including Native Plantings. The standard has been met.

54.040 INSTALLATION

A. All landscaping shall be installed according to accepted planting procedures.

B. The soil and plant materials shall be of good quality.

C. Landscaping shall be installed in accordance with the provisions of this code.

D. Certificates of occupancy shall not be issued unless the landscaping requirements have been met or other arrangements have been made and approved by the City such as the posting of a bond.

Response: Landscaping will be installed in accordance to the standards above. The standard has been met.

54.050 PROTECTION OF STREET TREES

Street trees may not be topped or trimmed unless approval is granted by the Parks Supervisor or, in emergency cases, when a tree imminently threatens power lines.

Response: Street trees will not be topped or trimmed unless approval is granted by the Parks Supervisor or, in the event of an emergency when a tree imminently threatens power lines. The standard has been met.

54.060 MAINTENANCE

A. The owner, tenant and their agent, if any, shall be jointly and severally responsible for the maintenance of all landscaping which shall be maintained in good condition so as to present a healthy, neat, and orderly appearance and shall be kept free from refuse and debris.

B. All plant growth in interior landscaped areas shall be controlled by pruning, trimming, or otherwise so that:

1. *It will not interfere with the maintenance or repair of any public utility;*
2. *It will not restrict pedestrian or vehicular access; and*
3. *It will not constitute a traffic hazard because of reduced visibility.*

Response: Future home owners will be responsible to maintain landscaping to the standards above. The standard has been met.

54.070 SPECIFICATION SUMMARY

Area/Location	*Landscaping Req'd.*
4. Percentage of residential/multi-family site to be landscaped.	*25%*

Response: Future homes will meet the standard of twenty five percent required landscaping for individual lots. The standard has been met.

CHAPTER 75 - VARIANCE

75.020 CLASSIFICATION OF VARIANCES

A. A Class I variance will involve a small change from the zoning requirements and will have a minor effect or no effect on adjacent property or occupants and includes the following variances:

1. *A variance which allows a structure to encroach into a required setback area as follows:*
   a. *Front yard setback by two feet or less.*
   b. *Side yard setback by two feet or less.*
   c. *Rear yard setback by five feet or less.*
2. *A variance to the minimum lot dimensional requirements as follows:*
   a. *Lot width by five or less feet.*
   b. *Lot frontage by five or less feet.*
   c. *Lot depth by 10 or less feet.*
   d. *Lot area by five percent or less of minimum required area.*

B. A Class II variance will involve a significant change from the zoning requirements and may create adverse impacts on adjacent property or occupants, and includes the following variance:

1. *A variance which allows a structure to encroach into a required setback area as follows:*
   a. *Front yard setback by more than two feet.*
   b. *Side yard setback by more than two feet.*
   c. *Rear yard setback by more than five feet.*
2. *Variance to the minimum lot dimensional requirements as follows:*
   a. *Lot width by more than five feet.*
   b. *Lot frontage by more than five feet.*
   c. *Lot depth by more than 10 feet.*
   d. *Lot area by more than five percent of minimum required area.*
3. *A variance to any of the other zoning provisions including, but not limited to, the lot coverage and building height.*

C. No variances shall be granted which will allow a use which is not a permitted or a conditional use in the district, and no variance shall be granted to the density provisions.

Response: This application involves a request for relief from the minimum driveway spacing criteria found in Chapter 48 of the City of West Linn Community Development Code. Although this written narrative and preliminary plans demonstrate that the requested relief will not create adverse impacts on adjacent property or occupants, this request qualifies as a Class II Variance because there are no specific provisions for a Class I Variance for relief to the access spacing criteria. Granting of the requested variance reduces the amount of spacing in between single family residential driveways. It does not involve varying permitted densities and in no way does granting of the variance allow a use of land that is not permitted in the R-10 zone.

Description of Surrounding Transportation Network

The subject site is located on the northwest corner of Ostman Road and Willamette Falls Drive. The property has approximately 150 feet of frontage on Willamette Falls Drive and approximately 350 feet of frontage on Ostman Road. Ostman Road is designated as a City Collector while Willamette Falls Drive is designated as a City Minor Arterial. Currently, the property has one existing +/- 43 foot wide asphalt surfaced vehicle access to Ostman Road that serves the existing single family home.

Adjacent to the site, Willamette Falls Drive is generally improved with an asphalt surfaced two lane paved section with a striped bicycle lane, curb and sidewalk on the north side of the road. Ostman Road is generally improved with an asphalt surfaced two lane paved section from Willamette Falls Drive to Dollar Street (approximately 800 feet to the north). A curb and sidewalk generally exists along the east side of Ostman Road, but there are some existing sections without these improvements. The west side of Ostman Road has no curbs or sidewalks. Some sections of Ostman Road between Willamette Falls Drive and Dollar Street have widened pavement sections that appear to function as on-street parking areas. Along the subject site, the topography of Ostman Road slopes with an approximate 8 percent grade (north to south). Direct individual driveway access to Ostman Road is by far the dominant means of access to Ostman Road in the vicinity of the project site.

Standards Relevant to the Variance Request

Although the property has frontage on Willamette Falls Drive, access to this road is not included in the project plans because it has the higher road classification. Therefore, access to the site must come from Ostman Road the facility with the lower street classification. It is understood that there are access spacing standards for driveway access to Ostman Road. Minimum spacing separation standards from driveways located on Collector Streets to Arterial Streets is 100 feet and minimum spacing standards between driveways on Collector Streets is 75 feet.

Description of the Variance Request

This application involves a 4 lot subdivision in the R-10 zone. Considering the lot area/dimensional requirements for the R-10 zone, access restrictions for Willamette Falls Drive, the long narrow trapezoidal shape of the property, and the topography of Ostman Road, the layout shown in the preliminary plans is the only reasonable way to design the preliminary plat/site design and achieve the allowable density for the property.

Based upon the development standards, topography, and shape of the property and resulting layout options, there is no way to reasonably satisfy the above listed driveway spacing requirements without a variance. Shared access has been discussed as a possibility with City staff. However, variances would still be necessary even with shared access (See City Pre-Application Conference Notes.) and there are several drawbacks to shared accesses as discussed below that are not associated with individual driveway access. Therefore, a Class II variance (as described above) to the spacing standards listed in CDC Section 48.060 is sought with this application.

Description of Driveway Spacing

As shown on the preliminary plans, a future driveway access (southernmost portion of the curb cut) to Lot 4 is located on Ostman Road approximately 93 feet to the north of a projection of the future near-side curb line for Willamette Falls Drive. A future driveway access to Lot 3 is located on Ostman Road approximately 52 feet to the north of the planned future driveway for Lot 4 (from curb cut to curb cut). A future driveway access to Lot 2 is located on Ostman Road approximately 52 feet to the north of the planned future driveway for Lot 3 (from curb cut to curb cut). A future driveway access to Lot 1 is located on Ostman Road approximately 53 feet to the north of the planned future driveway for Lot 2 (from curb cut to curb cut). The planned future driveway for Lot 1 is approximately 50 feet from the driveway located on the property to the north (from curb cut to the southernmost portion of the existing driveway).

75.050 APPLICATION

A. A variance request shall be initiated by the property owner or the owner's authorized agent.

B. A prerequisite to the filing of an application is a pre-application conference at which time the Planning Director shall explain the requirements and provide the appropriate form(s).

C. An application for a variance shall include the completed application form and:

1. A narrative which addresses the approval criteria set forth in CDC 75.060, and which sustains the applicant's burden of proof.

2. A site plan as provided by CDC 75.070.

One original application form must be submitted. Three copies at the original scale and three copies reduced to 11 inches by 17 inches or smaller of all drawings and plans must be submitted. Three copies of all other items must be submitted. When the application submittal is determined to be complete, additional copies may be required as determined by the Planning Department.

D. The applicant shall pay the requisite fee. (Ord. 1442, 1999)

Response: The property owner has authorized the variance request and has signed the required application form. A pre-application conference was held with City staff on September 5, 2013. This application includes the required narrative addressing the approval criteria in CDC 75.060 (discussed herein), as well as a site plan that meets the requirements of CDC 75.070 (discussed herein). The application includes all fees for the subdivision and variance requests.

75.060 APPROVAL CRITERIA

The appropriate approval authority shall approve a variance request if all the following criteria are met and corresponding findings of fact prepared. The approval authority may impose appropriate conditions to ensure compliance with the criteria. The approval authority shall deny the variance if any of the criteria are not met.

A. Exceptional or extraordinary circumstances apply to the property which do not apply generally to other properties in the same zone or vicinity, and result from lot size or shape, legally existing prior to the date of this code, topography, or other circumstances over which the applicant has no control.

Response: The subject property is located on Ostman Road in an area that with a few minor exceptions is completely developed. None of the 12 properties on the west side of Ostman Road between Willamette Falls Drive and Dollar Street are able to be redeveloped with the exception of the project site. Of the 12 properties fronting on the east side of Ostman Road between Willamette Falls Drive and Dollar Street, only one property is large enough to be partitioned. Therefore, 1 of the 24 properties on Ostman Road (other than the subject site) can potentially be redeveloped and 22 of the properties are developed with existing homes, most with direct individual access to Ostman Road. Therefore, the access spacing criteria has no meaningful effect and does not generally apply to other properties in the vicinity, as described above. This situation appears to have been created because the surrounding development pattern was established and homes in the area built legally prior to the City's establishment of the access spacing criteria for Ostman Road. This is a circumstance over which the applicant has no control.

B. The variance is necessary for the preservation of a property right of the applicant, which is substantially the same as a right possessed by owners of other property in the same zone or vicinity.

Response: As described above, there are 12 properties on the west side of Ostman Road located between Willamette Falls Drive and Dollar Street. 100 percent of these properties have direct individual access to the frontage street, be it Ostman Road or Dollar Street. In some cases, properties on this side of the street appear to have more than one direct access to Ostman Road. Of the 12 properties located on the east side of Ostman Road located between Willamette Falls Drive and Dollar Street, all but a few flag lots have direct access to a frontage street, including Ostman Road. The majority of the driveways described above are closer than 75 feet to each other with at least two driveways being as close as 10 feet from each other. Therefore, a variance to the spacing standard to permit direct individual driveway accesses to Ostman Road (for this project) allows for preservation of a property right of the applicant, which is substantially a right possessed by owners of property in the vicinity of the subject site.

C. The authorization of the variance will not be materially detrimental to the purposes and standards of this code, will not be inconsistent with all other regulatory requirements, and will not conflict with the goals and policies of the West Linn Comprehensive Plan.

Response: It has been established that the development pattern in the vicinity overwhelmingly involves lots/homes with direct individual access to Ostman Road. Continuing this established and acceptable development pattern on the subject site allows for neighborhood consistency and for this site to blend with the established surrounding development pattern in a superior manner than shared driveways. This sentiment was echoed by neighbors who attended the neighborhood association meeting, who preferred individual driveways to shared driveways for the project. Please refer to the meeting minutes provided by the Willamette Neighborhood Association and compact disc recording of the neighborhood meeting for evidence supporting

this assertion. Authorization of a variance and permitting individual driveways that are entirely consistent with the established surrounding development pattern and supported by neighbors is not materially detrimental to the purposes or standards of the code or the comprehensive plan.

In addition, as described previously, Ostman Road (along the project site's frontage) slopes from north to south at approximately 8 percent. Due to this slope, driveways should be located on the uphill (north) side of the lots in order to minimize excavations for driveways and home construction. Therefore, granting of the variance should result in reduced grading for homes. Reduced site grading that can be accomplished with the variance results in lesser impacts to the surrounding area and therefore, will not be materially detrimental to the purposes or standards of the code or the comprehensive plan.

Finally, granting the variance would alleviate potential visual impacts to the surrounding area that could otherwise result (an unintended consequence) from shared driveways. One reason why this is true is because shared driveways require adjacent garages to be built be right next to each other. Separate individual driveways, located on the northern portion of the lots (as is proposed) results in improved future architectural appearance from the surrounding neighborhood because it allows for separated garages that are not located right next to each other. Individual driveways, spaced approximately 50 feet apart would also have a lesser visual impact on the surrounding area compared with very wide shared driveways. Shared driveways would need to be wider to accommodate side yard setbacks and to avoid circumstances where future residents would need to back over curbs to access Ostman Road.

As described above, fewer visual impacts to the surrounding neighborhood are associated with the variances for individual driveways than compared with shared driveways. Therefore, granting the variance will not be materially detrimental to the purposes or standards of the code or the comprehensive plan.

D. The variance request is the minimum variance which would alleviate the exceptional and extraordinary circumstance.

Response: As shown on the preliminary plans and as described above, the requested variances to allow individual driveways to serve the future homes on Lots 1 through 4 of Renaissance at Willamette Subdivision is the minimum variance necessary that alleviates the exceptional and extraordinary circumstance. As discussed above, shared access has been discussed with City staff, however in this case, as described above; shared access may result in a host of unintended negative consequences. Approval of the variance request avoids these consequences.

E. The exceptional and extraordinary circumstance does not arise from the violation of this code.

Response: The exceptional and extraordinary circumstance is a result of a neighborhood development pattern consisting of homes with direct individual driveway access to Ostman

Road that has been established over a significant period of time primarily prior to the adoption of the spacing criteria for collector streets, the designation of Ostman Road as a collector street, the topography of Ostman Road, and the shape of the parent parcel. No violation of the code exists.

F. The variance will not impose physical limitations on other properties or uses in the area, and will not impose physical limitations on future use of neighboring vacant or underdeveloped properties as authorized by the underlying zoning classification. (Ord. 1442, 1999)

Response: There are no vacant or underdeveloped properties (as authorized by the underlying zoning classification) that abut the subject site. As previously established, out of the 24 properties that abut Ostman Road, one property may be large enough to be partitioned. That property is on the opposite side of Ostman Road to the north. Authorization of the requested variance and allowing direct individual driveway access to Ostman Road for the future lots in this small (four-lot) subdivision has zero effect on and does not impose physical limitations on this property or any other property in the vicinity of the subject site.

IV. Conclusion

The listed findings and accompanying documentation demonstrates that the proposal is consistent with the applicable provisions of the City of West Linn Development Code. Therefore, the applicant respectfully requests approval of the proposed Renaissance at Willamette Development Review Application.

Preliminary Title Report & Property Vesting Deed

Lawyers Title

Lawyers Title
Development Services
121 SW Morrison St., Suite 500
Portland, OR 97204
503-220-8374 FAX 503-228-7817

PUBLIC RECORDS REPORT FOR PARTITION / SUBDIVISION / CONDOMINIUM

THIS REPORT IS FOR THE EXCLUSIVE USE OF:

,

Date Prepared: November 01, 2013
Order No.: 15F0002554
Customer Ref:
File Reference: - Report

CONDITIONS, STIPULATIONS AND DEFINITIONS

(I) Definitions:

(a) "Customer": The person or persons named or shown on this cover sheet.
(b) "Effective date": The title plant date of October 29, 2013.
(c) "Land": The land described, specifically as by reference, in this public record report and improvements affixed thereto which by law constitute real property.
(d) "Liens and encumbrances": Include taxes, mortgages, and deeds of trust, contracts, assignments, rights of way, easements, covenants, and other restrictions on title.
(e) "Public records": Those records which by the laws of the State of Oregon impart constructive notice of matters relating to said land.

(II) Liability of Lawyers Title:

(a) THIS IS NOT A COMMITMENT TO ISSUE TITLE INSURANCE AND DOES NOT CONSTITUTE A POLICY OF TITLE INSURANCE.
(b) The liability of Lawyers Title for errors or omissions in this public record report is limited to the amount of the fee paid by the customer, provided, however, that Lawyers Title has no liability in the event of no actual loss to the customer.
(c) No costs of defense, or prosecution of any action, is afforded to the customer.
(d) In any event, Lawyers Title 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 of the land; (ii) the character, dimensions or location of an 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 (II)(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.

(III) Report Entire Contract:

Any rights or actions or rights of action that the customer may have or may bring against Lawyers Title arising out of the subject matter of this report must be based on the provisions of this report. No provision or condition of this report can be waived or changed except by a writing signed by an authorized officer of Lawyers Title. By accepting this form report, the customer acknowledges and agrees that the customer has been afforded the opportunity to purchase a title insurance policy but has elected to utilize this form of public record report and accepts the limitation of liability of Lawyers Title as set forth herein.

(IV) Fee:

The fee charged for this Report does not include supplemental reports, updates or other additional services of Lawyers Title.

REPORT

Order No. : 15F0002554
Effective Date : 5:00 P.M. on October 29, 2013
Customer Ref:

A. The land referred to in this public record report is located in the County of Clackamas, State of Oregon, and is described as follows:

SEE ATTACHED EXHIBIT "A"

B. As of the effective date and according to the public records, we find title to the land apparently vested in:

Thomas Nodurft, as Trustee of the Colleen M. Nodurft Living Trust dated June 16, 2011

C. And 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:

1. Unpaid taxes for the year 2013-14
   Original Amount : $3,568.40
   Unpaid Balance: : $3,568.40, plus interest
   Account No. : 00752493; Levy Code: 003-002; Map 31E03AB00200

2. Municipal Liens, if any imposed by the City of West Linn.

3. Matters contained in that certain document

   Entitled : Restrictive Covenant Payment for Sidewalk Improvements
   Recording Date : April 20, 2005
   Recording No. : 2005-035153

4. Any invalidity or defect in the title of the vestees in the event that the trust referred to herein is invalid or fails to grant sufficient powers to the trustee(s) or in the event there is a lack of compliance with the terms and provisions of the trust instrument.

End of Reported Information

There will be additional charges for additional information or copies. For questions or additional requests, contact:

Escrow Officer: Frank Lambert, 503-220-8374 Fax: 503-228-7817
E-Mail: flambert@ltic.com

Exhibit "A"

Part of Block "G", FIRST ADDITION TO WILLAMETTE FALLS ACREAGE TRACTS as shown by the duly recorded plat thereof, and a part of what was the right of way of the South Pacific Co. Railroad, in the City of West Linn, County of Clackamas and State of Oregon, described as follows:

Beginning at the most Southerly corner of said Block "G"; thence North tracing the West boundary of Ostman Road 280.4 feet to an iron pipe; thence West 317.5 feet to an iron pipe; thence South 186.5 feet to an iron pipe set on the Northerly boundary of Market Road No. 14; thence Southeasterly tracing last said boundary along a curve to the left 221.5 feet, more or less, to the point of tangent; thence tangent to said curve South 66° 30' East 142.9 feet to the intersection with the Southerly projection of the East boundary of said Block "G"; thence North 67.6 feet to the point of beginning.

EXCEPTING THEREFROM that portion lying in duly recorded plat of Arbor Cove.

WILLAMETTE FALLS DRIVE
SNIDOW
SNIDOW DR.
OSTMAN
JOSEPH FIE
TRACT "C" (TAXLOTTED ON 2
WILLAMETTE FALLS ACREAGE TRACTS
ADDY
SEE MAP 3 1E 3AA
25100
BEN FRITCHIE ESTATES
2209 1087
2208 1095
2207 1099
2206 1701
2205 1701
2204 1705
2203 1709
2202 1715
2201 1721
2200 1733
1941
101 1790
105 1780
200 1770
700 1015
600 1007
601 1009
1000 1013
1101 987
800 1020
900 1027
502 1085
400 1085
300 1095
405 1030
404 1042
403 1056
402 1078
406 1031
407 1043
408 1055
409 1065
410 1590
411
57
140
2100
2.00 Ac.
NO. 51
NO. 52

15F0002554

RENAISSANCE CUSTOM HOMES

VESTING DEED

AND

EXCEPTIONS

Clackamas County Official Records
Sherry Hall, County Clerk

2011-039613

$52.00

01507788201100396130020020

07/14/2011 03:57:54 PM

D-D Cnt=1 Stn=2 TINAJAR
$10.00 $10.00 $16.00 $16.00

Grantor:
Colleen M. Nodurft
1770 Ostman Road
West Linn, Oregon 97068

Until a change is requested send tax statements to Grantee.

After recording return to:
Grantee:
Thomas D. Nodurft, trustee
COLLEEN M. NODURFT LIVING TRUST
15588 S. Saddle Lane
Oregon City, Oregon 97045

STATUTORY BARGAIN AND SALE DEED

Colleen M. Nodurft, conveys to Thomas Nodurft, as trustee of the COLLEEN M. NODURFT LIVING TRUST dated June 16, 2011, the following described real property, situated in Clackamas County, Oregon, commonly known as 1770 Ostman Road, in West Linn, Oregon:

See Exhibit "A" attached.

The true consideration for this conveyance is **$ NONE.**

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, AND SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, AND SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009.

Dated this 14 day of July, 2011.

GRANTOR:

Colleen M. Nodurft
Colleen M. Nodurft

STATE OF OREGON)
) ss.
County of Clackamas)

This instrument was acknowledged before me this 14th day of July, 2011, by Colleen M. Nodurft.

Amber Nicole Trent
NOTARY PUBLIC FOR OREGON
My Commission Expires: January 4, 2014

OFFICIAL SEAL
AMBER NICOLE TRENT
NOTARY PUBLIC - OREGON
COMMISSION NO. 446487
MY COMMISSION EXPIRES JANUARY 04, 2014

Exhibit "A"
to Statutory Bargain and Sale Deed

Legal description from warranty deed recorded at Book Number 560, Page Number 795 on September 13, 1959, in the Clackamas County Deed Records for the State of Oregon.

Part of Block "G" FIRST ADDITION TO WILLAMETTE FALLS ACREAGE TRACTS as shown by the duly recorded plat thereof, and a part of what was the right of way of the South Pacific Co. Railroad, in the County of Clackamas and State of Oregon, described as: Beginning at the most Southerly corner of said Block "G"; thence North tracing the West boundary of Oatman Road 280.4 feet to an iron pipe; thence West 317.5 feet to an iron pipe; thence South 186.5 feet to an iron pipe set on the Northerly boundary of Market Road 14; thence Southeasterly tracing last said boundary along a curve to the left 221.5 feet, more or less, to the point of tangent thence tangent to said curve South 66° 30' East 142.9 feet to the intersection with the Southerly projection of the East boundary of said Block "G", thence North 67.6 feet to the point of beginning.

Note: This legal description was created prior to January 1, 2008.

(2)

FORM No. 633—WARRANTY DEED

VOL. 560 PAGE 795

KNOW ALL MEN BY THESE PRESENTS, That
CHARLES LAVRS, also known as CHARLES LAURS and KATIE LAVRS, also known as KATIE LAURS, husband and wife , *grantor s*,
in consideration of Ten and no/100 ($10.00) ---------- *Dollars*,
to them *paid by*
E. FLOYD NODURFT and COLLEEN M. NODURFT, husband and wife, , *grantee s*,
do hereby grant, bargain, sell and convey unto the said grantees , their heirs and assigns, all the following real property, with the tenements, hereditaments and appurtenances, situated in the County of Clackamas *and State of Oregon, bounded and described as follows, to-wit:*

Part of Block "G" FIRST ADDITION TO WILLAMETTE FALLS ACREAGE TRACTS as shown by the duly recorded plat thereof, and a part of what was the right of way of the Southern Pacific Co. Railroad, in the County of Clackamas and State of Oregon, described as: Beginning at the most Southerly corner of said Block "G"; thence North tracing the West boundary of Oatman Road 280.4 feet to an iron pipe; thence West 317.5 feet to an iron pipe; thence South 186.5 feet to an iron pipe set on the Northerly boundary of Market Road 14; thence Southeasterly tracing last said boundary along a curve to the left 221.5 feet, more or less, to the point of tangent thence tangent to said curve South 66° 30' East 142.9 feet to the intersection with the Southerly projection of the East boundary of said Block "G", thence North 67.6 feet to the point of beginning.

To Have and to Hold the above described and granted premises unto the said grantee s , their heirs and assigns forever.

And the grantor s do covenant that they are *lawfully seized in fee simple of the above granted premises free from all encumbrances,* None

and that they will *and* their *heirs, executors and administrators, shall warrant and forever defend the above granted premises, and every part and parcel thereof, against the lawful claims and demands of all persons whomsoever.*

Witness our *hand s and seal s this* day *of* August , 1959

Charles Lavrs (SEAL)
Katie Lavrs (SEAL)
(SEAL)
(SEAL)

STATE OF OREGON,
County of Clackamas } ss.
On this day *of* August , 1959 ,
before me, the undersigned, a Notary Public in and for said County and State, personally appeared the within named Charles Lavrs, also known as Charles Laurs and Katie Lavrs, also known as Katie Laurs, husband and wife who are *known to me to be the identical individual s described in and who executed the within instrument, and acknowledged to me that* they *executed the same freely and voluntarily.*

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal the day and year last above written.

NOTARY PUBLIC

Notary Public for Oregon.
My commission expires

WARRANTY DEED

CHARLES LAVRS, also known as CHARLES LAURS, et ux
TO
E. FLOYD NODURFT et ux

AFTER RECORDING RETURN TO
E. Floyd Nodurft
[illegible] Holman Rd.
Washington, Oregon

Docket No. 116342

STATE OF OREGON, County of Clackamas, ss.
I, Robert Schumacher, County Clerk, Ex-Officio Recorder of Conveyances and Ex-Officio Clerk of the County Court of the State of Oregon, for the County aforesaid, do hereby certify that the within instrument of writing was received for record and recorded in the records of said County at

DEED
1959 SEP 9 PM 4 08

In Book 560 Page 795

Witness my hand and seal of said Court
ROBERT SCHUMACHER, County Clerk
By [illegible] Deputy

Recording Certificate

AFTER RECORDING, RETURN TO:

City of West Linn Eng. Div.
22500 Salamo Road
West Linn, OR 97068

Clackamas County Official Records
Sherry Hall, County Clerk
2005-035153
$36.00
00823762200500351530030038
04/20/2005 10:08:51 AM
D-OD Cnt=1 Stn=9 DIANNAW
$15.00 $11.00 $10.00

RESTRICTIVE COVENANT
PAYMENT FOR SIDEWALK IMPROVEMENTS

This covenant is made between Floyd and Colleen Nodurft (Owner) and the City of West Linn, an Oregon municipal corporation (City). This covenant shall be effective when signed by both parties.

RECITALS

A. Owner owns the real property located at 1770 Ostman Road that is legally described as follows:

Assessor's Map 3-1E-03AB Tax Lot 00200 Deed Reference: 560-795

B. The Property is within the City of West Linn and is adjacent to Willamette Falls Drive.

C. The City is considering installing sidewalks in the public right-of-way of Willamette Falls Drive, including installing a sidewalk adjacent to the Property.

D. The Property is undeveloped or underdeveloped and the possibility exists that the Property will be developed or further developed within the next ten years.

E. The City is willing to install a sidewalk in the right of way of Willamette Falls Drive adjacent to the Property if Owner agrees to pay a portion of the sidewalk installation costs when and if the Property is divided or developed in the next ten years.

F. Owner is willing to commit to payment for a portion of the sidewalk installation costs when the Property is divided or developed.

G. The parties have agreed to terms by which the City will install the sidewalk and Owner will pay a portion of the sidewalk installation costs when the property is developed or divided.

AGREEMENT TERMS

1. City agrees to install a sidewalk to City standards in the right of way of Willamette Falls Drive, adjacent to the property. The estimated cost of the portion of the sidewalk adjacent to the property is $7,250.00.

2. Owner covenants to not develop or divide the property for a period of ten years after the effective date of this Restrictive Covenant unless Owner or the then current owner of the Property first pays the City 90% of the City's actual costs of designing, engineering and installing the sidewalk adjacent to the Property or $7,250.00, whichever is less. Owner agrees that the obligations imposed by this section shall run with the land and be binding on Owner and subsequent owners of the Property. The obligation to refrain from

development or division of the property shall terminate on payment as described in this section. For purposes of this agreement, "divide" means to subdivide, partition or to adjust the lot line of the Property to reduce the size of the Property.

3. The payment required by Section 2 is to be made at the time of an application for subdivision or partition, at the time of an application for a lot line adjustment that will reduce the size of the Property, or at the time of an application for a building permit for additional development, whichever occurs earlier. As used in this section, "building permit for additional development" means a building permit to add a new structure other than an accessory structure, or to add one or more additional dwelling units. The City may waive the requirement to pay in the case of a lot line adjustment if the adjustment is a good faith accommodation of a neighbor and does not jeopardize the City's ultimate ability to obtain reimbursement for its sidewalk costs.

4. In the event of a dispute over interpretation, application or enforcement of this agreement, the prevailing party shall be entitled to an award of reasonable attorney fees at arbitration, at trial, or on appeal. Failure to pay when due shall constitute a dispute, even if the party not paying concedes that payment is due.

OWNER

E. Floyd Nodurft

(Owner Name) E. Floyd Nodurft
Date: 4-18-05

OWNER

Colleen Nodurft

(Owner Name) Colleen Nodurft
Date: 4-18-05

CITY OF WEST LINN

By: Ronald R. Hudson
Its: City Engineer
Date: Apr 18, 2005

2

STATE OF OREGON)
) ss
COUNTY OF Clackamas)

This instrument was acknowledged before me on April 18, 2005 by E. Floyd Nodurft.

Patricia A Rich
Notary Public
My Commission expires: 6/11/06

OFFICIAL SEAL
PATRICIA A. RICH
NOTARY PUBLIC-OREGON
COMMISSION NO. 357262
MY COMMISSION EXPIRES JUNE 11, 2006

STATE OF OREGON)
) ss
COUNTY OF Clackamas)

This instrument was acknowledged before me on April 18, 2005 by Colleen Nodurft.

Patricia A Rich
Notary Public
My Commission expires: 6/11/06

OFFICIAL SEAL
PATRICIA A. RICH
NOTARY PUBLIC-OREGON
COMMISSION NO. 357262
MY COMMISSION EXPIRES JUNE 11, 2006

STATE OF OREGON)
) ss
COUNTY OF Clackamas)

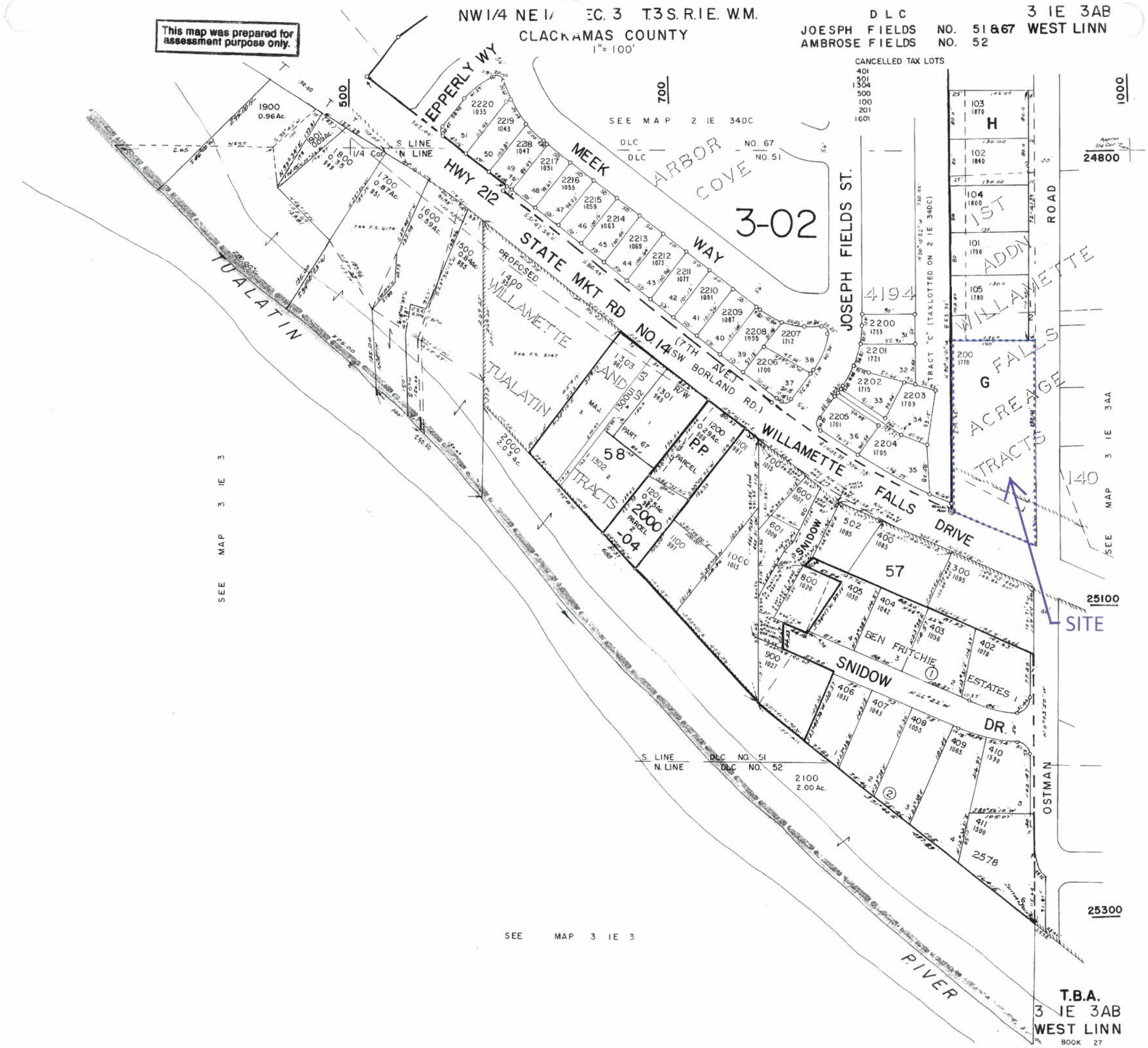
Personally appeared before me this 18th day of April, 2005, the above-named Ronald R. Hudson, who, being duly sworn, did say that he/she is the City Engineer of the City of West Linn, an Oregon municipal corporation, and that said instrument was signed on behalf of said corporation, and acknowledged said instrument to be his voluntary act and deed.

Patricia A Rich
NOTARY PUBLIC for Oregon
My commission expires: 6/11/06

OFFICIAL SEAL
PATRICIA A. RICH
NOTARY PUBLIC-OREGON
COMMISSION NO. 357262
MY COMMISSION EXPIRES JUNE 11, 2006

G:\muni\WestLinn\restrictivecovenant041205.wpd

County Assessor's Map



This map was prepared for assessment purpose only.
NW1/4 NE1/4 SEC. 3 T.3S. R.1E. W.M.
CLACKAMAS COUNTY
1" = 100'
DLC
JOESPH FIELDS NO. 51 & 67
AMBROSE FIELDS NO. 52
3 1E 3AB
WEST LINN
CANCELLED TAX LOTS
401
501
1304
500
100
201
1601
SEE MAP 2 1E 34DC
SEE MAP 3 1E 3
SEE MAP 3 1E 3AA
SEE MAP 3 1E 3
HWY 212
STATE MKT RD NO. 14
(7TH AVE) (SW BORLAND RD.)
WILLAMETTE FALLS DRIVE
MEEK WAY
PEPPERLY WY
JOSEPH FIELDS ST.
ARBOR COVE
3-02
4194
SNIDOW DR.
SNIDOW
OSTMAN ROAD
BEN FRITCHIE ESTATES
WILLAMETTE FALLS ACREAGE TRACTS
1ST ADDN WILLAMETTE
PROPOSED WILLAMETTE TUALATIN
WILLAMETTE TUALATIN TRACTS
TUALATIN RIVER
SITE
24800
25100
25300
500
700
1000
1900 0.96 Ac.
1800
1700 0.87 Ac.
1600 0.59 Ac.
1500 0.84 Ac.
1400
2000 2.05 Ac.
2100 2.00 Ac.
2000-04
S. LINE N. LINE DLC NO. 51 DLC NO. 52
TRACT "C" (TAXLOTTED ON 2 1E 34DC)
T.B.A.
3 1E 3AB
WEST LINN
BOOK 27

Neighborhood Meeting Documentation

SHERWOOD · VANCOUVER · SALEM
13910 SW GALBREATH DR., SUITE 100 · SHERWOOD, OR 97140
AKS ENGINEERING & FORESTRY
WWW.AKS-ENG.COM
P: (503) 925-8799 F: (503) 925-8969

Certified Mail
Return Receipt Requested

November 21, 2013

Julia Simpson, Willamette Neighborhood Association, President
1671 Killarney Drive
West Linn, Oregon 97068

Michael Selvaggio, Willamette Neighborhood Association, Vice President and City Designee
1790 5th Avenue
West Linn, Oregon 97068

Ref: 1770 Ostman Road
Tax Lot: 3 1E 3AB Tax Lot 200
West Linn, Oregon 97068

Dear Ms. Simpson and Mr. Selvaggio,

AKS Engineering and Forestry, LLC is representing the applicant regarding the property located at 1770 Ostman Road. The applicant is preparing a land use permit application for a 4 lot subdivision. Prior to applying to the City of West Linn for the necessary land use approvals, we would like to discuss the project in more detail with the Neighborhood Association, surrounding property owners, and residents. We will make a short presentation and allow time for discussion from interested parties.

We are requesting to be added to the agenda at your next regularly scheduled meeting or another date that you can accommodate within 60 days from of the date of this letter. If the Association is unable to meet within this time frame, we will schedule a separate public meeting and invite the Neighborhood Association and neighbors in the surrounding area to attend, per the City's requirements.

I look forward to hearing from you soon to coordinate the details. If you have questions, please feel free to call me at 503-925-8799 or contact me by email at rwasula@aks-eng.com.

Sincerely,
AKS Engineering & Forestry, LLC

RWasula

Rochelle Wasula, Project Assistant

7008 1830 0003 2534 0707

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$ .46
Certified Fee	3.10
Return Receipt Fee (Endorsement Required)	2.55
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.11

Postmark Here
NOV 22 2013
USPS

Sent To: Julia Simpson
Street, Apt. No.; or PO Box No.: 1671 Killarney Dr
City, State, ZIP+4: West Linn Or 97068

PS Form 3800, August 2006 — See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
Julia Simpson
1671 Killarney Dr
West Linn Or 97068

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Julia M Simpson ☐ Agent ☒ Addressee

B. Received by (Printed Name): Julia M Simpson C. Date of Delivery: 11-23-13

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☒ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☒ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number *(Transfer from service label)* 7008 1830 0003 2534 0707

PS Form 3811, February 2004 — Domestic Return Receipt — 102595-02-M-1540

7008 1830 0003 2534 0691

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

OFFICIAL USE

Postage	$ .46
Certified Fee	3.10
Return Receipt Fee (Endorsement Required)	2.55
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 6.11

Postmark Here
NOV 22 2013
USPS

Sent To: Michael Selvaggio
Street, Apt. No.; or PO Box No.: 1790 5th Ave
City, State, ZIP+4: West Linn Or 97068

PS Form 3800, August 2006 — See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Michael Selvaggio
1790 5th Ave
West Linn Or 97068

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name): MICHAEL SELVAGGIO
C. Date of Delivery: 11-26-13

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☑ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label): 7008 1830 0003 2534 0691

PS Form 3811, February 2004 — Domestic Return Receipt — 102595-02-M-1540

SHERWOOD · VANCOUVER · SALEM
13910 SW GALBREATH DR., SUITE 100 · SHERWOOD, OR 97140
AKS ENGINEERING & FORESTRY
WWW.AKS-ENG.COM
P: (503) 925-8799 F: (503) 925-8969

December 16, 2013

NEIGHBORHOOD MEETING NOTICE

Ref: 1770 Ostman Road
Tax Lot: 3 1E 3AB Tax Lot 200
West Linn, Oregon 97068

Dear Interested Party:

AKS Engineering & Forestry, LLC is representing the applicant regarding the property located at 1770 Ostman Road in the Willamette Neighborhood Association. A land use permit application for a 4 lot subdivision is planned to be submitted to the City of West Linn. Prior to applying to the City of West Linn for the necessary land use approvals, we would like to discuss the project in more detail with the Neighborhood Association, surrounding property owners, and residents. You are invited to attend the regularly scheduled Willamette Neighborhood Association meeting on:

Wednesday, January 8, 2014 at 7:00 PM
Pacific West Bank
Located at the Willamette Marketplace
2040 8th Avenue
West Linn, Oregon 97068

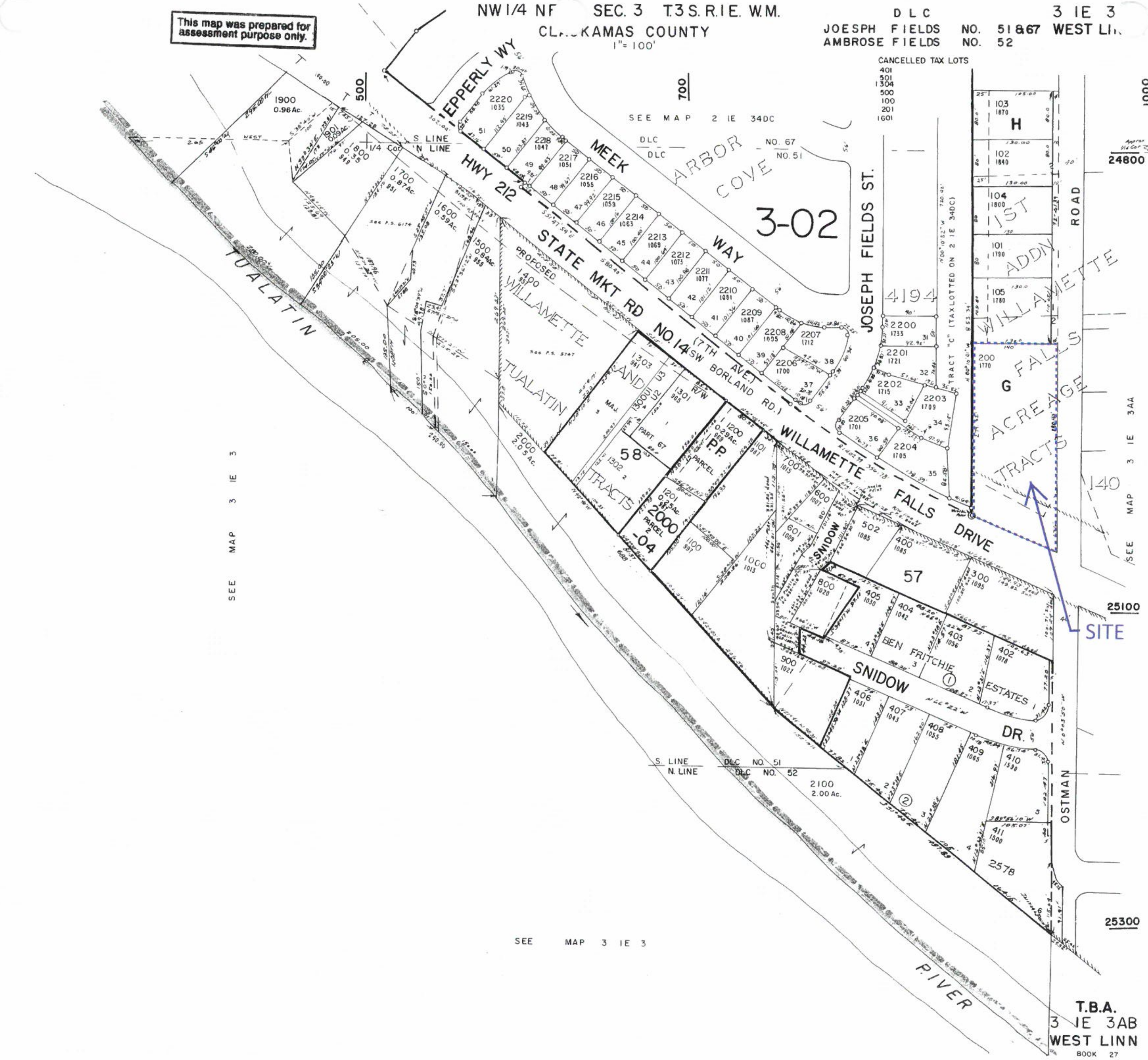
This may be only one of the items for discussion on the agenda that evening during the Willamette Neighborhood Association meeting. You are encouraged to contact the Neighborhood Association with any questions you wish to relay to the applicant. WNA President, Julia Simpson can be contacted at willamettena@westlinnoregon.gov or at (503)655-9819.

Please note that this will be an informational meeting on preliminary plans. These plans may be modified before the application is submitted to the City. You may also receive an official notice from the City of West Linn after the application is accepted, advising you of your opportunity to participate in the City process.

I look forward to discussing this project with you. If you have questions, but will be unable to attend, please feel free to call me at 503-925-8799.

Sincerely,
AKS Engineering & Forestry, LLC

Chris Goodell, AICP, LEED[AP], Planner


This map was prepared for assessment purpose only.
NW1/4 NE SEC. 3 T.3 S. R.1 E. W.M.
CLACKAMAS COUNTY
1" = 100'
DLC
JOESPH FIELDS NO. 51 & 67
AMBROSE FIELDS NO. 52
3 1E 3
WEST LINN
CANCELLED TAX LOTS
401
501
1304
500
100
201
1601
SEE MAP 2 1E 34DC
ARBOR COVE
3-02
PEPPERLY WY
MEEK WAY
HWY 212
STATE MKT RD NO. 14
(7TH AVE.)
(SW BORLAND RD.)
WILLAMETTE FALLS DRIVE
JOSEPH FIELDS ST.
ROAD
WILLAMETTE FALLS ACREAGE TRACTS
1ST ADDN
PROPOSED WILLAMETTE TUALATIN
WILLAMETTE AND TUALATIN TRACTS
TUALATIN RIVER
SNIDOW DR.
BEN FRITCHIE ESTATES
OSTMAN
SITE
SEE MAP 3 1E 3AA
SEE MAP 3 1E 3
24800
25100
25300
T.B.A.
3 1E 3AB
WEST LINN
BOOK 27

SHERWOOD · VANCOUVER · SALEM
13910 SW GALBREATH DR., SUITE 100 · SHERWOOD, OR 97140
AKS ENGINEERING & FORESTRY
WWW.AKS-ENG.COM
P: (503) 925-8799 F: (503) 925-8969

Certified Mail
Return Receipt Requested

December 16, 2013

NEIGHBORHOOD MEETING NOTICE

WNA President, Julia Simpson
1671 Killarney Drive
West Linn, Oregon 97068

Ref: 1770 Ostman Road
Tax Lot: 3 1E 3AB Tax Lot 200
West Linn, Oregon 97068

Dear Ms. Simpson:

AKS Engineering & Forestry, LLC is representing the applicant regarding the property located at 1770 Ostman Road in the Willamette Neighborhood Association. A land use permit application for a 4 lot subdivision is planned to be submitted to the City of West Linn. Prior to applying to the City of West Linn for the necessary land use approvals, we would like to discuss the project in more detail with the Neighborhood Association, surrounding property owners, and residents. You are invited to attend the regularly scheduled Willamette Neighborhood Association meeting on:

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Please note that this will be an informational meeting on preliminary plans. These plans may be modified before the application is submitted to the City. You may also receive an official notice from the City of West Linn after the application is accepted, advising you of your opportunity to participate in the City process.

I look forward to discussing this project with you. If you have questions, but will be unable to attend, please feel free to call me at 503-925-8799.

Sincerely,
AKS Engineering & Forestry, LLC

Chris Goodell, AICP, LEED[AP], Planner

SHERWOOD · VANCOUVER · SALEM
13910 SW GALBREATH DR., SUITE 100 · SHERWOOD, OR 97140
AKS ENGINEERING & FORESTRY
WWW.AKS-ENG.COM
P: (503) 925-8799 F: (503) 925-8969

Certified Mail
Return Receipt Requested

December 16, 2013

NEIGHBORHOOD MEETING NOTICE

WNA Vice President, Michael Selvaggio
1790 5th Avenue
West Linn, Oregon 97068

Ref: 1770 Ostman Road
Tax Lot: 3 1E 3AB Tax Lot 200
West Linn, Oregon 97068

Dear Mr. Selvaggio:

AKS Engineering & Forestry, LLC is representing the applicant regarding the property located at 1770 Ostman Road in the Willamette Neighborhood Association. A land use permit application for a 4 lot subdivision is planned to be submitted to the City of West Linn. Prior to applying to the City of West Linn for the necessary land use approvals, we would like to discuss the project in more detail with the Neighborhood Association, surrounding property owners, and residents. You are invited to attend the regularly scheduled Willamette Neighborhood Association meeting on:

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Pacific West Bank
Located at the Willamette Marketplace
2040 8th Avenue
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I look forward to discussing this project with you. If you have questions, but will be unable to attend, please feel free to call me at 503-925-8799.

Sincerely,
AKS Engineering & Forestry, LLC

Chris Goodell, AICP, LEED^{AP}, Planner

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

WNA Vice President
Michael Selvaggio
1790 5th Ave.
West Linn, OR 97068

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☑ Addressee

B. Received by (Printed Name) MICHAEL SELVAGGIO C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☑ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7008 1830 0003 2534 0721

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

SENDER: COMPLETE THIS SECTION

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

WNA President
Julia Simpson
1671 Killarney Dr.
West Linn, OR 97068

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☑ Addressee

B. Received by (Printed Name) Julia Simpson C. Date of Delivery DEC 2013

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☑ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7008 1830 0003 2534 0714

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

WNA President
Julia Simpson
1671 Killarney Drive
West Linn, OR 97068

WNA Co-Secretary
Mark and Elizabeth Hall
1697 Killarney Drive
West Linn, OR 97068

WNA Treasurer
Elizabeth Rocchia
957 Willamette Falls Drive
West Linn, OR 97068

WNA Vice President
Michael Selvaggio
1790 5th Avenue
West Linn, OR 97068

STAPLES
label size 1" x 2 5/8" compatible with Avery ®5160/8160
Étiquette de format 25 mm x 67 mm compatible avec Avery ®5160/8160

Lawyers Title

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test for a mapping title

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www.digitshare.org 208.777.1252

00404039
Mark & Tamela Sanders
1960 Ostman Rd
West Linn, OR 97068

00404048
Mark & Tamela Sanders
1960 Ostman Rd
West Linn, OR 97068

00752199
Sharon Parker
PO Box 2499
Oregon City, OR 97045

00752206
Kelly Franzen
1889 Ostman Rd
West Linn, OR 97068

00752215
Janet Anne Marines
1877 Ostman Rd
West Linn, OR 97068

00752224
Thomas Burnett
1845 Ostman Rd
West Linn, OR 97068

00752233
David & Kathryn Matheson
5216 Nelco Cir
West Linn, OR 97068

00752242
Alex & Amanda Brown
1140 Bexhill St
West Linn, OR 97068

00752251
Ricky & Patricia Feightner
!158 Bexhill St
West Linn, OR 97068

00752260
Christopher & Sarah Liddell
1166 Bexhill St
West Linn, OR 97068

00752279
Cole & Lorene Presthus
7045 NE Earlwood Rd
Newberg, OR 97132

00752288
Laura Nelson
1220 Bexhill St
West Linn, OR 97068

00752297
Artella Madson
1203 Bexhill St
West Linn, OR 97068

00752304
Christine Kemp
1769 Regency St
West Linn, OR 97068

00752313
Michael & Karen Prahl
1759 Regency St
West Linn, OR 97068

00752322
N Dean Cole
1756 Regency St
West Linn, OR 97068

00752331
Geoffry Christie
1766 Regency St
West Linn, OR 97068

00752340
William & Cheryl Merriam
1155 Bexhill St
West Linn, OR 97068

00752359
Harvey & Deborah A Gsell-Miller Miller
1133 Bexhill St
West Linn, OR 97068

00752368
Peter Daniel Kincart
1111 Bexhill St
West Linn, OR 97068

00752377
Richard Kessner
1101 Bexhill St
West Linn, OR 97068

00752386
Brandon Wade & Cindy Smith
24498 S Central Point Rd
Canby, OR 97013

00752395
Danut Haj
3515 SE Hill Rd
Milwaukie, OR 97267

00752402
Carrie Brant
1783 Ostman Rd
West Linn, OR 97068

00752448
Donald Beckers
1790 Ostman Rd
West Linn, OR 97068

00752457
Gudmund & Allison Lee
1840 Ostman Rd
West Linn, OR 97068

00752466
Toni Rae Snapp
1870 Ostman Rd
West Linn, OR 97068

00752475
Richard James & Katherine May
1800 Ostman Rd
West Linn, OR 97068

00752484
Robert W Sr & Judith Kloer
1780 Ostman Rd
West Linn, OR 97068

00752518
Truax Bros LLC
1091 Willamette Falls Dr
West Linn, OR 97068

00752527
Windjammer Investments LLC
1085 Willamette Falls Dr
West Linn, OR 97068

00752536
Campbell Dewayne A
1078 Snidow Dr
West Linn, OR 97068

00752545
Ryan Swakon
1056 Snidow Dr
West Linn, OR 97068

00752554
Marieanne Lambert
1042 Snidow Dr
West Linn, OR 97068

00752563
James H Jr & Jennifer A Seibel Shipp
1030 Snidow Dr
West Linn, OR 97068

00752572
Steven Conley
1031 Snidow Dr
West Linn, OR 97068

00752581
Steven & Mary Peters
1043 Snidow Dr
West Linn, OR 97068

00752590
Bret & Emily Vanderipe
1055 Snidow Dr
West Linn, OR 97068

00752607
David & Julie Carr
1065 Snidow Dr
West Linn, OR 97068

00752616
Jodie & Jonathan Oltmans
1590 Ostman Rd
West Linn, OR 97068

00752625
Robert & Terri Miller
1500 Ostman Rd
West Linn, OR 97068

00752643
Bennett Gene Ward
1007 Snidow Dr
West Linn, OR 97068

00752652
Michael & Shannon Anderson
1009 Snidow Dr
West Linn, OR 97068

00752661
Alan Zezini
PO Box 134
Lake Oswego, OR 97034

00752670
Nathan Blankenship
25165 SW Petes Mountain Rd
West Linn, OR 97068

00752689
Stephen Peake
1027 Snidow Dr
West Linn, OR 97068

00752698
James Christian & Carolyn Sue Keith
1013 Snidow Dr
West Linn, OR 97068

00752705
Nancy & Scott Casey
975 Willamette Falls Dr
West Linn, OR 97068

00752714
Brian Locke
987 Willamette Falls Dr
West Linn, OR 97068

00752723
Handris Holdings LLC
1980 Willamette Falls Dr #200
West Linn, OR 97068

00752732
Daniel Vorhies
965 Willamette Falls Dr
West Linn, OR 97068

00752741
C Wallace & Linda Foreman
963 Willamette Falls Dr
West Linn, OR 97068

00752750
Lloyd Hill
961 Willamette Falls Dr
West Linn, OR 97068

00752769
Daniel & Jayne Vorhies
965 Willamette Falls Dr
West Linn, OR 97068

00752867
City Of West Linn
22500 Salamo Rd #600
West Linn, OR 97068

00752876
City Of West Linn
22500 Salamo Rd #600
West Linn, OR 97068

00752965
John & Joan Conley
25135 Swiftshore Dr
West Linn, OR 97068

00752974
Thomas & Margie Menzia
25155 Swiftshore Dr
West Linn, OR 97068

00753009
Warren Steven Bursey
25210 Rancho Lobo Ct
West Linn, OR 97068

00753018
Michael & Joellen Neumann
25170 Rancho Lobo Ct
West Linn, OR 97068

00753027
Christine Dungan
25140 Rancho Lobo Ct
West Linn, OR 97068

00753036
Kristin Tufte
25130 Rancho Lobo Ct
West Linn, OR 97068

00753045
Robert & Kerri Garfield
25145 Rancho Lobo Ct
West Linn, OR 97068

00753054
Wayne & Celia MacKeson
965 Rancho Lobo Ct
West Linn, OR 97068

00753429
Francis Joseph Sweeney
1125 Willamette Falls Dr
West Linn, OR 97068

00753438
Janet Fuehrer
1109 Willamette Falls Dr
West Linn, OR 97068

01340999
Stefan Coldea
1775 Ostman Rd
West Linn, OR 97068

01341006
Madeleine Marie Boettcher
1765 Ostman Rd
West Linn, OR 97068

01341015
Judy Riley Wade
1755 Ostman Rd
West Linn, OR 97068

01341024
Thomas & Marsha Herron
1745 Ostman Rd
West Linn, OR 97068

01341033
Brenda Ege
1735 Ostman Rd
West Linn, OR 97068

01352422
Windjammer Investments LLC
1085 Willamette Falls Dr
West Linn, OR 97068

01364936
Shems & Crystal Jud
1749 Regency St
West Linn, OR 97068

01364945
Mary Ann & William Anderson
1739 Regency St
West Linn, OR 97068

01364954
Allan & R Vignery-Seward Seward
1729 Regency St
West Linn, OR 97068

01364963
Dennis Tan
2775 Ridge Ln
West Linn, OR 97068

01364972
Erika Meier
1721 Regency St
West Linn, OR 97068

01364981
Bruce & Lori Wilson
1726 Regency St
West Linn, OR 97068

01373953
Shannon Larsen
1730 Regency St
West Linn, OR 97068

01373962
Scott Aaron & Kylie Maree Mueller
1736 Regency St
West Linn, OR 97068

01373971
Brian Gray
PO Box 404
Clackamas, OR 97015

01373980
Darrick & Deborah Swigart
1746 Regency St
West Linn, OR 97068

05002018
John & Laura B Schwerin Cimral
967 Willamette Falls Dr
West Linn, OR 97068

05005506
Richard Davis
1781 Ostman Rd
West Linn, OR 97068

05020487
Keith & April Dever-Buckman Buckman
1092 Epperly Way
West Linn, OR 97068

05020488
Andrew & Emily Schmitt
1098 Epperly Way
West Linn, OR 97068

05020494
Christopher & Lindsay Kane
1837 Joseph Fields St
West Linn, OR 97068

05020495
Wesley Alford
1825 Joseph Fields St
West Linn, OR 97068

05020496
Darrin Edward & Micki Vanderberg
1813 Joseph Fields St
West Linn, OR 97068

05020497
Helen Baugh
1801 Joseph Fields St
West Linn, OR 97068

05020498
John & Dawn Mieras
1797 Joseph Fields St
West Linn, OR 97068

05020499
Christopher Romes
1785 Joseph Fields St
West Linn, OR 97068

05020500
Kristine Rottman
1773 Joseph Fields St
West Linn, OR 97068

05020501
Brian & Judith Wildey
1761 Joseph Fields St
West Linn, OR 97068

05020502
Nicholas & Michelle Chapin
1757 Joseph Fields St
West Linn, OR 97068

05020503
Nicholas Cargni
1745 Joseph Fields St
West Linn, OR 97068

05020510
Michael Matthew Taylor
1085 Epperly Way
West Linn, OR 97068

05020511
Ty Allen Kohler
1089 Epperly Way
West Linn, OR 97068

05020512
Kurt Shusterich
1093 Epperly Way
West Linn, OR 97068

05020513
Matthew Hemsley
1097 Epperly Way
West Linn, OR 97068

05020514
Kathleen Atkins
1096 Meek Way
West Linn, OR 97068

05020515
Ai & David L Gershon Okada
1088 Meek Way
West Linn, OR 97068

05020516
William Paven
1082 Meek Way
West Linn, OR 97068

05020517
Casey & Stacey Hollabaugh
1078 Meek Way
West Linn, OR 97068

05020518
Chen Jung Tsai
1074 Meek Way
West Linn, OR 97068

05020519
Xiaogang Du
1070 Meek Way
West Linn, OR 97068

05020527
Joshua Michael & Christine Marie Mize
1733 Joseph Fields St
West Linn, OR 97068

05020528
Shelley Lynn Russell
1721 Joseph Fields St
West Linn, OR 97068

05020529
Jon & Bryn Widman
1715 Joseph Fields St
West Linn, OR 97068

05020530
Robin Sena
1709 Joseph Fields St
West Linn, OR 97068

05020531
Jorge Gitler
1705 Joseph Fields St
West Linn, OR 97068

05020532
Jillian & Jacob Melton
1701 Joseph Fields St
West Linn, OR 97068

05020533
Laurie Ann Guthrie
1700 Joseph Fields St
West Linn, OR 97068

05020534
Brandon Yates & Ashley Janelle Roben
1712 Joseph Fields St
West Linn, OR 97068

05020535
Edda Tonack
1095 Meek Way
West Linn, OR 97068

05020536
Michael Warmanen
1087 Meek Way
West Linn, OR 97068

05020537
Jing Shen
12940 SE Marsh Rd
Sandy, OR 97055

05020538
Ross & Carolyn Guilford
1077 Meek Way
West Linn, OR 97068

05020539
Scott Michael & Sadie Ellwood
1073 Meek Way
West Linn, OR 97068

Neighborhood Meeting
Affidavit of Mailing

STATE OF OREGON)
County of Washington)SS

I, Rachelle Wasula, being duly sworn, state that on the

16 day of December, 2013 I caused to have mailed, to each of the persons on the attached list, a notice of a meeting to discuss a proposed development at

1770 Ostmand Rd West Linn. A copy of the notice so mailed is attached hereto and made a part thereof.

I further state that said notices were enclosed in envelopes plainly addressed to said persons and were deposited on the date indicated above in the United States Post Office with postage prepared thereon.

RWasula
Signature

OFFICIAL SEAL
GOLDIE M HAMILTON
NOTARY PUBLIC-OREGON
COMMISSION NO. 468989
MY COMMISSION EXPIRES JUNE 16, 2016

Subscribed and sworn to or affirmed, before me this

16 day of December, 2013

Notary Public for the State of Oregon

County of Washington

My Commission expires: 6-16-2016

Neighborhood Meeting
Affidavit of Posting Notice

STATE OF OREGON)
County of Washington)SS

I, Nathan Garity, being duly sworn, state that I represent the party initiating interest in a proposed subdivision affecting the land located at

1770 SW Ostman Road, West Linn and that pursuant to Community Development Code section 99, did on 16th day of December, 2013 personally post notice indicating that the site may be proposed for a subdivision application.

The sign was posted at NEAR CENTERS OF SOUTHERLY & EASTERLY SITE BOUNDARIES.
(state location on property)

Signature

Subscribed and sworn to or affirmed, before me this

17 day of December, 2013

Notary Public for the State of Oregon

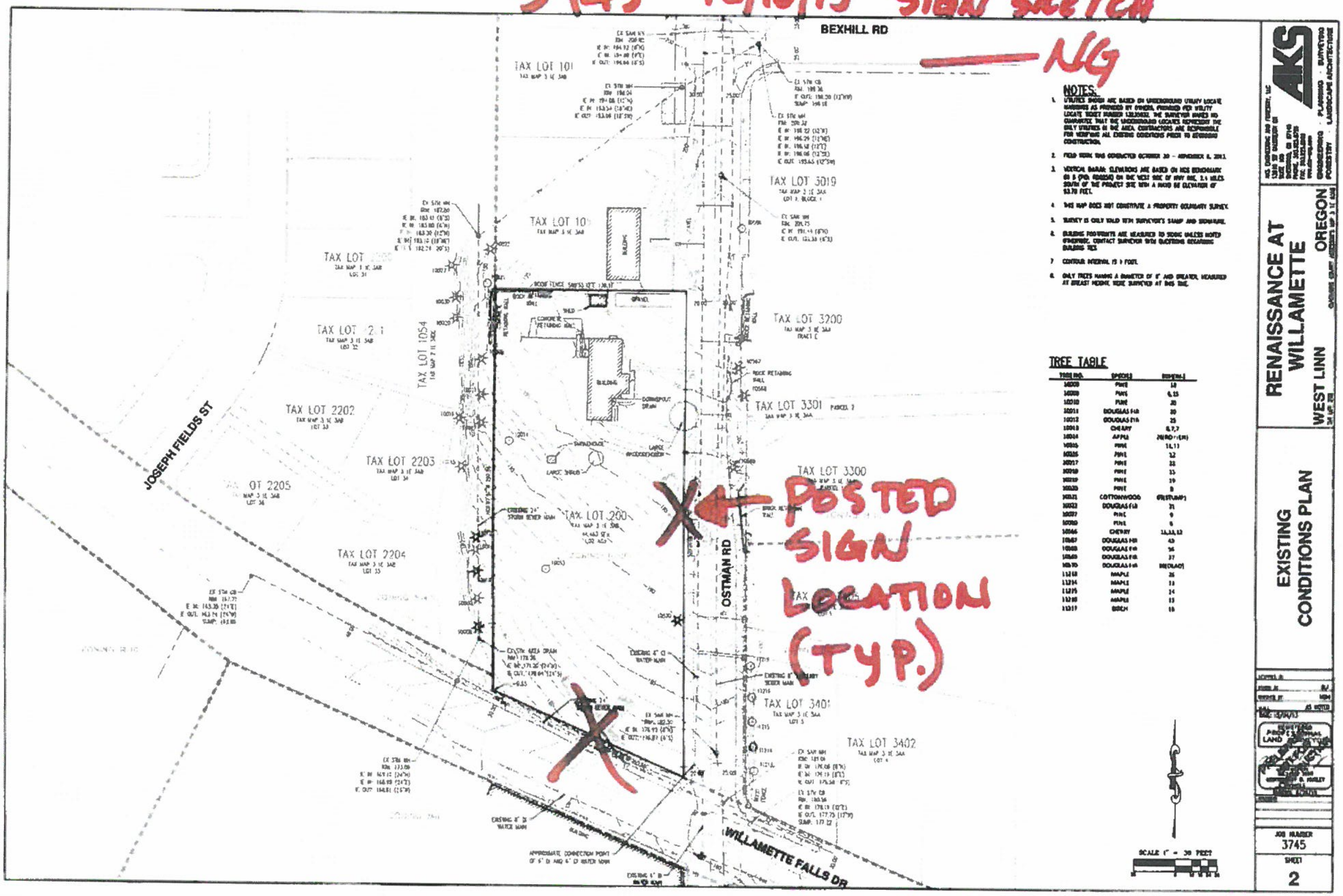
County of Washington

My Commission expires: 6-16-2016

OFFICIAL SEAL
GOLDIE M HAMILTON
NOTARY PUBLIC-OREGON
COMMISSION NO. 468989
MY COMMISSION EXPIRES JUNE 16, 2016

3745 12/16/13 SIGN SKETCH

NG



NEIGHBORHOOD MEETING NOTICE

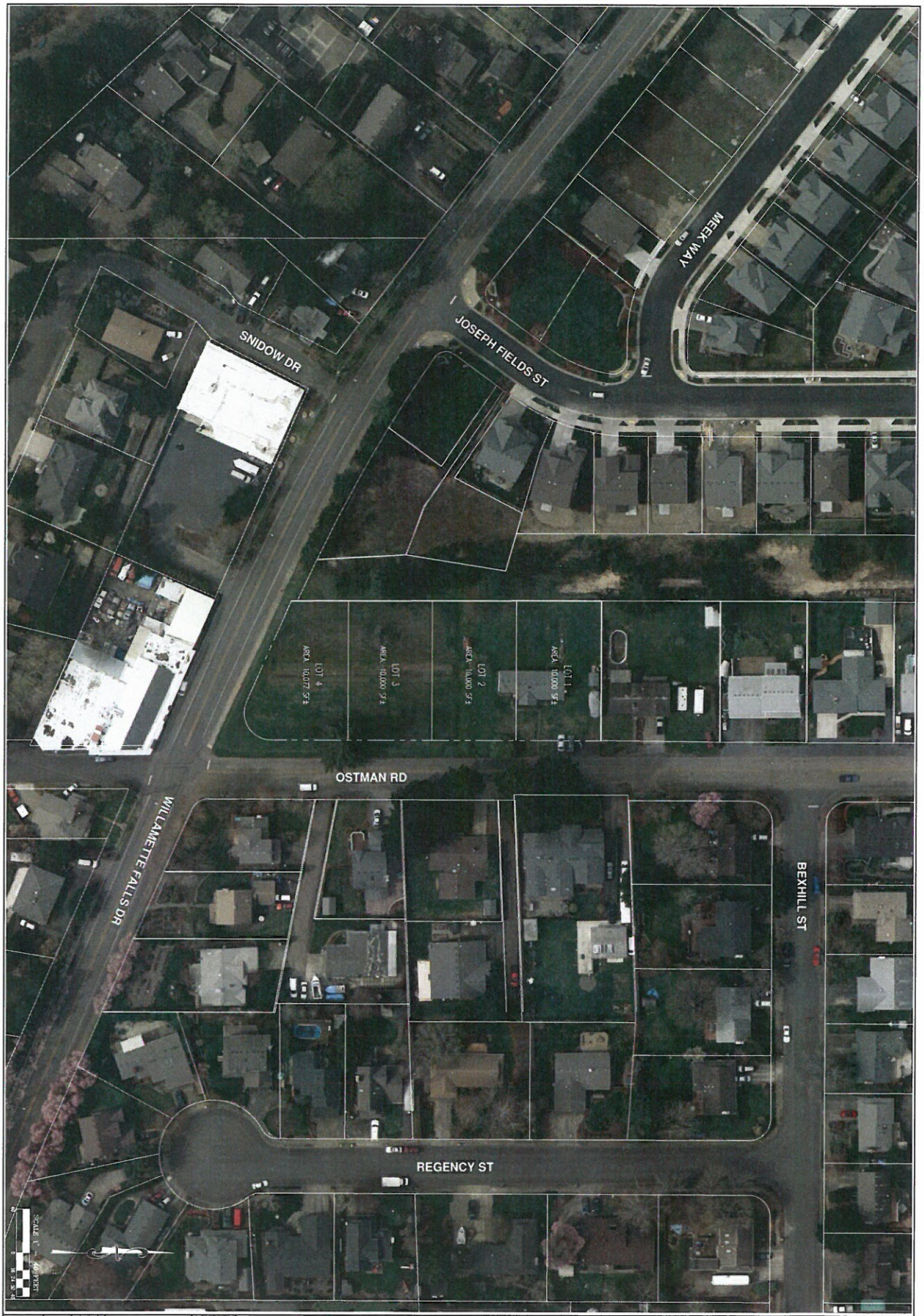
Wednesday, Jan. 8, 2014
7:00 p.m. at Pacific West Bank

This is a public meeting in conjunction with The Willamette Neighborhood Association regarding a proposed 4 lot subdivision at 1770 Ostman Road West Linn
All interested parties are welcome to attend.

AKS Engineering & Forestry, LLC Phone #: 503-925-8799

22x34 posters on display

at neighborhood meeting



PRELIMINARY

JOB NUMBER	3745
SHEET	1
DESIGNED BY	RDW
DRAWN BY	BJJ
CHECKED BY	MBW/DG
FINAL DATE	07/08/14
SCALE	AS NOTED

PRELIMINARY AERIAL PHOTOGRAPH PLAN

RENAISSANCE AT WILLAMETTE

WEST LINN OREGON

TAX LOT 200 CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

AKS ENGINEERING AND FORESTRY, LLC
13910 SW GALBREATH DR
SUITE 100
SHERWOOD, OR 97140
PHONE: 503.925.8799
FAX: 503.925.8969
www.aks-eng.com

AKS

ENGINEERING · PLANNING · SURVEYING
FORESTRY · LANDSCAPE ARCHITECTURE

AKS ENGINEERING AND FORESTRY, LLC
13910 SW GALBREATH DR
SUITE 100
SHERWOOD, OR 97140
PHONE: 503.925.8799
FAX: 503.925.8969
WWW.AKS-ENG.COM

ENGINEERING · PLANNING · SURVEYING
FORESTRY · LANDSCAPE ARCHITECTURE

RENAISSANCE AT WILLAMETTE

WEST LINN OREGON
TAX LOT 200 CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

PRELIMINARY SITE PLAN

DESIGNED BY:	RSW
DRAWN BY:	BLF
CHECKED BY:	MBH/DG
SCALE:	AS NOTED
DATE: 01/08/14	

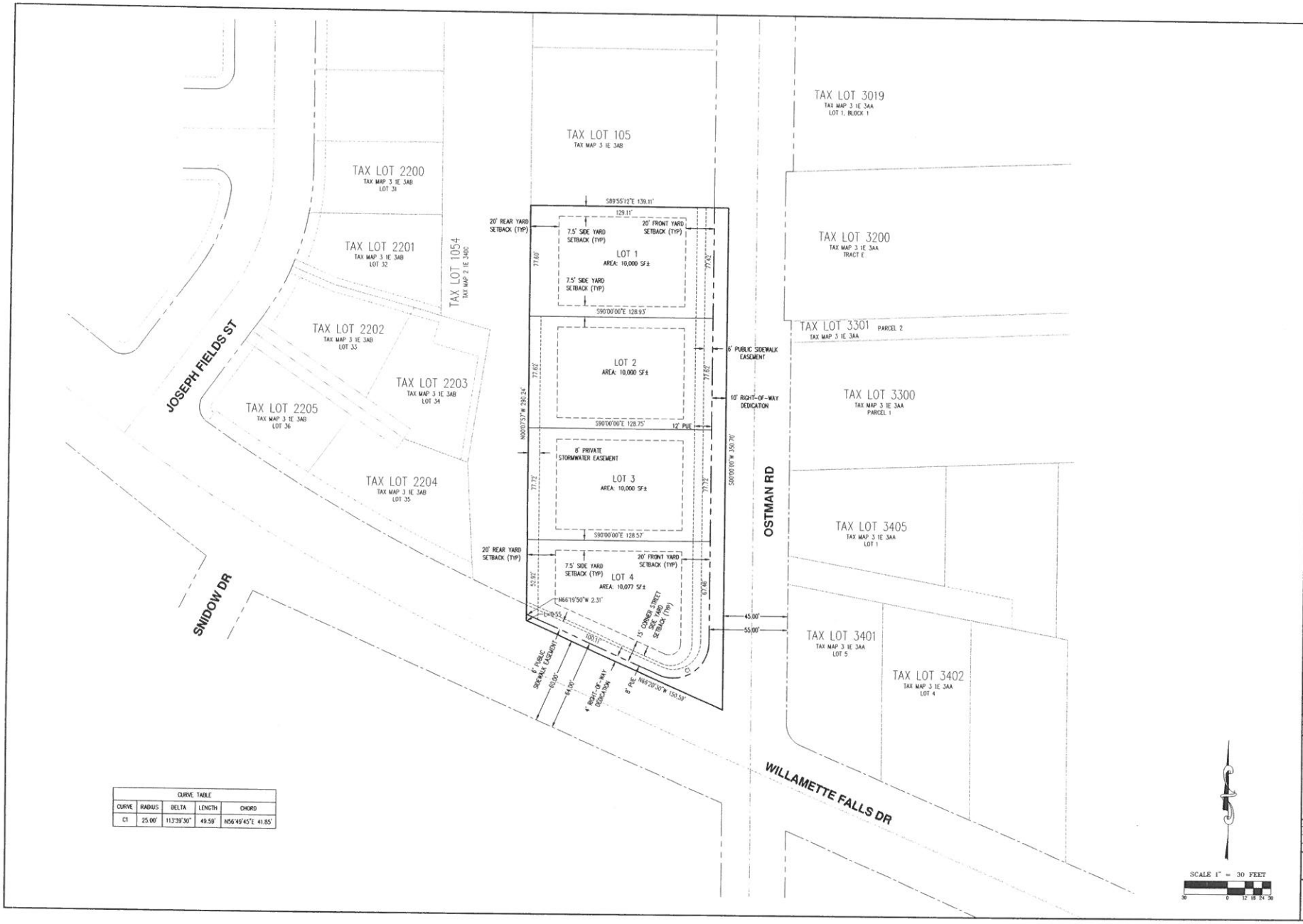
PRELIMINARY

REVISIONS

JOB NUMBER
3745

SHEET
1

AKS DRAWING FILE: 3745 SITE PLAN.DWG | LAYOUT: P1



CURVE TABLE				
CURVE	RADIUS	DELTA	LENGTH	CHORD
C1	25.00'	113°39'30"	49.59'	N56°49'45"E 41.85'

AKS ENGINEERING AND FORESTRY, LLC
13910 SW GALBREATH DR
SUITE 100
SHERWOOD, OR 97140
PHONE: 503.925.8799
FAX: 503.925.8969
www.aks-eng.com

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FORESTRY · LANDSCAPE ARCHITECTURE

RENAISSANCE AT WILLAMETTE

WEST LINN OREGON

CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB
TAX LOT 2200

PRELIMINARY SUBDIVISION PLAT WITH BUILDING SETBACKS

DESIGNED BY:	RSW
DRAWN BY:	BLF
CHECKED BY:	MBH/CG
SCALE:	AS NOTED
DATE: 01/08/14	

PRELIMINARY

REVISIONS

JOB NUMBER
3745

SHEET
1

AKS DRAWING FILE: 3745 PLATCONC | LAYOUT: P5

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1770 Ostman Road
01/08/2014
7:00 PM

Willamette Neighborhood Association
Pacific West Bank
2040 8th Ave

NAME
STREET ADDRESS
PHONE/EMAIL

PLEASE PRINT CLEARLY

1. Linda Neace
neace96@gmail.com
~~Elizabeth Hall~~

2. Elizabeth Hall
1697 Killarney Drive, West Linn
elizabeth@lovellandhall.com

3. Elizabeth Smolens
1852 4th AVE
5036806141/smolense@gmail.com

4. Gail Holmes
801 Wendy Ct.
West Linn OR c# 503-318-7317
Holmes241@gmail

5. Elizabeth Rocchia
957 Will Falls Dr
WL erocchia@comcast.net

6. MICHAEL SELVAGGIO
1790 FIFTH AVE, W.L. 97068

7. ANGELA PERUSICH
1798 4TH AVE

8. LLOYD HILL
961 WILLAMETTE FALLS DR.

9. Kathie Hatcher
2307 Falcon Dr.
West Linn

10. MATT TRUAX – BIRD NEST INC,
1091 WILLAMETTE FALLS DR

11. Madeleine Boettcher
1765 Ostman Rd
West Linn, OR 97068

12. Cindy Reichi
957 Will Falls Dr
97068

13. BOB BRUNE
1620 5TH AVE
WL OR 97068

14. Amy Schnell
16711 Boones Ferry Rd.
Lake Oswego OR 97035

Willamette Neighborhood Association

Willamette Neighborhood Association (WNA)
Pacific West Bank - Willamette Marketplace
Date: Jan. 8, 2014

Call to order: 7:04pm

Attendance:
Michael Selvaggio - Vice President
Elizabeth Rocchia - Treasurer
Elizabeth Hall & Beth Smolens -Co-Secretaries
Gail Holmes, Linda Neace, Kathie Halicki, Lloyd Hill, Joe Buffington, Angela Pernisco, Bob Brune, Andy Rocchia, Madeleine Balltcher, Matt Truax

Treasurer's Report:
No Change- Total: $2109.03
US Bank: 1814.75
WNA: 437.30
Yoga: 1377.45

AGENDA

New Business

AKS Engineering Presentation (New Development on Ostman):

Monty Hurley shared currently drafted layout of combined driveways. Support and positive comments were made from WNA attendees for the idea of passing a variance so builder can redesign independent driveways per house. WNA Vice President, Michael Selvaggio noted that he does not see traffic impact on separating driveways for each proposed construction. Discussion of Green Screen was mentioned so that concrete blocks or less aesthetic building materials would not be exposed. System Development Charges require specific street development with proposed new construction. Discussion was heard with concern that clear vision on Ostman be a priority in street development.

Youth Music Project (Summer Concert, July 17th):

Rachel Bany, Marketing Coordinator, shared back ball field location by river and efforts to include neighbors while respecting sound ordinances for their summer concern. They are still looking for their musical talent or 'headliners'/'national act'. With the July 17th timing they are hoping to kick off the Willamette Old Time Fair. Support was heard by WNA meeting attendees. WNA supports the Youth Music Project Summer Concert Proposal

Willamette Neighborhood Association

Old Business

Planning Commission Meeting- Tannler Basin Recap
(Summary attachments to be included when received from attendees)

Kiosk Suggestion for Advertising Current Willamette Events
Is this viable for our community? Eagle Scout Project? Facebook/Pinterest?
Mainstreet Update
Parade Planning and Theme Picking in Progress

Chamber News
Linda Neace shared ongoing research for bike rack design and placement. Idea of 'Blade Signs' was brought up with general agreement they could like nice and help direct merchant traffic.

2014 Goals for Neighborhood
Recruiting new members- invite a neighbor

Meeting adjourned: 7:40.

Respectfully Submitted with Assistance,
Elizabeth Hall

City of West Linn

PRE-APPLICATION CONFERENCE MEETING

Notes

September 5, 2013

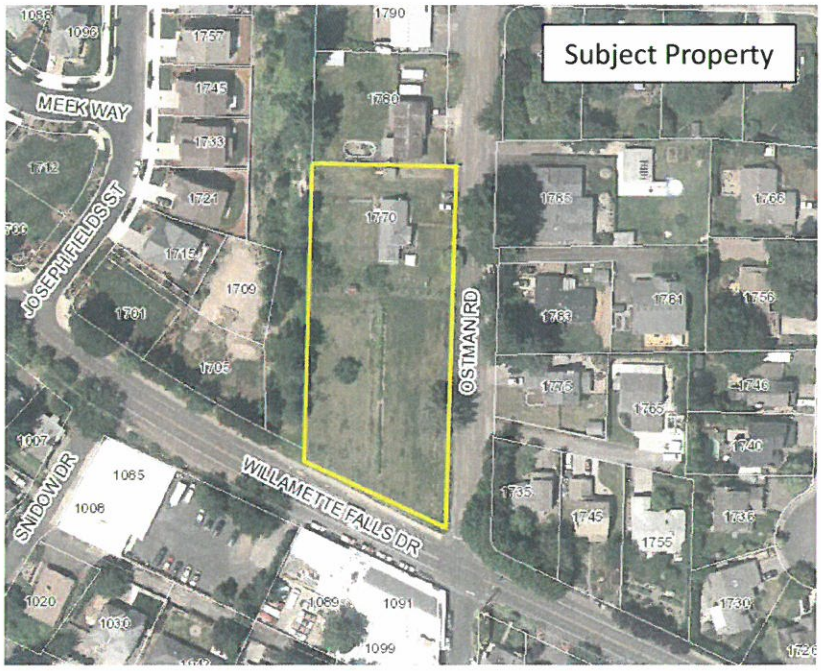
SUBJECT: Four lot subdivision at 1770 Ostman Road

ATTENDEES: Monty Hurley (AKS Engineering and Forestry), Chris Goodell (AKS Engineering and Forestry), Jeff Shrope (Renaissance Homes), Amy Schnell (Renaissance Homes), Randy Sebastian (Renaissance Homes), Sara Javoronok (Planning), Khoi Le (Engineering), Noah Brennan (Engineering)

The following is a summary of the meeting discussion provided to you from staff meeting notes. Additional information may be provided to address any "follow-up" items identified during the meeting. <u>These comments are PRELIMINARY in nature</u>. Please contact the Planning Department with any questions regarding approval criteria, submittal requirements, or any other planning-related items. Please note disclaimer statement below.

<u>Project Details</u>

The subject property is at 1770 Ostman Road in the Willamette neighborhood. It has frontage on Ostman Road and Willamette Falls Drive. The property is just over an acre at 44,947 square feet and is zoned R-10 (single family residential/10,000 square foot minimum lot size). The applicant is proposing 4 lots, each 10,000 square feet. The existing parcel is generally rectangular with Willamette Falls Drive cutting across the southern boundary at an angle. Approximately 350 feet of the parcel fronts Ostman Road and 150 feet fronts Willamette Falls Drive.

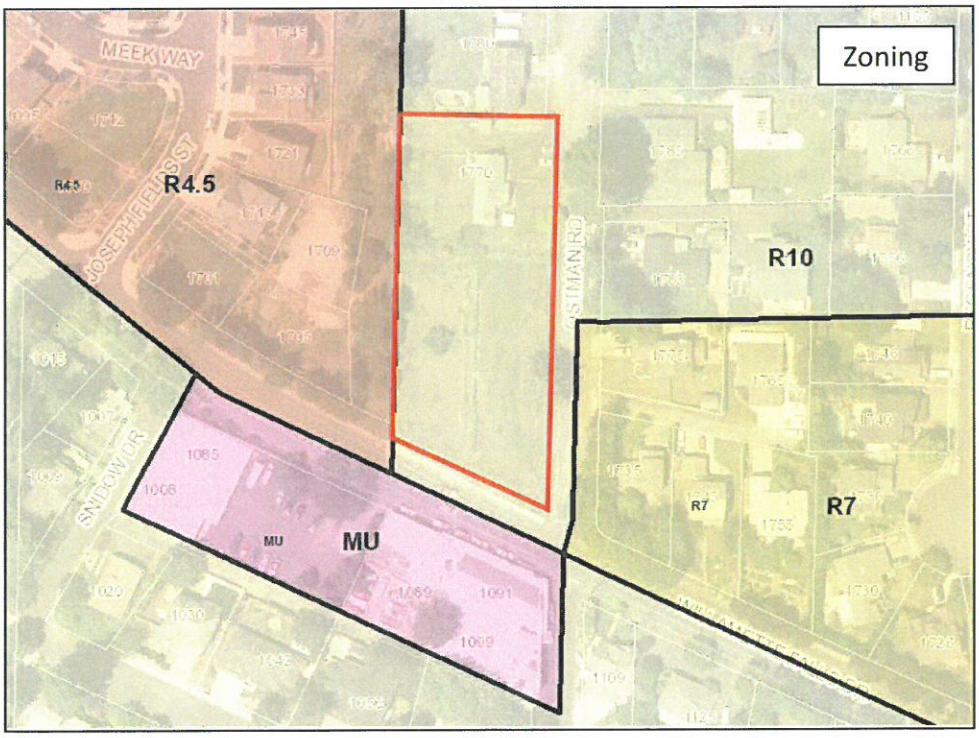


Site Analysis

Existing Conditions: The proposed site has an existing single family home and two accessory structures. Much of the site is grass with some small trees and grape vines. Per the City Arborist, there are no significant trees on the site that must be saved. The only significant tree is dying. There is an existing sidewalk along Willamette Falls Drive that appears to have been built at the same time as the sidewalk at the adjacent development to the west, Arbor Cove. There is no sidewalk along Ostman Road. There is a bus stop at Ostman and Willamette Falls Drive.

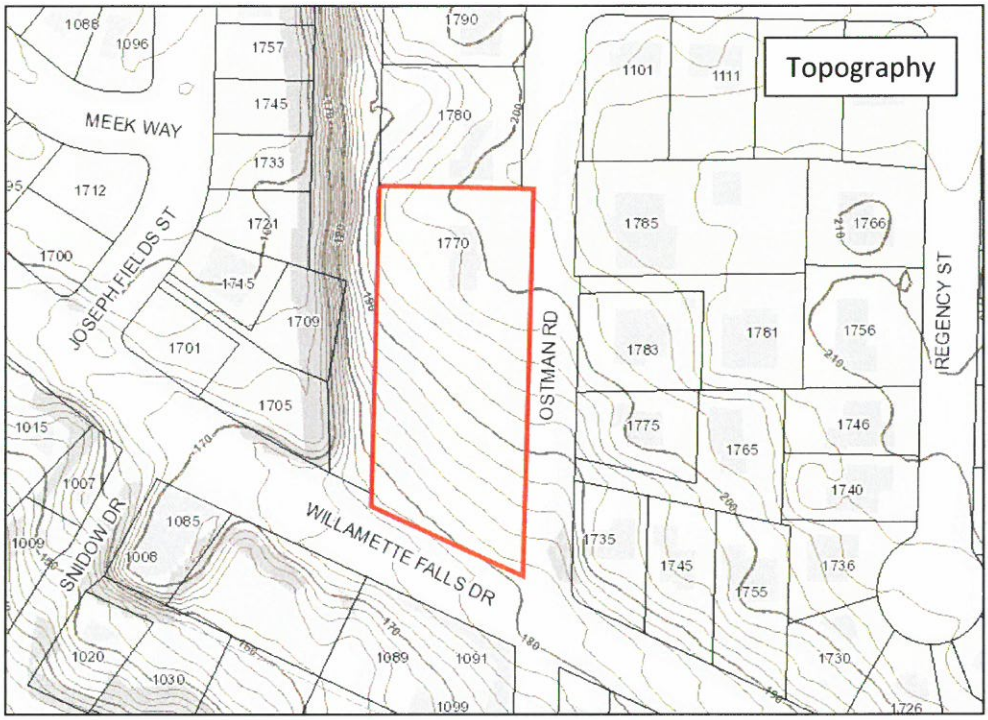
The lot is part of the Willamette Falls Acreage Tracts, which was platted in 1901. This parcel appears to have been part of the same lot as surrounding parcels. The applicant will need to present proof that this is a legal lot of record.

Surrounding Land Uses and Zoning: To the north and northeast are properties that are zoned R-10 and are part of early plats in the City and also more recent partitions and subdivisions. To southeast is Ostman Corner a five lot subdivision from 1987 that is zoned R-7. To the west is the 2007 Arbor Cove development, which is zoned R-4.5. To the south, are several properties that are zoned mixed use. The applicant plans on maintaining the existing R-10 designation.



Topography: The site slopes downhill an average of 8% from about 202 feet elevation at the northeast corner to about 177 feet in the southwest corner. A portion of the site along the western perimeter has slopes between 10-25% (light grey). This falls much more steeply on the

adjacent tract that is part of the Arbor Cove subdivision (25% and higher is shown in dark grey). There are no natural hazards or environmental constraints.



Subdivision and Lot Access: The applicant is proposing four lots that are each 10,000 square feet and dedicating 10' of ROW on both Ostman Road and Willamette Falls Drive. Staff notes that the preliminary site plan shows a 12' front yard setback rather than the 20' that is required. All of the lots would be accessed off of Ostman rather than Willamette Falls. **Staff would make this a condition in the subdivision approval.** This stretch of Ostman exceeds the block length in CDC 85.200(B)(2); however, the existing pattern of development in the area precludes any increased street connectivity.

CDC 48.060(C)(4) states that there shall be no curb cuts on a collector (Ostman) within 100 feet of intersecting an arterial (Willamette Falls Dr.). In addition, CDC 48.060(D)(2) states that there shall be a minimum distance of 75 feet between any two adjacent curb cuts on the same side of a collector. All curb cuts shown on plans must comply with these requirements. One option to address this is applying for a Class II variance for CDC 48.060(C)(4) and having lots 1 and 2 share a driveway. Lots 3 and 4 could share another driveway and the spacing would meet CDC 48.060(D)(2).

Engineering Notes

I. TRANSPORTATION

WILLAMETTE FALLS DRIVE

	EXISTING CONDITIONS	POTENTIAL POST DEVELOPMENT CONDITIONS
Classification	Minor Arterial	Minor Arterial
Zone	R-10	R-10
Right of Way Width	60'-76'	76'
Full Pavement Width	43'	48'
Bike Lane	Along the frontage	6'
Curb and Gutter	Curb	Curb and Gutter
Planter Strip	None	5.5' Planter
Sidewalk	Yes - Substandard	6' Sidewalk
Street Light	None	Yes – LED Fixtures
Utility Pole	None	New services to be placed underground
Street Tree	None	Yes
ADA Ramps	Yes	None
Post Speed	25 MPH	30 MPH
Stripe	Double Center Line and Bike Line	Provide proper stripe as part of street improvement

A. MINIMUM REQUIRED IMPROVEMENT

1. Dedication: 10'to match adjacent development to the West.
2. Provide a minimum 24' half street pavement improvement with the following sections:
   - 12" of 1-1/2"-0 Crush Rock
   - 2" of ¾" -0 Leveling Course
   - 6" of AC Pavement consisting of 2" Class "C" over 3" Class "B"
   - See Public Works Standards Section 5.0030 Pavement Design for design requirements.
3. Provide striping including double yellow line and 6' bike lane.
4. Provide illumination analysis of the existing conditions. Install street lights as recommended in accordance to the followings:
   - Average Maintained Illumination: 0.6 foot-candles (Residential)
   - Uniformity Average to Minimum: 4 to 1
   - Street Light should match with existing surrounding lights – with LED Beta Fixtures.
5. Provide Street Tree. Coordinate with Parks Department for requirements.
6. In case the access road is determined to be a private road the driveway approach shall be designed with the following requirements:

- Driveway Approach: 36' maximum width including wings. See WL-504A, 504B, and 505 for technical and construction specifications. Driveway approach serving 3 lots or more should be designed in accordance with Commercial Driveway Design Guidelines and

Standards. Intersection of new driveway to existing roadway should be design in accordance with Public Works Standards Section 5.0015 Intersections.

7. All new and existing overhead utilities along the development must be placed underground.
8. Reference: Arbor Cove As-Built.

OSTMAN ROAD

	EXISTING CONDITIONS	POTENTIAL POST DEVELOPMENT CONDITIONS
Classification	Collector	Collector
Zone	R-10	R-10
Right of Way Width	44'	54'
Full Pavement Width	33'	36'
Bike Lane	Yes	6'
Curb and Gutter	Yes	Curb and Gutter
Planter Strip	None	5.5' Planter
Sidewalk	Yes	6' Sidewalk
Street Light	On the opposite side	Yes – LED Fixtures
Utility Pole	1 overhead anchor pole.	New services to be placed underground
Street Tree	None along the frontage. Not on the opposite.	Yes
ADA Ramps	Yes	None
Post Speed	25 MPH	25 MPH
Stripe	Double Center Line	Provide proper stripe as part of street improvement

B. MINIMUM REQUIRED IMPROVEMENT

1. Dedication: 10' to match adjacent development to North.
2. Provide a minimum 18' half street pavement improvement with the following sections:
   - 12" of 1-1/2"-0 Crush Rock
   - 2" of ¾" -0 Leveling Course
   - 5" of AC Pavement consisting of 2" Class "C" over 3" Class "B"
   - See Public Works Standards Section 5.0030 Pavement Design for design requirements.
3. Provide illumination analysis of the existing conditions. Install street lights as recommended in accordance to the followings:
   - Average Maintained Illumination: 0.6 foot-candles (Residential)
   - Uniformity Average to Minimum: 4 to 1
   - Street Light should match with existing surrounding lights – with LED Beta Fixtures.
4. All new and existing overhead utilities along the development must be placed underground.
5. Reference: Ostman Corner As-Built.

C. CITY TRANSPORTATION MASTER PLAN

PEDESTRIAN MASTER PLAN

Willamette Falls Dr is indicated in the City Pedestrian Master Plan as one of the roadways with sidewalk deficient. Sidewalk project along Willamette Falls Drive between Ostman Rd and Dollar St is identified as project number 81 on Pedestrian Master Plan Project list (See TSP page 5-8). 6' sidewalk along the project frontage will be included as part of the street improvement requirements.

Ostman Rd is indicated in the City Pedestrian Master Plan as one of the roadways with sidewalk deficient. Sidewalk project along Ostman Rd between Blankenship and Willamette Falls Dr is identified as project number 31 on Pedestrian Master Plan Project list (See TSP page 5-8). 6' sidewalk along the project frontage will be included as part of the street improvement requirements.

BICYCLE MASTER PLAN

Willamette Falls Dr is indicated in the City Bicycle Master Plan as one of the roadways with bike lane deficiency. Bike lane project along Willamette Falls Drive between Willamette Dr and City Limit is identified as project 12 and 13 on the Bicycle Plan Project List (See TSP page 6-8) 6' bike lane along project frontage will be included as part of the street improvement requirements.

MOTOR VEHICLE MASTER PLAN

Existing Operations Conditions

Intersection	LOS	Average Delay (sec)	Volume/ Capacity (v/c)	Measure of Effectiveness Administrative		MOE Met?
				Agency	Maximum	
Willamette Falls Dr/Ostman Rd	A/C	0.8	0.03/0.06	City	LOS D	YES

Intersection will still continue to operate at adequate level until 2030. No improvement needed at this point.

D. STREET SDC AND BIKE/PEDESTRIAN EFFECTIVE JULY 1ST 2013

Type of Use	Trip per Use	Factor	Reimbursement	Improvement	Administrative	Total
Per Factor of 1		1.00	$2,201	$4,717	$179	$7,097
Single Family	Per House	1.01	$2,223	$4,764	$181	$7,168

Type of Use	Trip per Use	Factor	Reimbursement	Improvement	Administrative	Total

Per Factor of 1		1.00	$0	$1,542	$40	$1,582
Single Family	Per House	1.00	$0	$1,557	$40	$1,597

II. STORM DRAINAGE

A. EXISTING CONDITIONS

1. There is public storm main along the back of the property located inside Tract B of Arbor Cove Subdivision for connection with permission of Arbor Cove HOA. Public storm main is also available along Willamette Drive for connectivity.
2. As-Built: Arbor Cove

B. MINIMUM REQUIRED IMPROVEMENT

1. Provide treatment for new impervious of 500 square feet or more.
2. Provide detention for new impervious of 5000 square feet or more.
3. Storm Drainage Analysis Report is required.
4. Collect, treat, detain, and provide proper conveying system for new impervious area created along Ostman Rd with street swale.
5. Individual lot can collect, treat and detent storm run-off with rain gardens or equally storm treatment/detention facilities.

C. SURFACE WATER SDC EFFECTIVE JULY 1ST 2013

Unit		Factor	Reimbursement	Improvement	Administrative	Total
Per Factor of 1		1.00	$793	$238	$52	$1,083
Single Family	Per House	1.00	$793	$238	$52	$1,083

III. SANITARY SEWER

A. EXISTING CONDITIONS

1. Public sanitary sewer main is available along Ostman Rd for connectivity.

B. MINIMUM REQUIRED IMPROVEMENT

1. If the existing house is on septic, decommission the septic tank and drain field in accordance to DEQ requirements and submit the City with proper paperwork.

C. SANITARY SEWER SDC EFFECTIVE JULY 1ST 2013

Unit	Meter Size	Factor	Reimbursement	Improvement	Administrative	Total
Per Factor of 1		1.00	$612	$2,385	$111	$3,108
Single Family	Per House	1.00	$612	$2,385	$111	$3,108

Tri-City Service District Sewer SDC 1 EDU = $2,020

IV. WATER

A. PRESSURE ZONE

1. Zone: Willamette Pressure Zone
2. Overflow Elevation: 351 Upper Elevation: 280 Lower Elevation: 100

B. RESERVOIR AND PUMP STATION

1. Reservoir: Willamette Reservoir is located on Salamo Rd. The reservoir usable capacity is 0.6 million gallon. The reservoir is filled by Bolton Pressure Zone.
2. Pump Station: Bolton Pump Station has total of 3 pumps at 1,500 gpm each.

C. EXISTING POPULATION AND PROJECTED POPULATION AT SATURATION

1. Existing Population: 4,898
2. Projected Population at Saturation: 6,064

D. WATER DEMAND AT SATURATION

Average Day Demand (mgd)	Maximum Day Demand (mgd)	Peak Hour Demand (mgd)
0.9	2.0	3.1

E. RESERVOIR AND PUMP STATION CURRENT OPERATNG CONDITIONS

1. In accordance with Water System Plan, both the reservoir and pump station are listed appearing to be in good condition.

F. WILLAMETTE PRESSURE ZONE PEFORMANCE

Year	MDD (mg)	Fire Flow (mg)	Total Supply Need (mg)	Normal Supply Capacity (mg)	Emergency Supply Capacity (mg)	Normal Supply Deficit (mg)	Emergency Supply Deficit (mg)
Current	**2.2**	**0.5**	**2.7**	**2.6**	**1.6**	**0.1**	**1.1**
2015	**2.3**	**0.5**	**2.8**	**2.6**	**1.6**	**0.2**	**1.2**
2030	**2.6**	**0.5**	**3.1**	**2.6**	**1.6**	**0.5**	**1.5**
Saturation	**2.7**	**0.5**	**3.2**	**2.6**	**1.6**	**0.6**	**1.6**

1. The table above indicates that there is NO deficiency in supply capacity during a normal condition. There is no improvement project adjacent to development listed in the Water System Master Plan.

G. WILLAMETTE PRESSURE ZONE SUPPLY AND STORAGE DEFICIT

Year	Normal Conditions			Emergency Conditions		
	Supply Deficit (mgd)	Storage Volume (mg)	Overall Deficit (mgd)	Supply Deficit (mgd)	Storage Deficit (mgd)	Overall Deficit (mgd)
Current	**0.1**	**0.8**	**0**	**1.1**	**0.8**	**0.3**
2015	**0.2**	**0.8**	**0**	**1.2**	**0.8**	**0.4**
2030	**0.5**	**0.8**	**0**	**1.5**	**0.8**	**0.7**
Saturation	**0.6**	**0.8**	**0**	**1.6**	**0.8**	**0.8**

1. The table above indicates that there is no overall storage volume deficit during a normal condition but deficient during emergency condition.

H. WILLAMETTE PRESSURE ZONE MASTER PROJECT LIST

1. There are 26 water improvement projects listed in the City Water System Plan under the Willamette Pressure zone. Project number 14 is along the subject development frontage. Thus improvement is required along the proposed project frontage but with financial sponsorship from the City from SDC fund. Payment may be made out with Water SDC Certificate.

I. MINIMUM REQUIRED IMPROVEMENTS

1. Existing public water system is available on both Ostman Rd for connection.
2. New water meter shall be set behind curb and out of driveway approaches. No water meters or water main shall allow to be placed in private drive way.
3. Developer shall work with City to replace 500 lineal feet existing 6" CI Water line between Willamette Falls Dr and Bexhill St with 6" DI Water line.
4. As-Built: Arbor Cove.

J. WATER SDC EFFECTIVE JULY 1ST 2012

Unit	Meter Size	Factor	Reimbursement	Improvement	Administrative	Total
Per Factor of 1		1.00	$585	$6,969	$196	$7,750
5/8" Meter	1		$585	$6,969	$196	$7,750

Site Photos

Existing house

Ostman frontage

Facing southwest

Facing south

Rear of property, trees are on adjacent lot

Facing northeast

Willamette Falls Drive frontage

Process

A subdivision approval is required, which is a Planning Commission decision. **If a variance is required, follow the requirements for Class II variances in Chapter 75.** Follow CDC 85.150-170 strictly and completely regarding submittal requirements (including plans, maps, etc.). **Follow CDC Chapter 89 for the subdivision plat.** Submittal requirements may be waived but the applicant must first identify the specific submittal requirement and request, in writing, that it be waived by the Planning Director and must identify the specific grounds for that waiver. The waiver may or may not be granted by the Planning Director. Waivers may also be subsequently overruled by the decision making body. The approval criteria of 85.200 shall be responded to in a narrative as well.

A neighborhood meeting is required for a subdivision approval per CDC 99.038. Follow the requirements of that code section explicitly. The site is within the Willamette neighborhood. Contact Julia Simpson, President of the Willamette Neighborhood Association via the method identified in CDC 99.038. She can also be contacted at willametteNA@westlinnoregon.gov. The applicant is required to provide the neighborhood association with conceptual plans and other material at least 10 days prior to the meeting. Because of the time and scheduling requirements of CDC 99.038, the applicant should address this requirement as soon as possible.

Submit the Development Review form for a subdivision to the Planning Department with a signed application form. The deposit for a subdivision application is $4,200, plus $200 per lot, for a total initial deposit in this case of $5,000. The final plat fee is $2,000. There is also a $500 fee for final site inspection. **A Class II variance is a $2,900 fee. PLEASE NOTE** that the deposits are initial deposits, and staff time is charged against the deposit account. It is common for there to be more staff time spent on development applications than deposits cover, and therefore additional billing may be likely to occur.

Once the submittal is deemed complete, the staff will schedule a hearing with the Planning Commission. Staff will send out public notice of the Planning Commission hearing at least 20 days before it occurs. The Planning Commission's decision may be appealed to City Council by the applicant or anyone with standing.

The CDC is online at http://westlinnoregon.gov/planning/cdc.

Pre-application notes are void after 18 months and a new pre-application conference is required.

Specific Questions

Land Use:

1) Yes, it is zoned R-10.
2) No, there are not overlay zones, wetlands, hazardous soil designations, habitat, Metro Title 3 or 13 or other natural resource designations that affect the property.
3) The layout is acceptable**; however, a may be required to meet CDC 48.060(C)(4) and 48.060(D)(2). See the site analysis section.**
4) CDC Chapters 5 and 11 call for 4.35 dwelling units per acre and a minimum lot size of 10,000 square feet in the R-10 zone. CDC 85.200(J)(7) requires the density to be at 70% or more of the maximum allowed.
5) The minimum lot size in R-10 is 10,000 square feet. Lots can be smaller if developed as part of a PUD; however, it is unlikely that this site would qualify to develop as a PUD since there are not natural resources lands or density transfer proposed.
6) **Staff would prefer a dedication of 10' of ROW. If necessary, staff would support placing the sidewalk in an easement.**
7) Staff identified that the stormwater should be treated on each lot, so this would not be an issue.
8) The applicant could apply for a variance. Proposed amendments to the variance criteria and process (http://westlinnoregon.gov/planning/economic-development-code-

amendments) may result in a variance that would be more likely for the applicant to obtain.

9) The City Arborist evaluated the site and determined that the only significant tree is dying and that it does not need to be saved. Note on the subdivision plans which trees will be removed and this will be reviewed as part of the subdivision review process.
10) Subdivisions are a Planning Commission decision. See information above in Process. Typical land use applications can take 6-10 months from beginning to end.
11) **A variance may be required, see the site analysis section.**
12) There is not a record of a land use application for 1770 Ostman from 1997-present.
13) See the comment in (8) regarding variances. The Planning Commission reviewed these amendments at a public hearing on September 4, 2013 and has continued their discussion to September 11, 2013. Staff is also working on changes to the City's infill and PUD requirements. These are unlikely to affect the property, but may provide additional options for development. These are not currently scheduled for a public hearing and are not anticipated to be in place until next year.

Streets/Transportation/Circulation:

14) No new streets or pedestrian accessways are required for the subdivision.
15) **Staff would prefer a dedication of 10' of ROW. If necessary, staff would support placing the sidewalk in an easement.**
16) Yes, see the Engineering Notes.
17) **Staff would prefer a dedication of 10' of ROW. If necessary, staff would support placing the sidewalk in an easement.**
18) Yes, see the Engineering Notes.
19) **There may be access restrictions to Ostman Road. See the site analysis section and questions (3) and (8) above.**

Public Services/Utilities:
See the Engineering Notes.

City Fees:

28) See the fees identified in the Engineering and Process sections above. Planning deposits and fees are due with the submittal of an application. Plan review fees must be paid when a permit application is submitted. SDCs must be paid when a permit is issued.

Expedited Land Divisions:
The City provides for Expedited Land Divisions in CDC 99.060(E). It still requires a Planning Commission meeting, but not a public hearing. They also follow the requirements of ORS 197.360-380 which provide for this process when there are three or fewer lots.

SHERWOOD · VANCOUVER · SALEM
13910 SW GALBREATH DR., SUITE 100 · SHERWOOD, OR 97140
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August 16, 2013

Planning & Development Department Staff
City of West Linn
22500 Salamo Road #1000
West Linn, OR 97068

RE: PRE-APPLICATION CONFERENCE NARRATIVE AND QUESTIONS FOR 1770 OSTMAN DRIVE

This pre-application conference concerns subdividing a property located at 1770 Ostman Drive. The property is designated with R-10 Zoning and is approximately 41,010 square feet in size. The property has frontage on Willamette Falls Drive and Ostman Road.

We would like to discuss the following issues at the pre-application conference in addition to the typical topics that are covered.

Land Use:

1) We would like to confirm that the zoning for the property is R-10.
2) We would like to confirm that there are no overlay zones, mapped wetlands, geotechnical hazardous soils designations, wildlife habitat, Metro Title 3 or 13 designations, or other natural resource designations that affect the property.
3) Please confirm if the preliminary layout shown is acceptable to the City.
4) Please confirm the maximum permitted and minimum required density (and density calculation methodology) for the property.
5) Please confirm the minimum lot size for the R-10 Zone. Are there circumstances when lots are permitted to be less than this size?
6) If required right-of-way dedications result in lots that are less than 10,000 square feet, is this acceptable?
7) If stormwater management requirements result in lots that are less than 10,000 square feet, is this acceptable?
8) Are any adjustments, exceptions, modifications, variances, etc. permitted to the minimum lot size requirement?
9) There are a few trees on the property, one of which is approximately 5 feet from Ostman Road. What are the applicable tree removal standards for this application?
10) Please confirm the City review procedure type and anticipated review timeline for the proposed subdivision.
11) Are any other land use permits required?
12) Have any land use applications previously been submitted for this property?
13) Are any upcoming changes to the development code anticipated that may affect subdividing the property?

Streets / Transportation / Circulation:

14) Please confirm that no new streets or pedestrian accessways are required for the subdivision.
15) Please confirm the amount of right-of-way that is expected to be required to be dedicated along Willamette Falls Drive.

16) The property's frontage on Willamette Falls Drive is improved with a paved two-lane section, bicycle lane and concrete curb-tight sidewalk on its north side. Will any other improvements to this road be required?
17) Please confirm the amount of right-of-way that is expected to be required to be dedicated along Ostman Road.
18) The property's frontage on Ostman Road is improved with a paved two-lane section. There are no sidewalks on this side of the street for a significant distance to the north. However, there is a curb and gutter section with a curb-tight sidewalk on the opposite side of the street. Please confirm if any requirements are required along the property's frontage on Ostman Road.
19) Are there any access restrictions that apply to Ostman Road? Can each lot have its own individual driveway access?

Public Services / Utilities:

20) Please provide as-builts for any available information for Willamette Falls Drive and Ostman Road.
21) Please confirm available location(s) for public sanitary sewer disposal.
22) Please confirm appropriate locations for stormwater runoff. Can stormwater from the lots be handled similarly to the opposite side of Ostman (curb weep holes)?
23) Is there is sufficient sanitary sewer capacity to serve the project.
24) Please confirm if there are any known downstream stormwater deficiencies that may affect the project?
25) Are there any stormwater management requirements that apply to required public (street/sidewalk) improvements? If so, what are the options for treatment systems and locations other than on site?
26) Are there any stormwater management requirements that apply to future homes? If so, can they be accommodated on-site in private facilities?
27) Are there any special requirements or considerations for connecting to sanitary sewer, storm drain, or water?

City Fees:

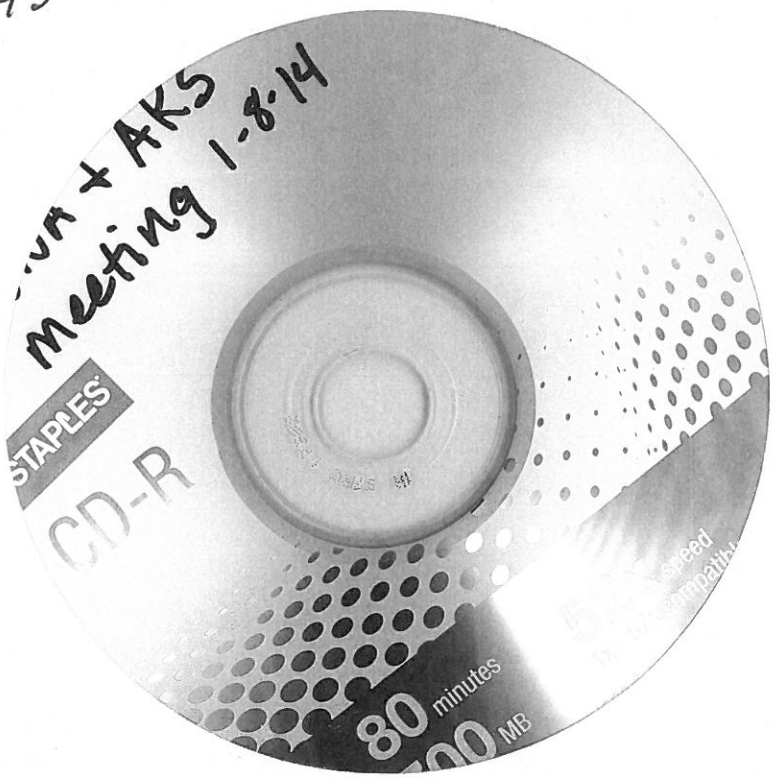
28) Please describe the land use permitting, construction permitting, and applicable SDC's that will be required for this project.

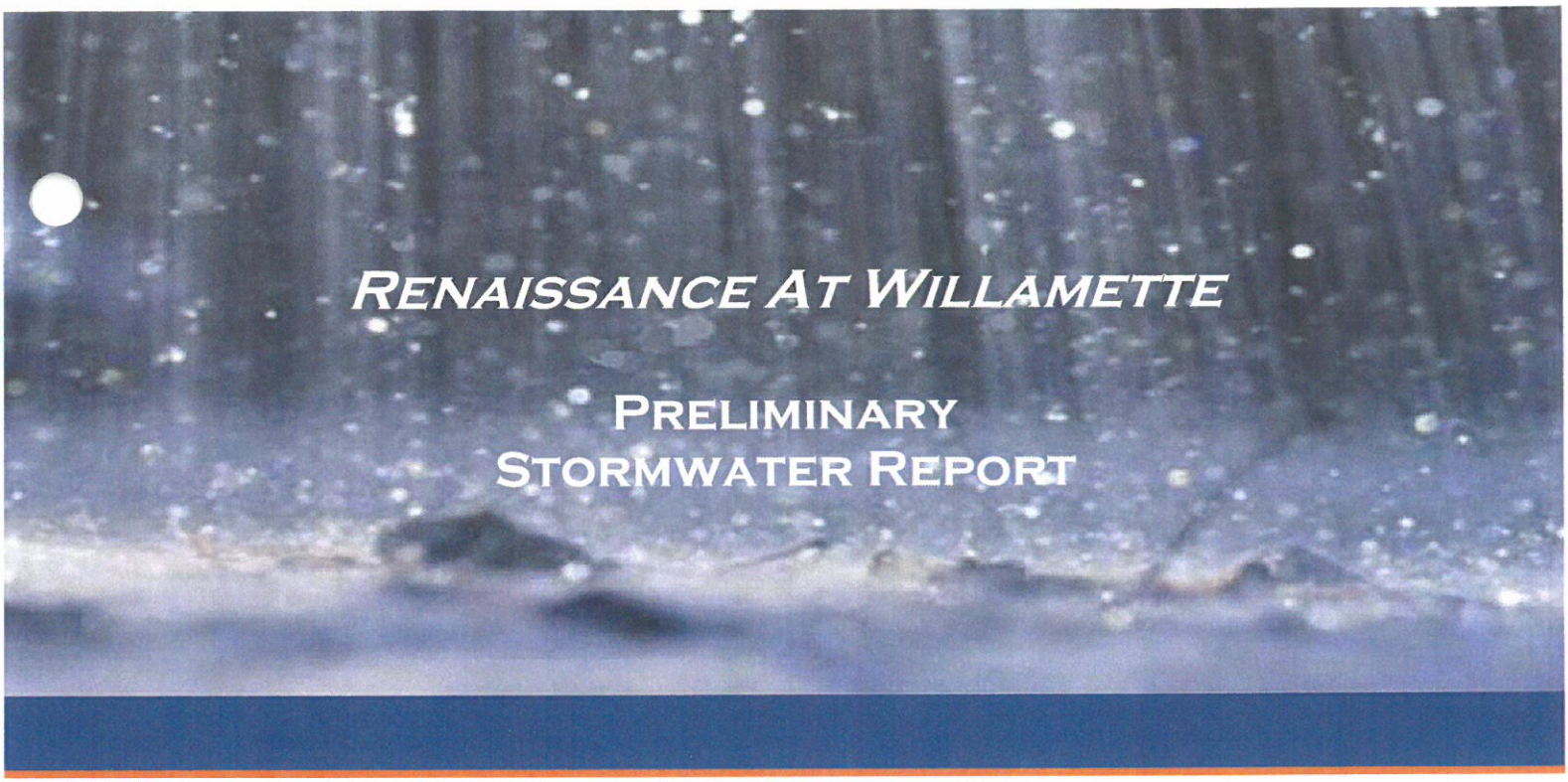
Please let us know if there are any other issues or site constraints that you are aware of.

Sincerely,
AKS Engineering & Forestry, LLC

Montgomery B. Hurley, PE, PLS - Principal

#3745 Ostman NM audio

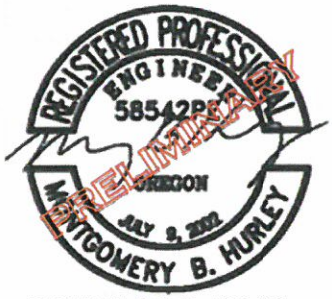




RENAISSANCE AT WILLAMETTE

PRELIMINARY STORMWATER REPORT

DATE:	January 2014
CLIENT:	Renaissance Homes
ENGINEERING CONTACT:	Monty Hurley, PE, PLS
ENGINEERING FIRM:	AKS Engineering & Forestry, LLC.
AKS JOB NO.:	3745



RENEWAL DATE: 6/30/15

AKS ENGINEERING & FORESTRY

13910 SW Galbreath Drive, Suite 100
Sherwood, OR 97140
P: (503) 925-8799
www.aks-eng.com

TABLE OF CONTENTS

3. PROJECT OVERVIEW AND DESCRIPTION

- *Size and Location of Project Site*: The project site is located at 1770 Ostman Road, in the City of West Linn, Oregon. It is also identified as Tax Lot 200, Clackamas County Assessor's Map No. 3 1E 03AB. The total area for this site is approximately 1.02 acres.

- *Property Zoning:* The project site is zoned R-10 (single family residential/10,000 square feet per lot).

- *Type of Development/Proposed Improvements:* The project consists of a 4-lot residential subdivision with frontage improvements to Ostman Road and Willamette Falls Drive.

- *Watershed Description:* The project site is within the Tualatin River drainage basin.

- *Existing vs. Post-Construction Conditions:* The existing conditions on the project site consist of a single family residential dwelling with outbuildings surrounded by grass, brush, and scattered trees. The post-developed conditions will consist of 4 single-family residential dwellings with paved driveways off of Ostman Road. Work in the Ostman Road and Willamette Falls Drive right-of-ways includes new roadway pavement, curb, gutter, and sidewalk.

4. METHODOLOGY

- *Drainage at Existing Site:* The existing site drains to the Willamette Falls Drive right-of-way.
    - *Potential Impacts from the Proposed Site on Existing Drainage:* There are no significant impacts anticipated to the existing drainage from the proposed site.
    - *Techniques for Mitigating Potential Conflicts or Problems:* There are no anticipated impacts that require mitigation.

- *Infiltration Testing Results*: The pushed pipe method of infiltration testing conducted on the project site demonstrated a minimum measured infiltration rate of 0.45 inches per hour at a depth of 5.0 feet. Infiltration testing at other depths and locations resulted in higher infiltration rates. The lowest tested infiltration rate and a safety factor of two will be utilized for a design infiltration rate of 0.23 inches per hour. The geotechnical engineer's report on infiltration testing results is attached.

- *Narrative of Stormwater Management Techniques:* Street swales will be utilized for stormwater treatment/detention of the runoff from pavement on Ostman Road, driveway approaches, and sidewalks. The total impervious area for the pavement on Ostman Road, driveway approaches, and sidewalks is approximately 8,440 square feet. Per City of West Linn's pre-application conference meeting notes, stormwater treatment/detention is not require for new impervious area created along Willamette Falls Drive.

Each individual lot within the subdivision will be responsible for treatment/detention of stormwater runoff from homes through on-site infiltration rain garden on the lots. A maximum impervious area of 3,500 square feet was assumed for each lot.

- *Stormwater Hierarchy Category Justification:*
    - *Category 3* – Requires onsite detention with vegetated facilities that overflow to a drainageway, river, or storm-only pipe. Flow control requirements is to maintain peak flow rates at their pre-development levels for the 2-year, 5-year, and 10-year, 24-hour runoff events.

5. ANALYSIS

- *Design Assumptions*
    - *Safety Factors, Curve Numbers, and Design Coefficients* – The following curve numbers were used for this analysis:
        - Pervious Surfaces – CN=58
        - Impervious Surfaces – CN=98
    - *Clarification of Variations from Normal Practice* – Normal practices were adhered to throughout this analysis.

- *PAC Narrative Form and Printouts* – PAC calculator is attached.

- *Conveyance Requirements and Design* – The storm sewer system is designed with sufficient capacity to carry up to the 25-year storm event.

- *Table of Impervious Area Treated/Detention and Stormwater Facility Area*

CATCHMENT	DESCRIPTION	Impervious Area Treated/Detention (square feet)	Stormwater Facility Area (square feet)
S1	RAIN GARDEN FOR LOT 1	3,500	450
S2	RAIN GARDEN FOR LOT 2	3,500	450
S3	RAIN GARDEN FOR LOT 3	3,500	450
S4	RAIN GARDEN FOR LOT 4	3,500	450
SA	SWALE A	2,010	483
SB	SWALE B	2,215	483
SC	SWALE C	2,215	483
SD	SWALE D	2,000	483

- *Comparison Table of Pre- and Post-Construction Flow Rates*

		2 YEAR (2.4")			5 YEAR (2.9")		
CATCHMENT	DESCRIPTION	Existing Runoff Rate (cfs)	Post-Developed Runoff Rate (cfs)	Post-Developed Release Rate from Stormwater Facility (cfs)	Existing Runoff Rate (cfs)	Post-Developed Runoff Rate (cfs)	Post-Developed Release Rate from Stormwater Facility (cfs)
S1	RAIN GARDEN FOR LOT 1	0.001	0.049	0.00	0.002	0.060	0.00
S2	RAIN GARDEN FOR LOT 2	0.001	0.049	0.00	0.002	0.060	0.00
S3	RAIN GARDEN FOR LOT 3	0.001	0.049	0.00	0.002	0.060	0.00
S4	RAIN GARDEN FOR LOT 4	0.001	0.049	0.00	0.002	0.060	0.00
SA	SWALE A	0.001	0.028	0.00	0.001	0.035	0.00
SB	SWALE B	0.001	0.031	0.00	0.001	0.038	0.00
SC	SWALE C	0.001	0.031	0.00	0.001	0.038	0.00
SD	SWALE D	0.001	0.028	0.00	0.001	0.034	0.00

		10 YEAR (3.4")			25 YEAR (3.9")		
CATCHMENT	DESCRIPTION	Existing Runoff Rate (cfs)	Post-Developed Runoff Rate (cfs)	Post-Developed Release Rate from Stormwater Facility (cfs)	Existing Runoff Rate (cfs)	Post-Developed Runoff Rate (cfs)	Post-Developed Release Rate from Stormwater Facility (cfs)
S1	RAIN GARDEN FOR LOT 1	0.002	0.071	0.00	0.004	0.082	0.005
S2	RAIN GARDEN FOR LOT 2	0.002	0.071	0.00	0.004	0.082	0.005
S3	RAIN GARDEN LOT 3	0.002	0.071	0.00	0.004	0.082	0.005
S4	RAIN GARDEN FOR LOT 4	0.002	0.071	0.00	0.004	0.082	0.005
SA	SWALE A	0.001	0.041	0.00	0.002	0.047	0.002
SB	SWALE B	0.002	0.045	0.002	0.002	0.052	0.016
SC	SWALE C	0.002	0.045	0.002	0.002	0.052	0.037
SD	SWALE D	0.001	0.041	0.00	0.002	0.047	0.002

- *Determination of Escape Route* – In the 25-year storm event, or any event in which the facilities are damaged and cannot infiltrate stormwater, runoff will flow south into the Willamette Falls Drive right-of-way then west approximately 300 feet to an existing catch basin located on the north side of Willamette Falls Drive.

6. ENGINEERING CONCLUSIONS

- *Demonstration of Compliance with the Stormwater Management Manual* – This stormwater report describes the engineering and design process that was utilized to select stormwater treatment/detention systems for this project.

- *Demonstration of Compliance with Water Quality, Flow Control, and Discharge Requirements* – The stormwater design for this project will exceed the City of West Linn's requirements. All sizing of stormwater treatment/detention facilities followed the City of Portland's Stormwater Management Manual.

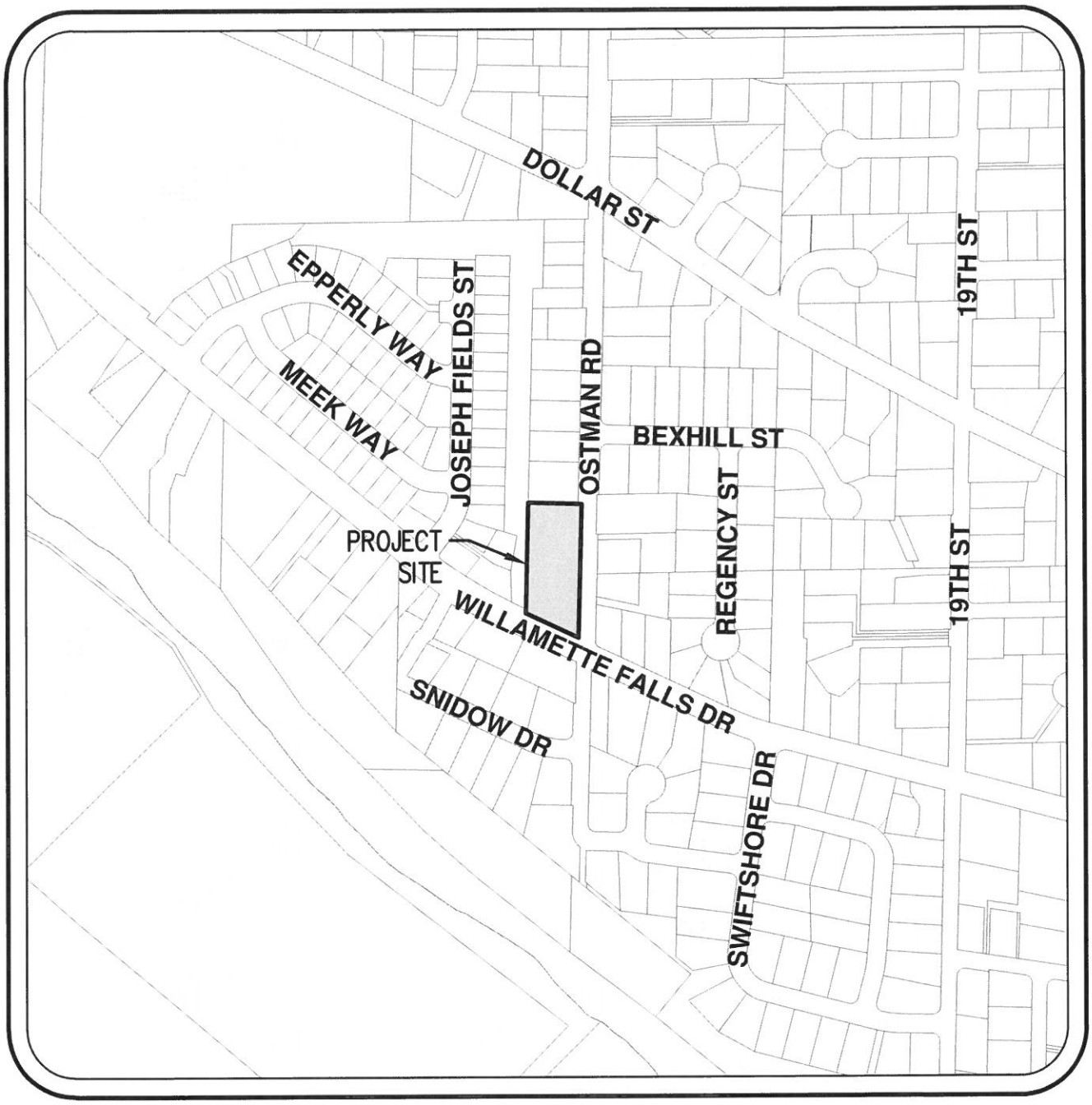
7. STORMWATER FACILITY DETAILS AND EXHIBITS

- *Contour Maps of Pre- and Post- Development* – Catchment map is attached.
  - *Existing and New Drainage Ways* – There are no existing or proposed drainage ways on the project site.
  - *Watershed Delineation* – The catchments are identified on the attached catchment maps.
  - *Points of Discharge* – The stormwater will be infiltrated on site, so there is no specific point of discharge.
  - *Delineation of Each Catchment* - The catchments are identified on the attached catchment maps.

8. ASSOCIATED REPORTS SUBMITTED

- Runoff Curve Numbers (attached)
- NRCS Soil Information (attached)
- Geotechnical Report (attached)

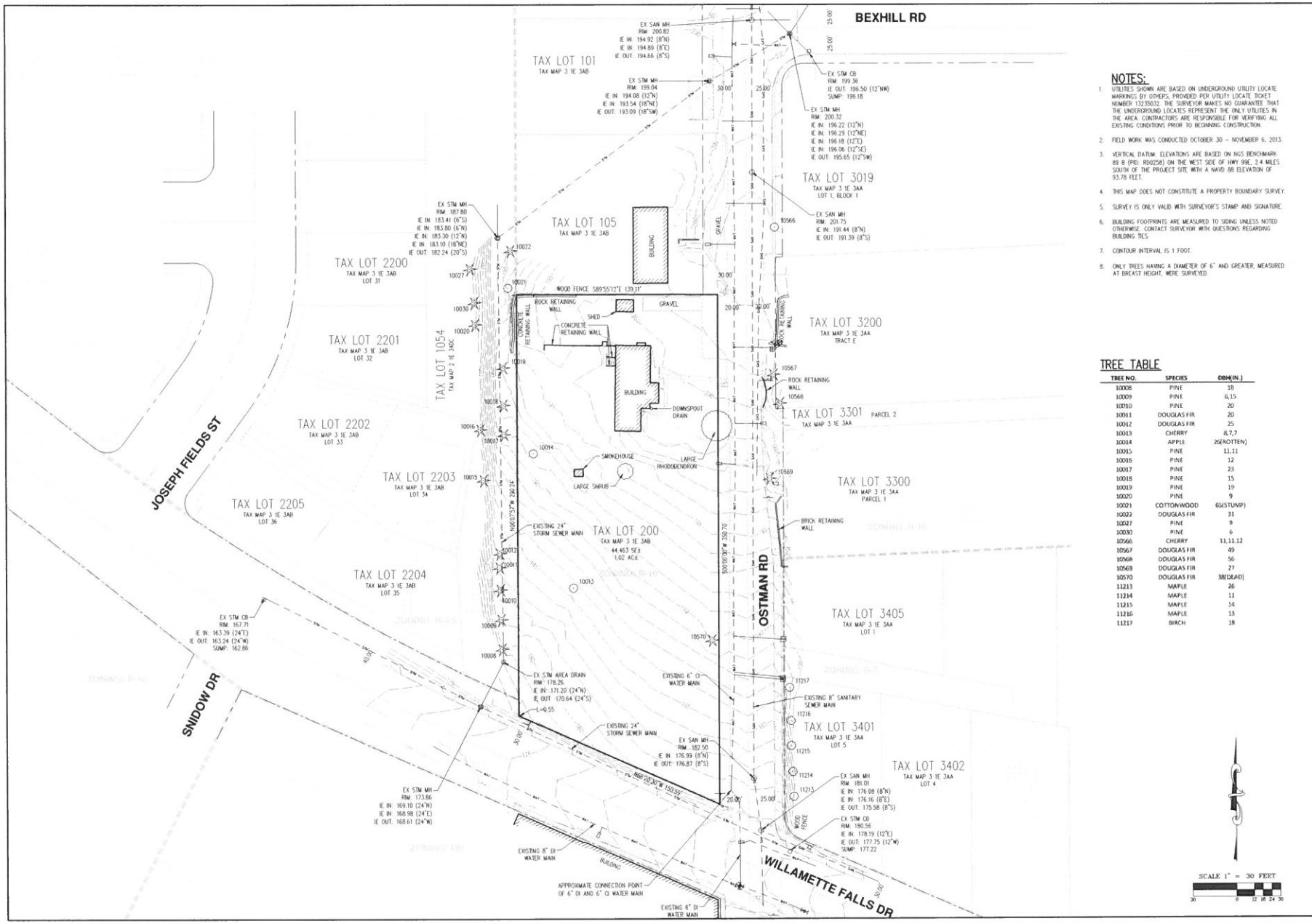
VICINITY MAP



VICINITY MAP

N.T.S.

CATCHMENT MAPS



NOTES:

1. UTILITIES SHOWN ARE BASED ON UNDERGROUND UTILITY LOCATE MARKINGS BY OTHERS, PROVIDED PER UTILITY LOCATE TICKET NUMBER 13235032. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND LOCATES REPRESENT THE ONLY UTILITIES IN THE AREA. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION.
2. FIELD WORK WAS CONDUCTED OCTOBER 30 – NOVEMBER 6, 2013.
3. VERTICAL DATUM. ELEVATIONS ARE BASED ON NGS BENCHMARK 89 B (PID: RD0258) ON THE WEST SIDE OF HWY 99E, 2.4 MILES SOUTH OF THE PROJECT SITE WITH A NAVD 88 ELEVATION OF 93.78 FEET.
4. THIS MAP DOES NOT CONSTITUTE A PROPERTY BOUNDARY SURVEY.
5. SURVEY IS ONLY VALID WITH SURVEYOR'S STAMP AND SIGNATURE.
6. BUILDING FOOTPRINTS ARE MEASURED TO SIDING UNLESS NOTED OTHERWISE. CONTACT SURVEYOR WITH QUESTIONS REGARDING BUILDING TIES.
7. CONTOUR INTERVAL IS 1 FOOT.
8. ONLY TREES HAVING A DIAMETER OF 6" AND GREATER, MEASURED AT BREAST HEIGHT, WERE SURVEYED.

TREE TABLE

TREE NO.	SPECIES	DBH(IN.)
10008	PINE	18
10009	PINE	6,15
10010	PINE	20
10011	DOUGLAS FIR	20
10012	DOUGLAS FIR	25
10013	CHERRY	8,7,7
10014	APPLE	26(ROTTEN)
10015	PINE	11,11
10016	PINE	12
10017	PINE	23
10018	PINE	15
10019	PINE	19
10020	PINE	9
10021	COTTONWOOD	6(STUMP)
10022	DOUGLAS FIR	31
10027	PINE	9
10030	PINE	6
10566	CHERRY	11,11,12
10567	DOUGLAS FIR	49
10568	DOUGLAS FIR	56
10569	DOUGLAS FIR	27
10570	DOUGLAS FIR	38(DEAD)
11213	MAPLE	26
11214	MAPLE	11
11215	MAPLE	14
11216	MAPLE	13
11217	BIRCH	18

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RENAISSANCE AT WILLAMETTE

OREGON
CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB
WEST LINN
TAX LOT 200

EXISTING CONDITIONS PLAN

DESIGNED BY: RSW
DRAWN BY: BLE
CHECKED BY: MBH
SCALE: AS NOTED
DATE: 01/06/14

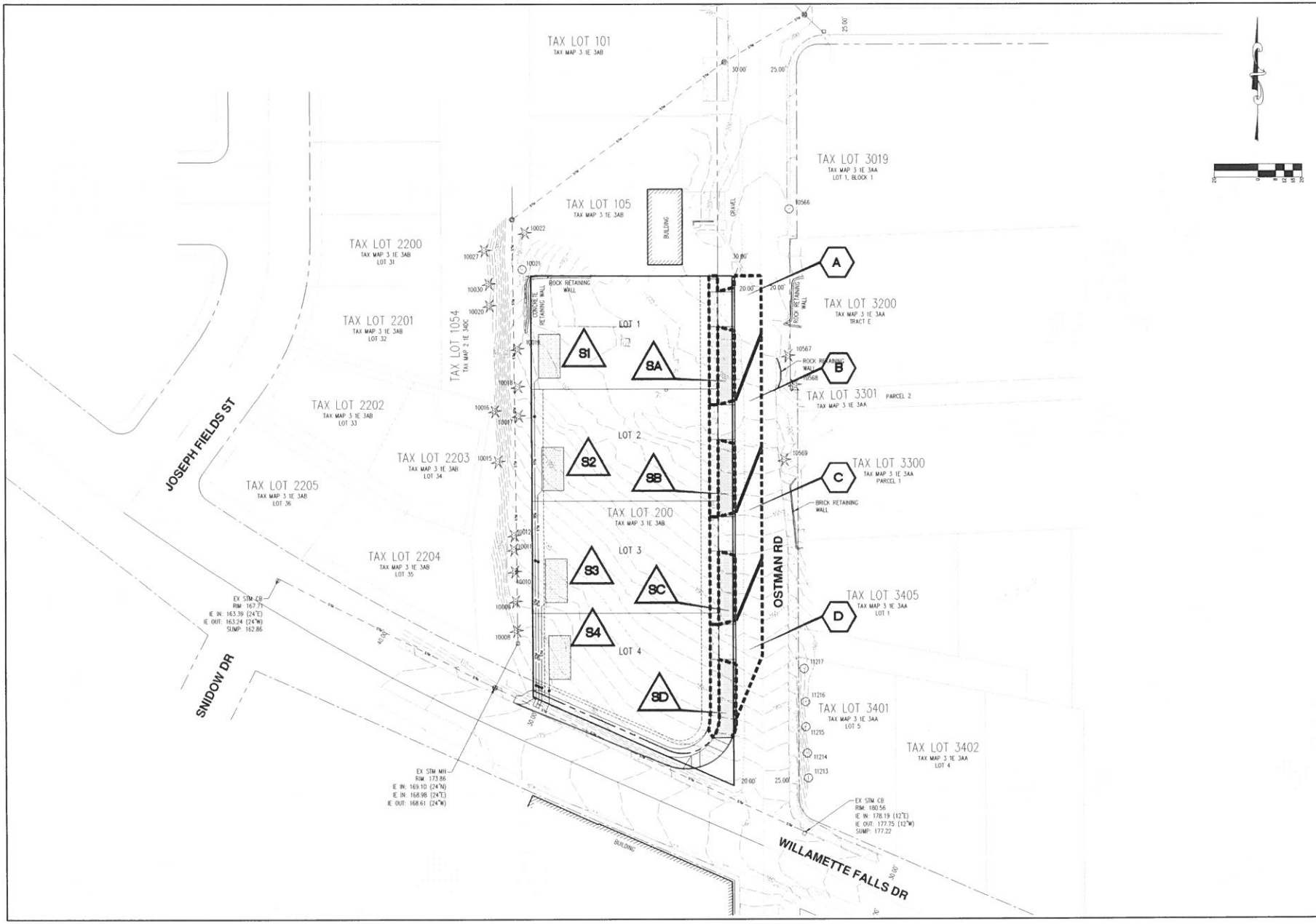
REGISTERED PROFESSIONAL LAND SURVEYOR
PRELIMINARY NOT FOR CONSTRUCTION
OREGON JULY 19, 2005 MONTGOMERY B. HURLEY 79954215
RENEWAL: 6/30/15

REVISIONS

JOB NUMBER 3745

SHEET 1

AKS DRAWING FILE: 3745 EX CONDITNS | LAYOUT: P2



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RENAISSANCE AT WILLAMETTE

WEST LINN OREGON
TAX LOT 200 CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 3AB

POST-DEVELOPED BASIN MAP

DESIGNED BY:	PSW
DRAWN BY:	BLF
CHECKED BY:	MBH
SCALE:	AS NOTED
DATE:	01/07/14

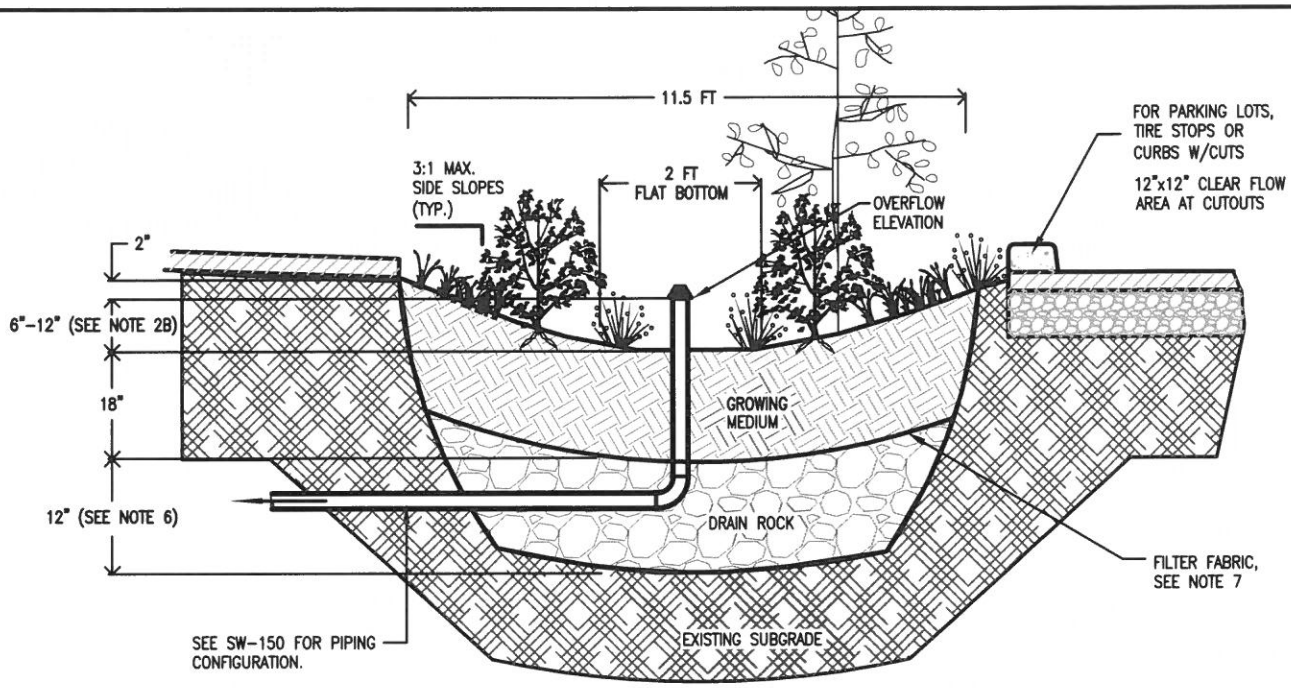
REGISTERED PROFESSIONAL ENGINEER
OREGON
JANUARY 9, 1981
MARY B. HERKERT
RENEWAL DATE: 6/30/15

REVISIONS

JOB NUMBER
3745

SHEET
1

STREET SWALE SECTION



1. Provide protection from all vehicle traffic, equipment staging, and foot traffic in proposed infiltration areas prior to, during, and after construction.

2. Dimensions:
   a. Width of swale: 5' - 12'.
   b. Depth of swale ((from top of growing medium to overflow elevation); Simplified: 9", Presumptive: 6"-12".
   c. Longitudinal slope of swale: 6.0% or less.
   d. Flat bottom width: 2'.
   e. Side slopes of swale: 3:1 maximum.

3. Setbacks (from centerline of facility):
   a. Infiltration swales must be 10' from foundations and 5' from property lines.
   b. Flow-through swales must be lined with connection to approved discharge point according to SWMM Section 1.3.

4. Overflow:
   a. Overflow required for Simplified Approach
   b. Inlet elevation must allow for 2" of freeboard, minimum.
   c. Protect from debris and sediment with strainer or grate.

5. Piping: shall be ABS Sch.40, cast iron, or PVS Sch.40. 3" pipe required for up to 1,500 sq ft of impervious area, otherwise 4" min. Piping must have 1% grade and follow the Uniform Plumbing Code.

6. Drain rock:
   a. Size for infiltration swale: 1½" - ¾" washed
   b. Size for flow-through swale: ¾" washed
   c. Depth for Simplified: 12"
   d. Depth for Presumptive: 0-48", see calcs.

7. Separation between drain rock and growing medium: Use filter fabric (see SWMM Exhibit 2-4 Geotextile table) or a gravel lens (¾ - ¼ inch washed, crushed rock 2 to 3 inches deep).

8. Growing medium:
   a. 18" minimum
   b. See Appendix F.3 for specification or use sand/loam/compost 3-way mix.

9. Vegetation: Follow landscape plans otherwise refer to plant list in SWMM Appendix F. Minimum container size is 1 gallon. # of plantings per 100sf of facility area:
   a. Zone A (wet): 115 herbaceous plants OR 100 herbaceous plants and 4 small shrubs.
   b. Zone B (moderate to dry): 1 tree AND 3 large shrubs / small trees AND 4 small shrubs AND 140 groundcover plants.

   The delineation between Zone A and B shall be either at the outlet elevation or the check dam elevation, whichever is lowest.

10. Waterproof liner: Shall be 30 mil PVC or equivalent for flow-through facilities.

11. Install washed pea gravel or river rock to transition from inlets and splash pad to growing medium.

12. Check dams: Shall be placed according to facility design. Refer to SW-340 for profile and spacing.

13. Inspections: Call BDS IVR Inspection Line, (503) 823-7000, for appropriate inspections.

- DRAWING NOT TO SCALE -

STORMWATER MANAGEMENT MANUAL TYPICAL DETAILS

- Simplified / Presumptive Design Approach -

Swale

Bureau of Environmental Services

NUMBER

SW-120

PAC CALCULATION

Presumptive Approach Calculator ver. 1.2

Catchment Data

Catchment ID: Lots 1 - 4
Date: 12/22/13
Permit Number: 0
Run Time 1/6/2014 3:06:17 PM

Project Name: Renaissance At Willamette - Pre Dev
Project Address: 1770 Ostman Road
West Linn, Oregon
Designer: VN
Company: AKS Engineering

Drainage Catchment Information

Catchment ID	Lots 1 - 4	
	Catchment Area	
Impervious Area	3,500	SF
Impervious Area	0.08	ac
Impervious Area Curve Number, CN_{imp}	58	
Time of Concentration, Tc, minutes	20	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.45	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

Correction Factor Component

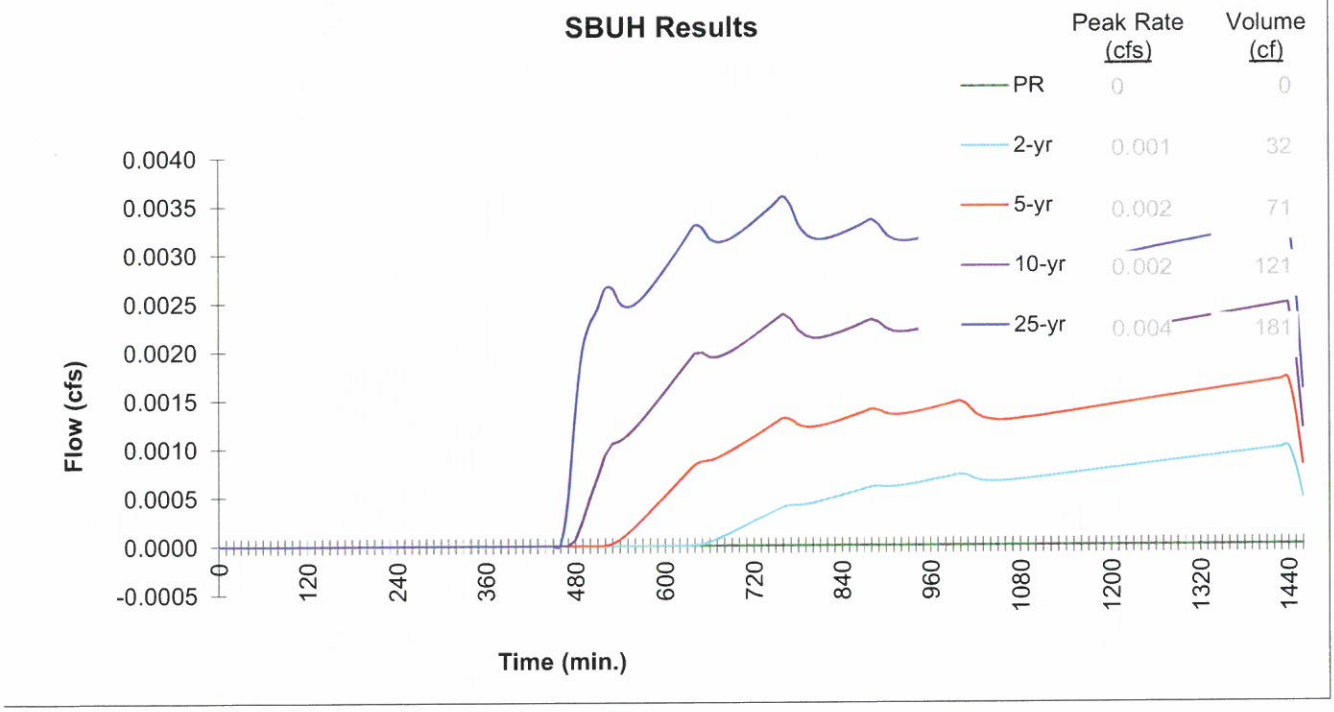
CF_{test} (ranges from 1 to 3)	2	

Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.23	in/hr	Design infiltration rate < 0.5 in/hr
I_{dsgn} for Imported Growing Medium:	2.00	in/hr	

Execute SBUH

SBUH Results



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Presumptive Approach Calculator ver. 1.2

Catchment Data

Catchment ID: Lots 1 - 4
Date: 12/22/13
Permit Number:

Run Time 12/23/2013 11:20:21 AM

Project Name: Renaissance At Willamette -Post Dev
Project Address: 1770 Ostman Road
West Linn, Oregon
Designer: VN
Company: AKS Engineering

Drainage Catchment Information

	Catchment Area	
Catchment ID	Lots 1 - 4	
Impervious Area	3,500	SF
Impervious Area	0.08	ac
Impervious Area Curve Number, CN_{imp}	98	
Time of Concentration, Tc, minutes	5	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.45	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

Correction Factor Component

CF_{test} (ranges from 1 to 3)	2	

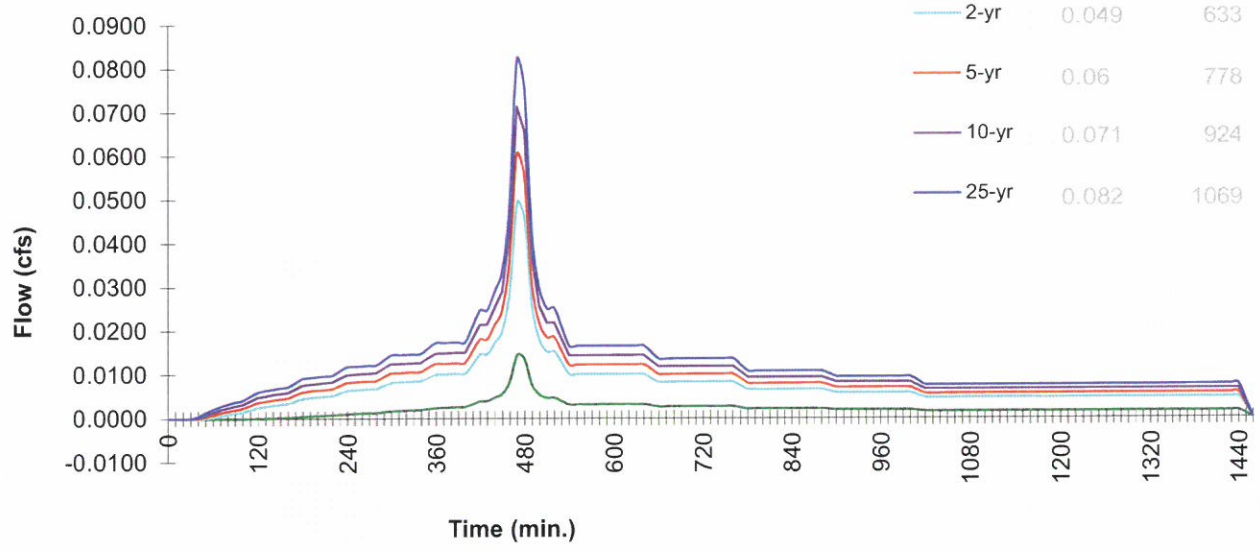
Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.23	in/hr	Design infiltration rate < 0.5 in/hr
I_{dsgn} for Imported Growing Medium:	2.00	in/hr	

Execute SBUH

SBUH Results

	Peak Rate (cfs)	Volume (cf)
PR	0.014	183
2-yr	0.049	633
5-yr	0.06	778
10-yr	0.071	924
25-yr	0.082	1069



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Presumptive Approach Calculator ver. 1.2

Catchment ID: Lots 1 - 4

Run Time 12/23/2013 11:20:21 AM

Project Name: Renaissance At Willamette -Post Dev **Catchment ID:** Lots 1 - 4 **Date:** 12/22/2013

Instructions:

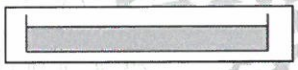
1. Identify which Stormwater Hierarchy Category the facility.
2. Select Facility Type.
3. Identify facility shape of surface facility to more accurately estimate surface volume, except for Swales and sloped planters that use the PAC Sloped Facility Worksheet to enter data.
4. Select type of facility configuration.
5. Complete data entry for all highlighted cells.

Catchment facility will meet Hierarchy Category: 3

Goal Summary:

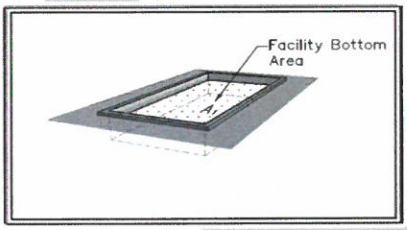
Hierarchy Category	SWMM Requirement	RESULTS box below needs to display...	
		Pollution Reduction as a	10-yr (aka disposal) as a
3	Off-site flow to drainageway, river, or storm-only pipe system.	PASS	N/A

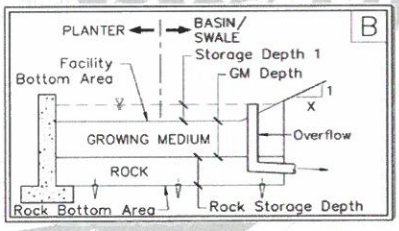
Facility Type = Planter (Flat)



Facility Shape: Rectangle/Square

Facility Configuration: B





Calculation Guide
Max. Rock Stor. Bottom Area 450 SF

DATA FOR ABOVE GRADE STORAGE COMPONENT

Facility Bottom Area =	450	sf
Bottom Width =	15.0	ft
Facility Side Slope =	0	to 1
Storage Depth 1 =	9	in
Growing Medium Depth =	18	in
Freeboard Depth =	N/A	in
Surface Capacity at Depth 1 =	338	cf
GM Design Infiltration Rate =	2.00	in/hr
Infiltration Capacity =	0.021	cfs

BELOW GRADE STORAGE

Rock Storage Bottom Area =	450	sf
Rock Storage Depth =	36	in
Rock Void Ratio =	0.3	
Rock Storage Capacity =	405	cf
Native Design Infiltration Rate =	0.23	in/hr
Infiltration Capacity =	0.002	cfs

RESULTS

Pollution Reduction: **PASS**

Overflow Volume: 0 CF

0% Surf. Cap. Used

10% Rock Cap. Used

Run PAC

Output File

	2-yr	5-yr	10-yr	25-yr
Peak cfs	0.000	0.000	0.000	0.005

Current data has been exported:

3745 PAC POST DEVELOPED LOT.xls
12/23/2013 11:21:15 AM

FACILITY FACTS

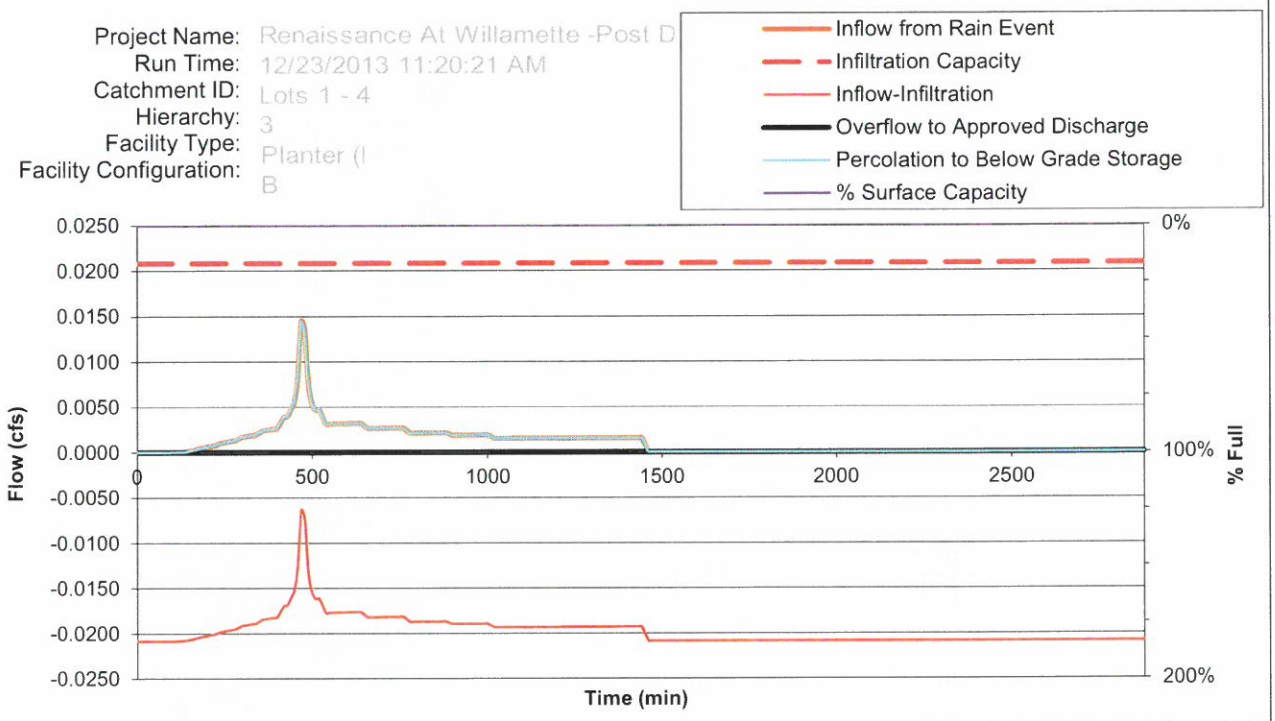
Total Facility Area Including Freeboard =	450 SF
Sizing Ratio (Total Facility Area / Catchment Area) =	0.129

BES - Presumptive Approach Calculator - Ver 1.2

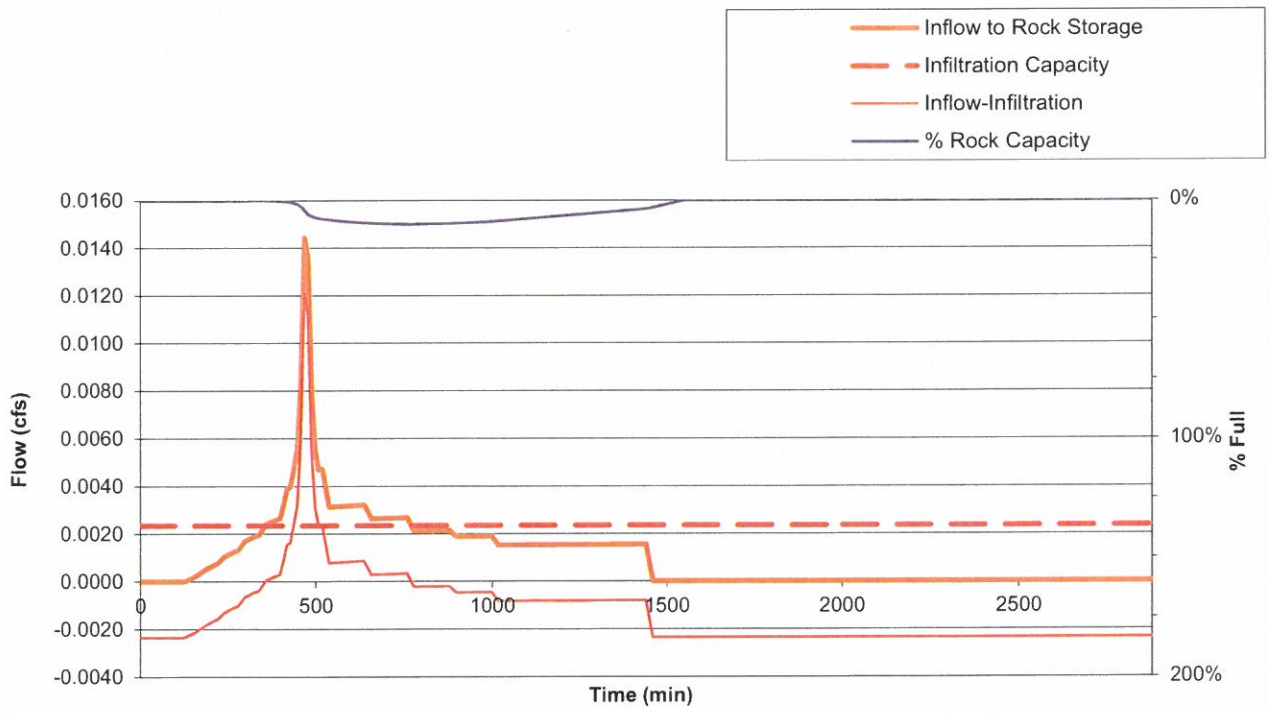
PR Con-A&B

Pollution Reduction Event
Surface Facility Modeling

Project Name: Renaissance At Willamette -Post D
Run Time: 12/23/2013 11:20:21 AM
Catchment ID: Lots 1 - 4
Hierarchy: 3
Facility Type: Planter (I
Facility Configuration: B



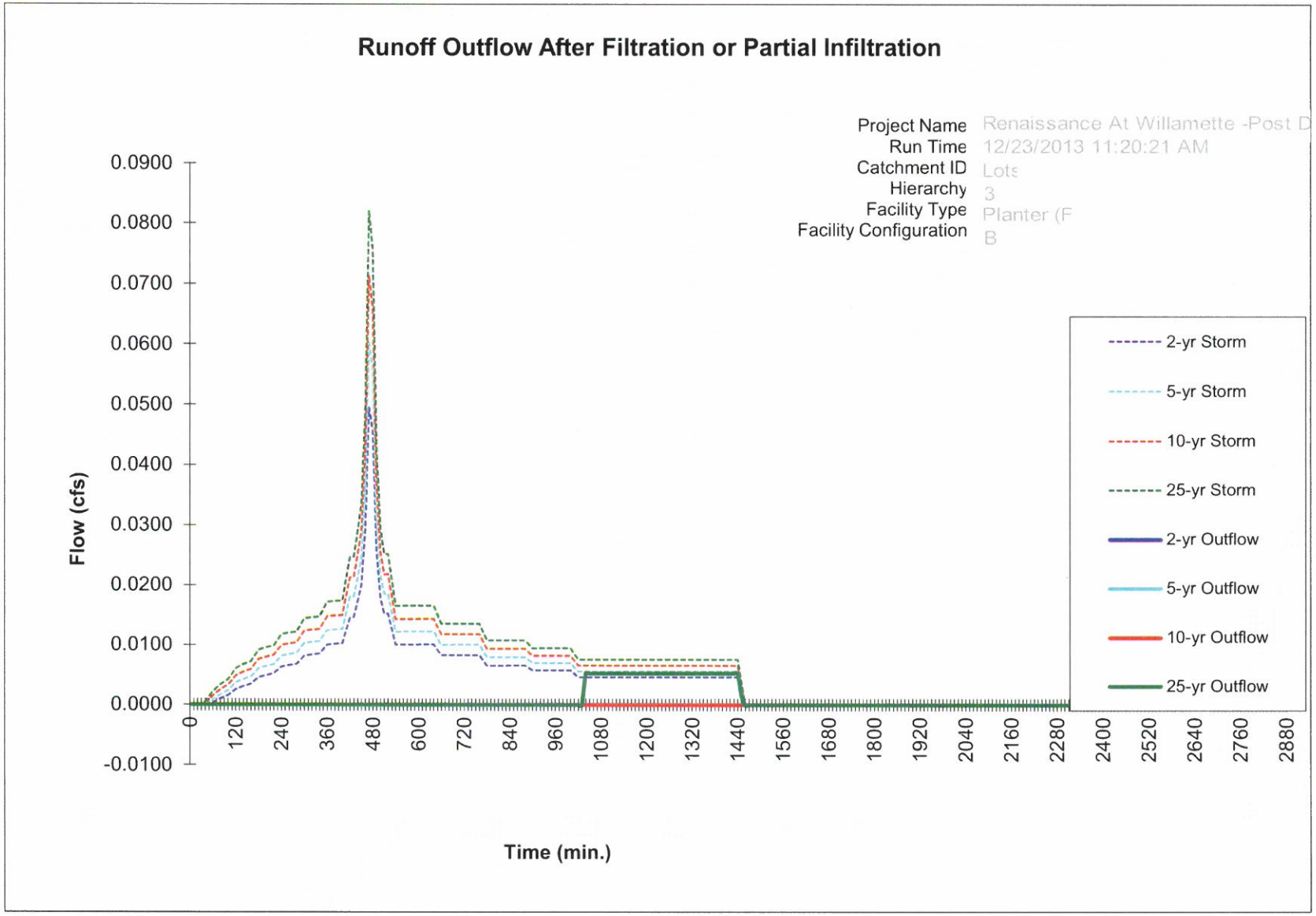
Pollution Reduction Event
Below Grade Modeling



Printed: 12/23/2013 11:22 AM

BES - Presumptive Approach Calculator - Ver 1.2

Output Chart



Presumptive Approach Calculator ver. 1.2

Catchment Data

Catchment ID: Swale A
Date: 12/23/13
Permit Number: 0

Run Time 12/23/2013 3:37:28 PM

Project Name: Renaissance At Willamette- Pre Dev
Project Address: 1770 Ostman Road
West Linn, Oregon
Designer: VN
Company: AKS Engineering

Drainage Catchment Information

Catchment ID	Swale A	
	Catchment Area	
Impervious Area	2,010	SF
Impervious Area	0.05	ac
Impervious Area Curve Number, CN_{imp}	58	
Time of Concentration, Tc, minutes	20	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.45	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

Correction Factor Component

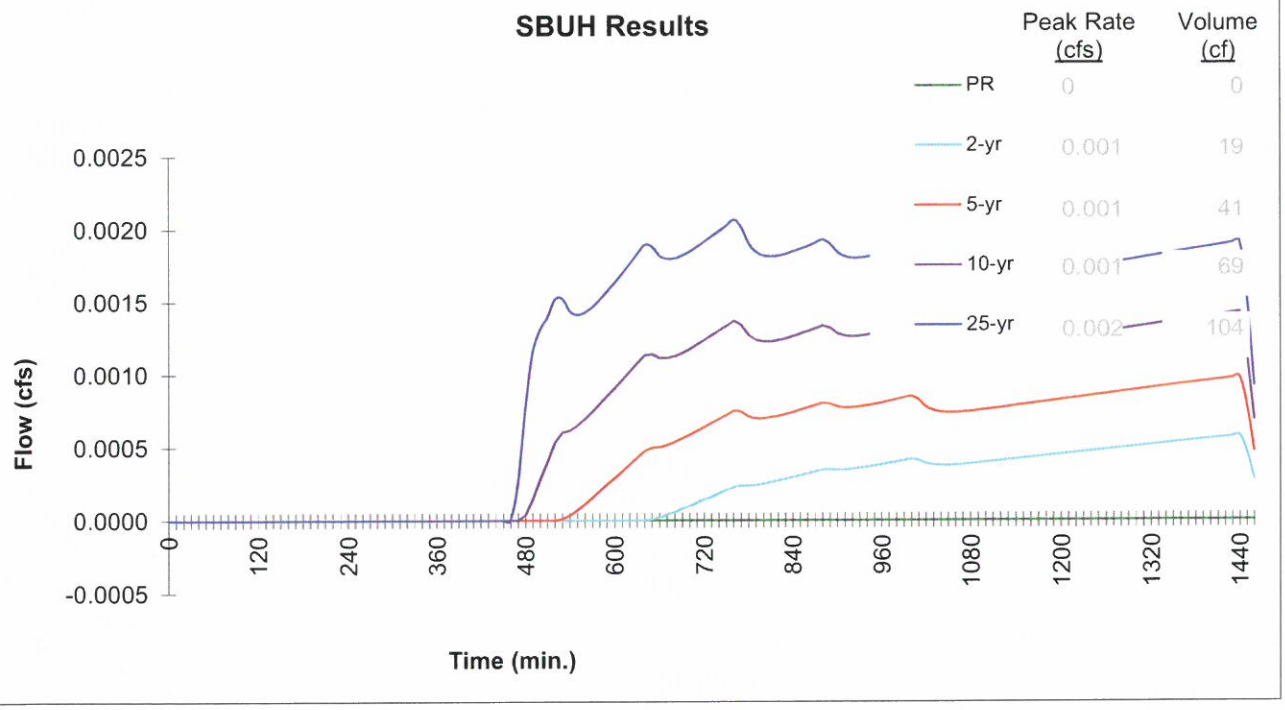
CF_{test} (ranges from 1 to 3)	2	

Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.23	in/hr	Design infiltration rate < 0.5 in/hr
I_{dsgn} for Imported Growing Medium:	2.00	in/hr	

Execute SBUH

SBUH Results



Printed: 12/23/2013 3:39 PM

Presumptive Approach Calculator ver. 1.2

Catchment Data

Catchment ID: Swale A

Project Name:	Renaissance At Willamette- Post Dev
Project Address:	1770 Ostman Road
	West Linn, Oregon
Designer:	VN
Company:	AKS Engineering
Date:	12/23/13
Permit Number:	0

Run Time 12/23/2013 4:22:35 PM

Drainage Catchment Information

	Catchment Area	
Catchment ID	Swale A	
Impervious Area	2,010	SF
Impervious Area	0.05	ac
Impervious Area Curve Number, CN_{imp}	98	
Time of Concentration, Tc, minutes	5	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.45	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

Correction Factor Component

CF_{test} (ranges from 1 to 3)	2	

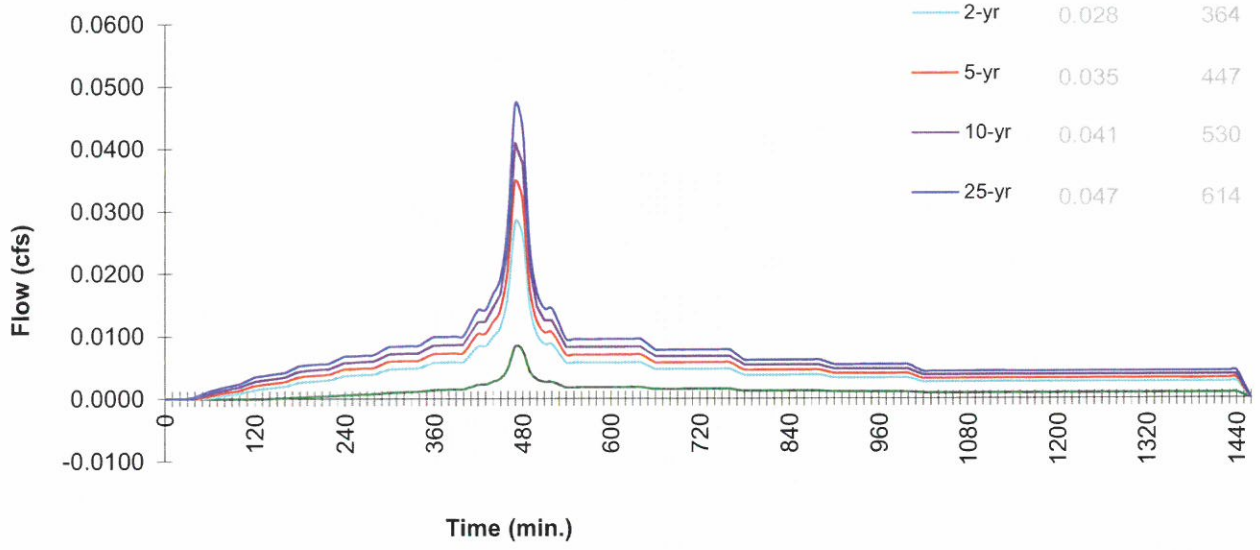
Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.23	in/hr	Design infiltration rate < 0.5 in/hr
I_{dsgn} for Imported Growing Medium:	2.00	in/hr	

Execute SBUH

SBUH Results

	Peak Rate (cfs)	Volume (cf)
PR	0.008	105
2-yr	0.028	364
5-yr	0.035	447
10-yr	0.041	530
25-yr	0.047	614



Printed: 12/23/2013 4:22 PM

Presumptive Approach Calculator ver. 1.2

Catchment ID: Swale A

Run Time 12/23/2013 4:22:35 PM

Project Name: Renaissance At Willamette- Post Dev **Catchment ID:** Swale A **Date:** 12/23/2013

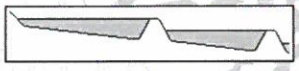
Instructions:
1. Identify which Stormwater Hierarchy Category the facility.
2. Select Facility Type.
3. Identify facility shape of surface facility to more accurately estimate surface volume, except for Swales and sloped planters that use the PAC Sloped Facility Worksheet to enter data.
4. Select type of facility configuration.
5. Complete data entry for all highlighted cells.

Catchment facility will meet Hierarchy Category: 3

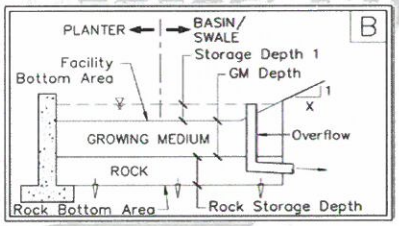
Goal Summary:

Hierarchy Category	SWMM Requirement	RESULTS box below needs to display...	
		Pollution Reduction as a	10-yr (aka disposal) as a
3	Off-site flow to drainageway, river, or storm-only pipe system.	PASS	N/A

Facility Type = Swale



Facility Configuration: B



Refer to Sloped Facility Worksheet and enter Variable Parameters

Calculation Guide
Max. Rock Stor. Bottom Area Per Swale Dims

DATA FOR ABOVE GRADE STORAGE COMPONENT

Infiltration Area = 253 sf
Surface Capacity Volume = 92.4 cf

BELOW GRADE STORAGE

Rock Storage Bottom Area = 483 sf
Rock Storage Depth = 24 in
Rock Void Ratio = 0.3

Growing Medium Depth = 18 in
Freeboard Depth = N/A in

Surface Capacity at Depth 1 = 92 cf
Infiltration Area at 75% Depth1 = -57 SF
GM Design Infiltration Rate = 2.00 in/hr
Infiltration Capacity = 0.012 cfs

Rock Storage Capacity = 290 cf

Native Design Infiltration Rate = 0.23 in/hr
Infiltration Capacity = 0.003 cfs

RESULTS

Pollution Reduction	Overflow Volume		
PASS	0 CF	0% Surf. Cap. Used	Run PAC
		4% Rock Cap. Used	

Output File

	2-yr	5-yr	10-yr	25-yr
Peak cfs	0.000	0.000	0.000	0.002

FACILITY FACTS

Total Facility Area Including Freeboard = 483 SF
Sizing Ratio (Total Facility Area / Catchment Area) = 0.240

Presumptive Approach Calculator Ver 1.2

Instructions:

1. Refer to facility graphics on the Graphics tab, then fill in all relevant facility parameters in the Data Entry table below. Data entry cells vary based on Facility Configuration selected on Facility Design Data tab.
2. Delete all facility parameters that may have been entered by the previous iteration that are no longer applicable.

Run Time 12/23/2013 4:22:35 PM

Project Name: Renaissance At Willamette- Post Dev **Date:** 12/23/2013 **Catchment ID:** Swale A

Data Entry

Parameters | **Rock Storage Parameters** | **Error Messages**

Facility Segment	Length of facility segment (ft) $L_{segment}$	Downstream Check Dam Length (ft) L_{dam}	Longitudinal Facility Slope (ft/ft) S	Bottom Width (ft) W_{bottom}	Side Slope Right X_{right}:1	Side Slope Left X_{left}:1	Downstream Depth (inches) D_{ds}	Landscape Width (ft) $W_{landscape}$	Rock Storage Width (ft) W_{rock}	Rock Storage Depth (inches) D_{rock}	Rock Void Ratio v
1	7	2	0.04	5.5	3	3	6	11.5	11.5	24	0.3
2	7	2	0.04	5.5	3	3	6	11.5	11.5		
3	7	2	0.04	5.5	3	3	6	11.5	11.5		
4	7	2	0.04	5.5	3	3	6	11.5	11.5		
5	7	2	0.04	5.5	3	3	6	11.5	11.5		
6	7	2	0.04	5.5	3	3	6	11.5	11.5		
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Project Name: Depth 2= Depth 3=

Worksheet Calculations

Parameters | **Rock Storage Parameters**

Facility Segment	Adjusted Length of facility segment (ft) L_{adjust}	Adjusted Length if $D_{up} = 0$ (ft) $L_{adjust2}$	Upstream Depth (inches) D_{up}	Downstream Top Width (ft) $W_{top\text{-}ds}$	Upstream Top Width (ft) $W_{top\text{-}up}$	Downstream Cross-sectional Area (sf) A_{ds}	Upstream Cross-sectional Area (sf) A_{up}	**Surface Capacity Volume** (cf) $V_{surface}$	75% of Max. Downstream Depth (inches) $D_{ds75\%}$	75% of Max. Upstream Depth (inches) $D_{up75\%}$	75% of Max. Adjusted Length if $D_{up75\%} = 0$ (ft) $L_{adjust3}$	75% of Max. Downstream Top Width (ft) $W_{top\text{-}ds75\%}$	75% of Max. Upstream Top Width (ft) $W_{top\text{-}up75\%}$	**Infiltration Area @ 75% Full** (sf) $A_{75\%}$	Rock Storage Length (ft) L_{rock}	**Rock Storage Bottom Area** (sf) A_{rock}	**Rock Storage Capacity Volume** (cf) V_{rock}
1	6.00	N/A	3.12	8.50	7.06	3.50	1.63	15	4.50	1.62	N/A	7.75	6.31	42	7	81	48
2	6.00	N/A	3.12	8.50	7.06	3.50	1.63	15	4.50	1.62	N/A	7.75	6.31	42	7	81	48
3	6.00	N/A	3.12	8.50	7.06	3.50	1.63	15	4.50	1.62	N/A	7.75	6.31	42	7	81	48
4	6.00	N/A	3.12	8.50	7.06	3.50	1.63	15	4.50	1.62	N/A	7.75	6.31	42	7	81	48
5	6.00	N/A	3.12	8.50	7.06	3.50	1.63	15	4.50	1.62	N/A	7.75	6.31	42	7	81	48
6	6.00	N/A	3.12	8.50	7.06	3.50	1.63	15	4.50	1.62	N/A	7.75	6.31	42	7	81	48
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
								92	$V_{surface}$ @ Depth1					**253**		**483**	**290**

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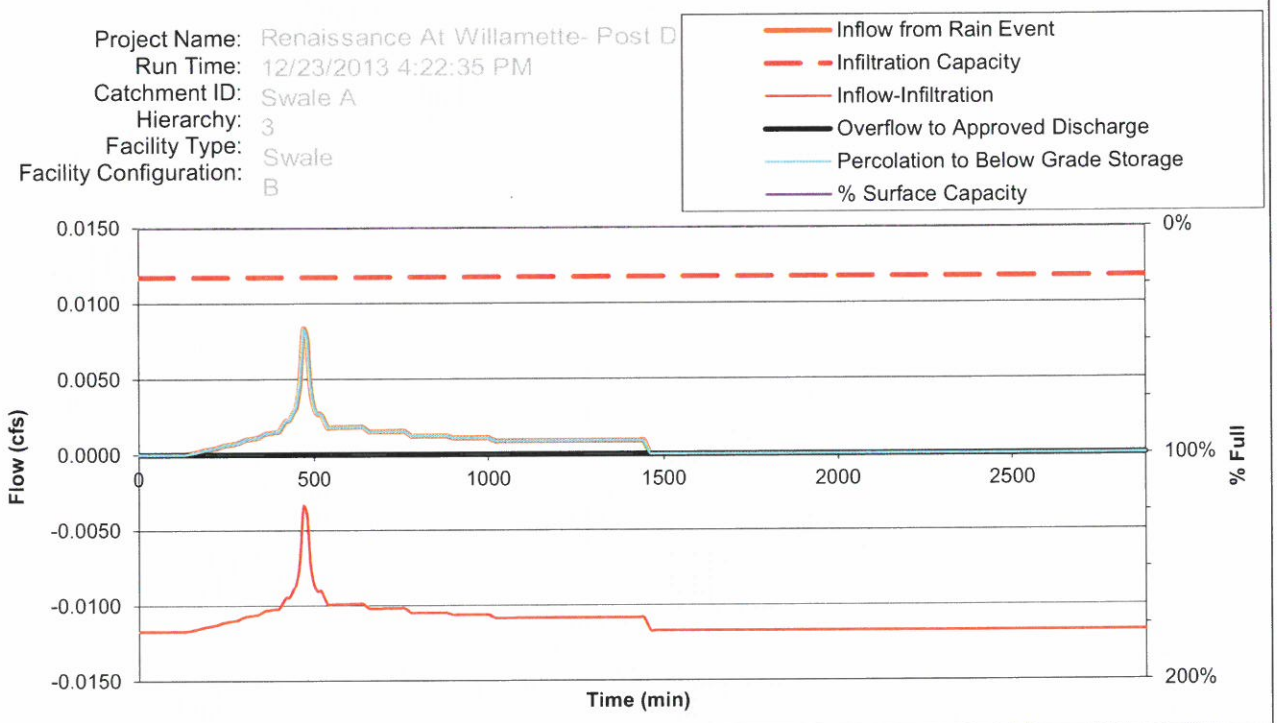
BES - Presumptive Approach Calculator - Ver 1.2

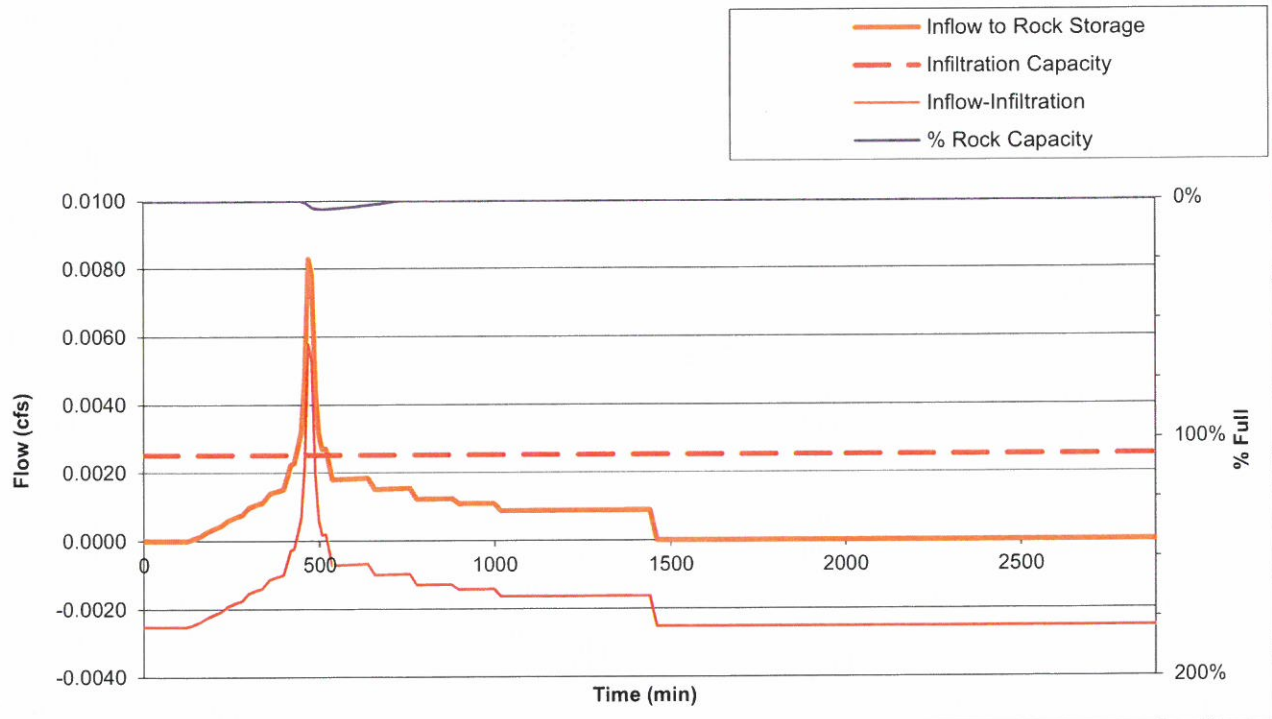
PR Con-A&B

Pollution Reduction Event
Surface Facility Modeling

Project Name: Renaissance At Willamette- Post D
Run Time: 12/23/2013 4:22:35 PM
Catchment ID: Swale A
Hierarchy: 3
Facility Type: Swale
Facility Configuration: B



Pollution Reduction Event
Below Grade Modeling



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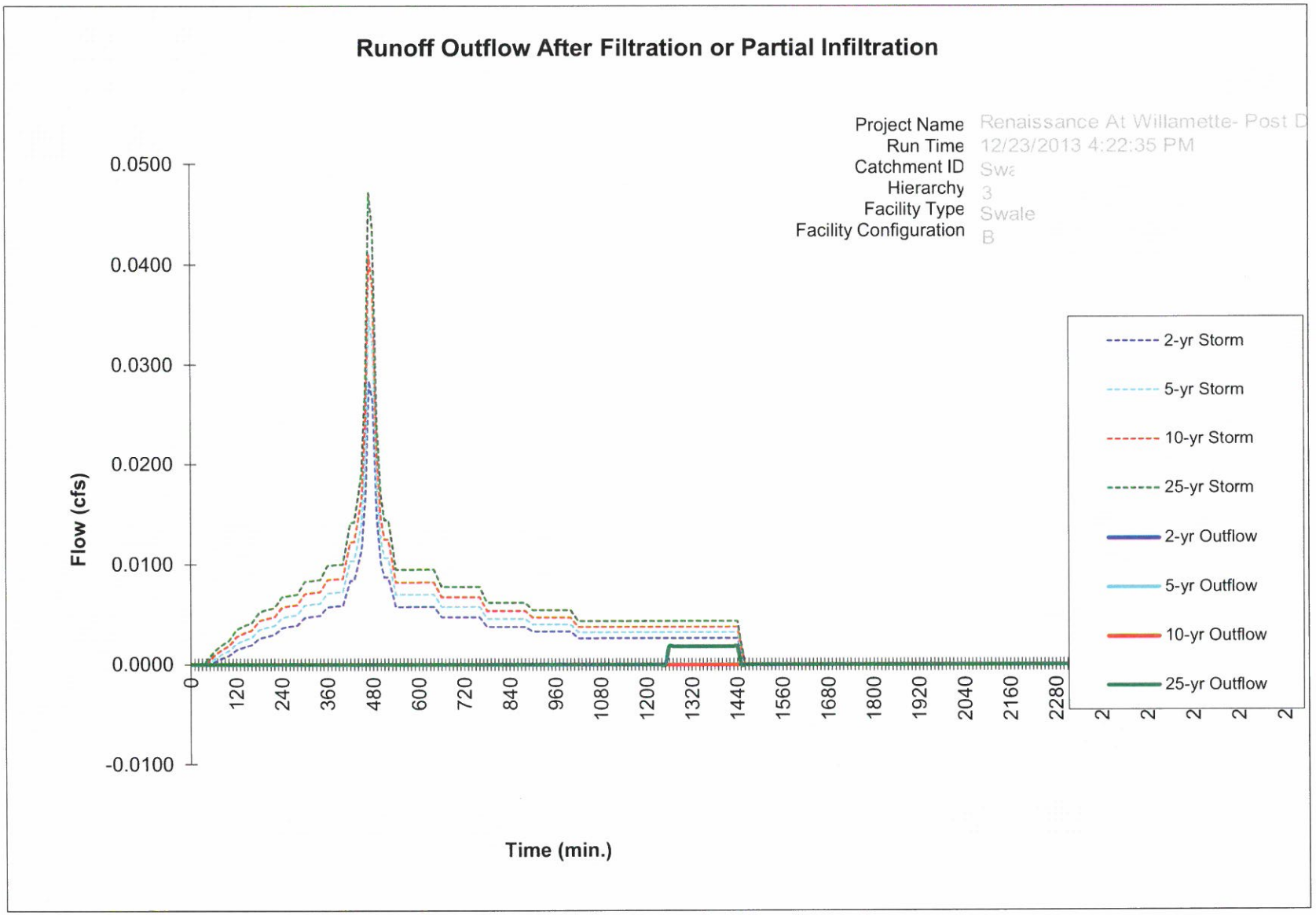
BES - Presumptive Approach Calculator - Ver 1.2

Output Chart



Presumptive Approach Calculator ver. 1.2

Catchment Data

Catchment ID: Swale B

Project Name:	Renaissance At Willamette- Pre Dev
Project Address:	1770 Ostman Road
	West Linn, Oregon
Designer:	VN
Company:	AKS Engineering
Date:	12/23/13
Permit Number:	0

Run Time 12/23/2013 3:37:28 PM

Drainage Catchment Information

Catchment ID	Swale B	
	Catchment Area	
Impervious Area	2,215	SF
Impervious Area	0.05	ac
Impervious Area Curve Number, CN_{imp}	58	
Time of Concentration, Tc, minutes	20	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.45	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

Correction Factor Component

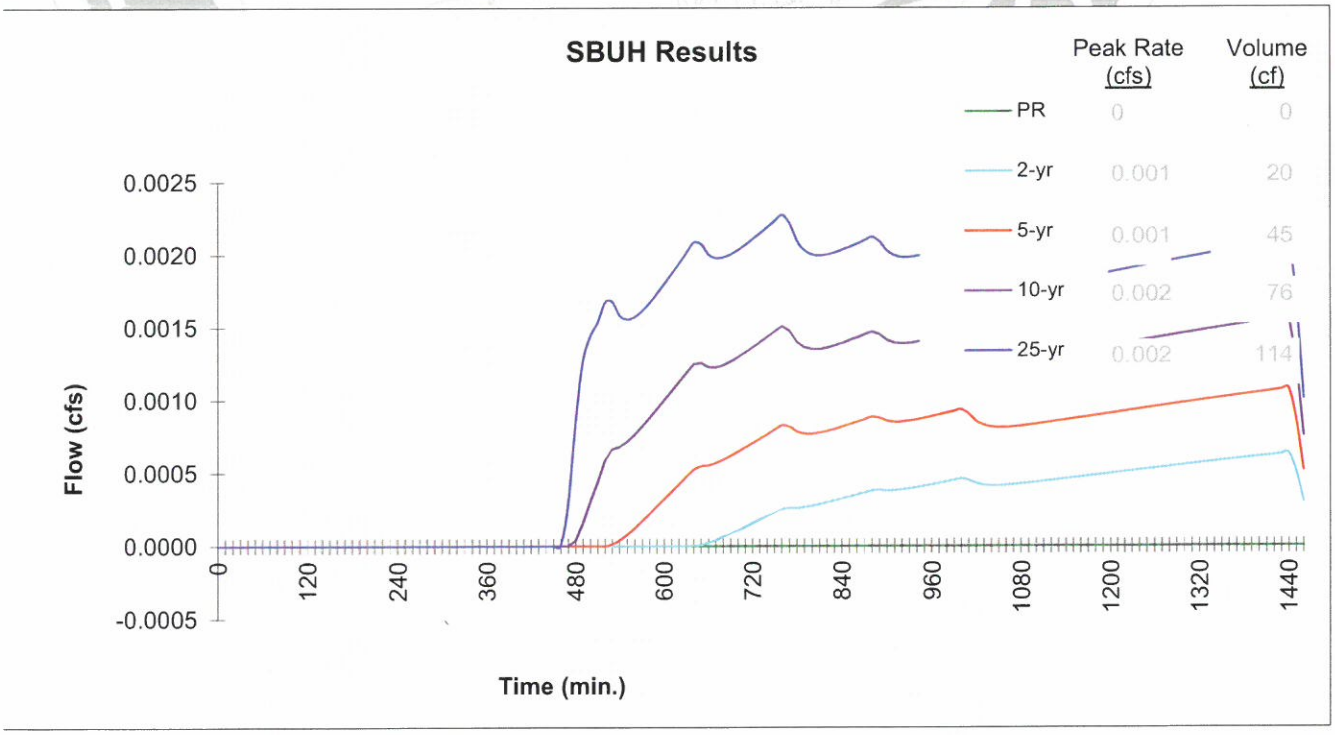
CF_{test} (ranges from 1 to 3)	2	

Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.23	in/hr	Design infiltration rate < 0.5 in/hr
I_{dsgn} for Imported Growing Medium:	2.00	in/hr	

Execute SBUH

SBUH Results



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Presumptive Approach Calculator ver. 1.2

Catchment Data

Catchment ID: Swale B
Date: 12/23/13
Permit Number: 0

Run Time 12/23/2013 4:17:22 PM

Project Name: Renaissance At Willamette- Post Dev
Project Address: 1770 Ostman Road, West Linn, Oregon
Designer: VN
Company: AKS Engineering

Drainage Catchment Information

	Catchment Area	
Catchment ID	Swale B	
Impervious Area	2,215	SF
Impervious Area	0.05	ac
Impervious Area Curve Number, CN_{imp}	98	
Time of Concentration, Tc, minutes	5	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.45	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

Correction Factor Component

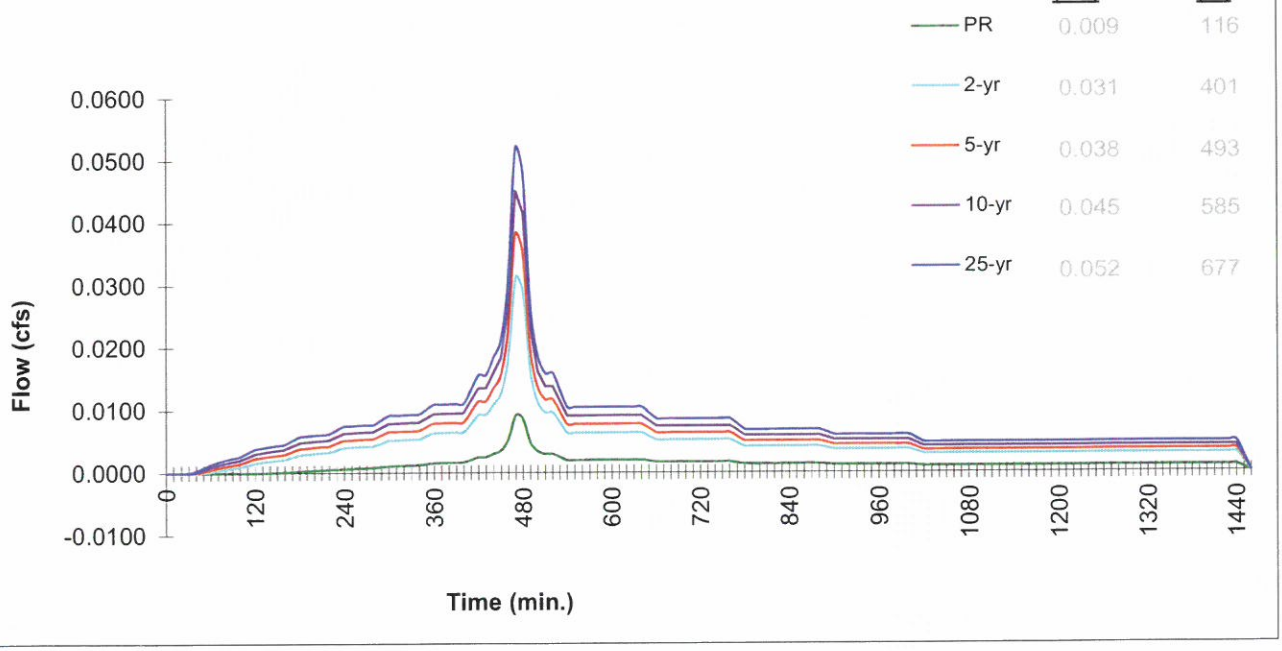
CF_{test} (ranges from 1 to 3)	2	

Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.23	in/hr	Design infiltration rate < 0.5 in/hr
I_{dsgn} for Imported Growing Medium:	2.00	in/hr	

Execute SBUH

SBUH Results



Printed: 12/23/2013 4:17 PM

Presumptive Approach Calculator ver. 1.2

Catchment ID: Swale B

Run Time 12/23/2013 4:17:22 PM

Project Name: Renaissance At Willamette- Post Dev **Catchment ID:** Swale B **Date:** 12/23/2013

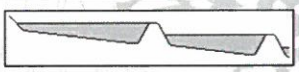
Instructions:
1. Identify which Stormwater Hierarchy Category the facility.
2. Select Facility Type.
3. Identify facility shape of surface facility to more accurately estimate surface volume, except for Swales and sloped planters that use the PAC Sloped Facility Worksheet to enter data.
4. Select type of facility configuration.
5. Complete data entry for all highlighted cells.

Catchment facility will meet Hierarchy Category: 3

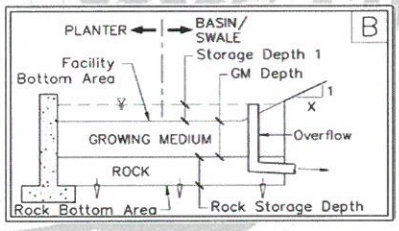
Goal Summary:

Hierarchy Category	SWMM Requirement	RESULTS box below needs to display...	
		Pollution Reduction as a	10-yr (aka disposal) as a
3	Off-site flow to drainageway, river, or storm-only pipe system.	PASS	N/A

Facility Type = Swale



Facility Configuration: B



Refer to Sloped Facility Worksheet and enter Variable Parameters

Calculation Guide
Max. Rock Stor. Bottom Area Per Swale Dims

DATA FOR ABOVE GRADE STORAGE COMPONENT

Infiltration Area = 239 sf
Surface Capacity Volume = 77.2 cf

BELOW GRADE STORAGE

Rock Storage Bottom Area = 483 sf
Rock Storage Depth = 24 in
Rock Void Ratio = 0.3

Growing Medium Depth = 18 in
Freeboard Depth = N/A in

Surface Capacity at Depth 1 = 77 cf
Infiltration Area at 75% Depth1 = -61 SF
GM Design Infiltration Rate = 2.00 in/hr
Infiltration Capacity = 0.011 cfs

Rock Storage Capacity = 290 cf

Native Design Infiltration Rate = 0.23 in/hr
Infiltration Capacity = 0.003 cfs

RESULTS

Pollution Reduction	Overflow Volume		
PASS	0 CF	0% Surf. Cap. Used	Run PAC
		4% Rock Cap. Used	

Output File

	2-yr	5-yr	10-yr	25-yr
Peak cfs	0.000	0.000	0.002	0.016

FACILITY FACTS

Total Facility Area Including Freeboard = 483 SF
Sizing Ratio (Total Facility Area / Catchment Area) = 0.218

Presumptive Approach Calculator Ver 1.2

Instructions:

1. Refer to facility graphics on the Graphics tab, then fill in all relevant facility parameters in the Data Entry table below. Data entry cells vary based on Facility Configuration selected on Facility Design Data tab.
2. Delete all facility parameters that may have been entered by the previous iteration that are no longer applicable.

Run Time 12/23/2013 4:17:22 PM

Project Name: Renaissance At Willamette- Post Dev **Date:** 12/23/2013 **Catchment ID:** Swale B

Data Entry

Parameters

Facility Segment	Length of facility segment (ft) $L_{segment}$	Downstream Check Dam Length (ft) L_{dam}	Longitudinal Facility Slope (ft/ft) S	Bottom Width (ft) W_{bottom}	Side Slope Right X_{right}:1	Side Slope Left X_{left}:1	Downstream Depth (inches) D_{ds}	Landscape Width (ft) $W_{landscape}$
1	7	2	0.061	5.5	3	3	6	11.5
2	7	2	0.061	5.5	3	3	6	11.5
3	7	2	0.061	5.5	3	3	6	11.5
4	7	2	0.061	5.5	3	3	6	11.5
5	7	2	0.061	5.5	3	3	6	11.5
6	7	2	0.061	5.5	3	3	6	11.5
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

Rock Storage Parameters

Facility Segment	Rock Storage Width (ft) W_{rock}	Rock Storage Depth (inches) D_{rock}	Rock Void Ratio v
1	11.5	24	0.3
2	11.5		
3	11.5		
4	11.5		
5	11.5		
6	11.5		
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Error Messages

Project Name: Depth 2= Depth 3=

Worksheet Calculations

Parameters

Facility Segment	Adjusted Length of facility segment (ft) L_{adjust}	Adjusted Length if $D_{up} = 0$ (ft) $L_{adjust2}$	Upstream Depth (inches) D_{up}	Downstream Top Width (ft) $W_{top\text{-}ds}$	Upstream Top Width (ft) $W_{top\text{-}up}$	Downstream Cross-sectional Area (sf) A_{ds}	Upstream Cross-sectional Area (sf) A_{up}	**Surface Capacity Volume** (cf) $V_{surface}$	75% of Max. Downstream Depth (inches) $D_{ds75\%}$	75% of Max. Upstream Depth (inches) $D_{up75\%}$	75% of Max. Adjusted Length if $D_{up75\%} = 0$ (ft) $L_{adjust3}$	75% of Max. Downstream Top Width (ft) $W_{top\text{-}ds75\%}$	75% of Max. Upstream Top Width (ft) $W_{top\text{-}up75\%}$	**Infiltration Area @ 75% Full** (sf) $A_{75\%}$
1	6.00	N/A	1.61	8.50	6.30	3.50	0.79	13	4.50	0.11	N/A	7.75	5.55	40
2	6.00	N/A	1.61	8.50	6.30	3.50	0.79	13	4.50	0.11	N/A	7.75	5.55	40
3	6.00	N/A	1.61	8.50	6.30	3.50	0.79	13	4.50	0.11	N/A	7.75	5.55	40
4	6.00	N/A	1.61	8.50	6.30	3.50	0.79	13	4.50	0.11	N/A	7.75	5.55	40
5	6.00	N/A	1.61	8.50	6.30	3.50	0.79	13	4.50	0.11	N/A	7.75	5.55	40
6	6.00	N/A	1.61	8.50	6.30	3.50	0.79	13	4.50	0.11	N/A	7.75	5.55	40
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0
								77	$V_{surface}$ @ Depth1					**239**

Rock Storage Parameters

Facility Segment	Rock Storage Length (ft) L_{rock}	**Rock Storage Bottom Area** (sf) A_{rock}	**Rock Storage Capacity Volume** (cf) V_{rock}
1	7	81	48
2	7	81	48
3	7	81	48
4	7	81	48
5	7	81	48
6	7	81	48
7	0	0	0
8	0	0	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	0	0	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
		483	**290**

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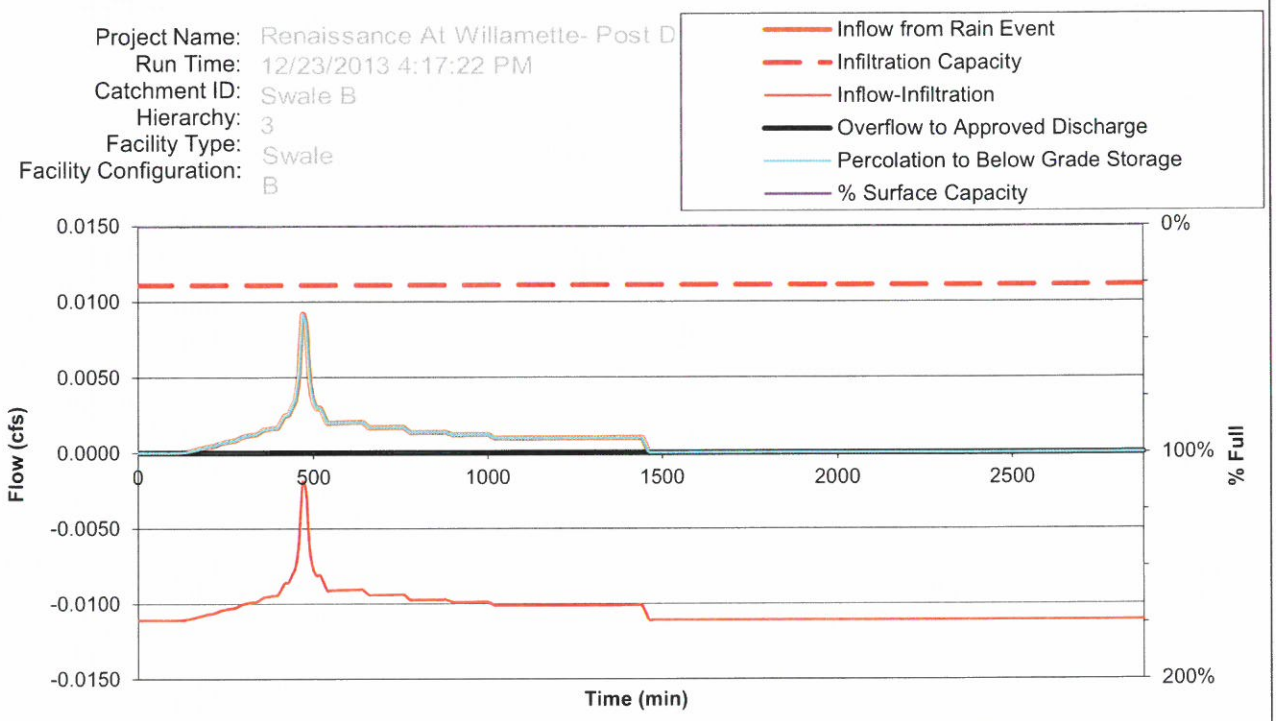
BES - Presumptive Approach Calculator - Ver 1.2

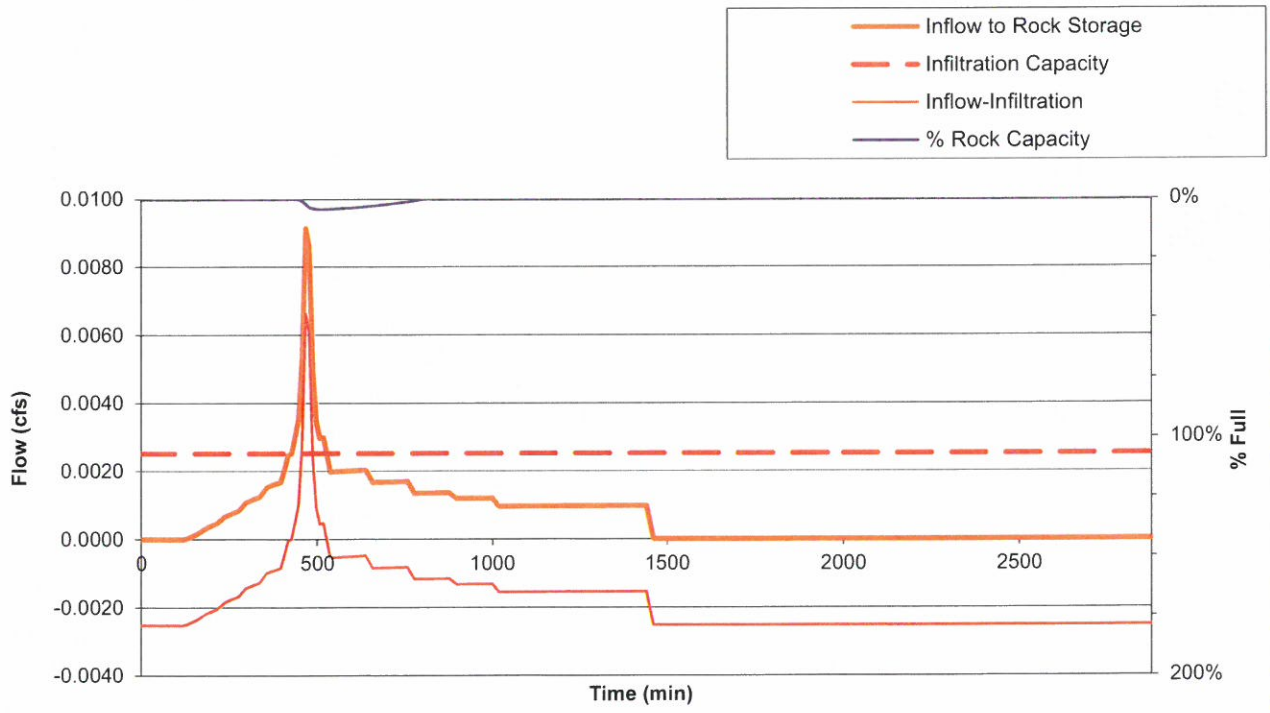
PR Con-A&B

Pollution Reduction Event
Surface Facility Modeling

Project Name: Renaissance At Willamette- Post D
Run Time: 12/23/2013 4:17:22 PM
Catchment ID: Swale B
Hierarchy: 3
Facility Type: Swale
Facility Configuration: B



Pollution Reduction Event
Below Grade Modeling



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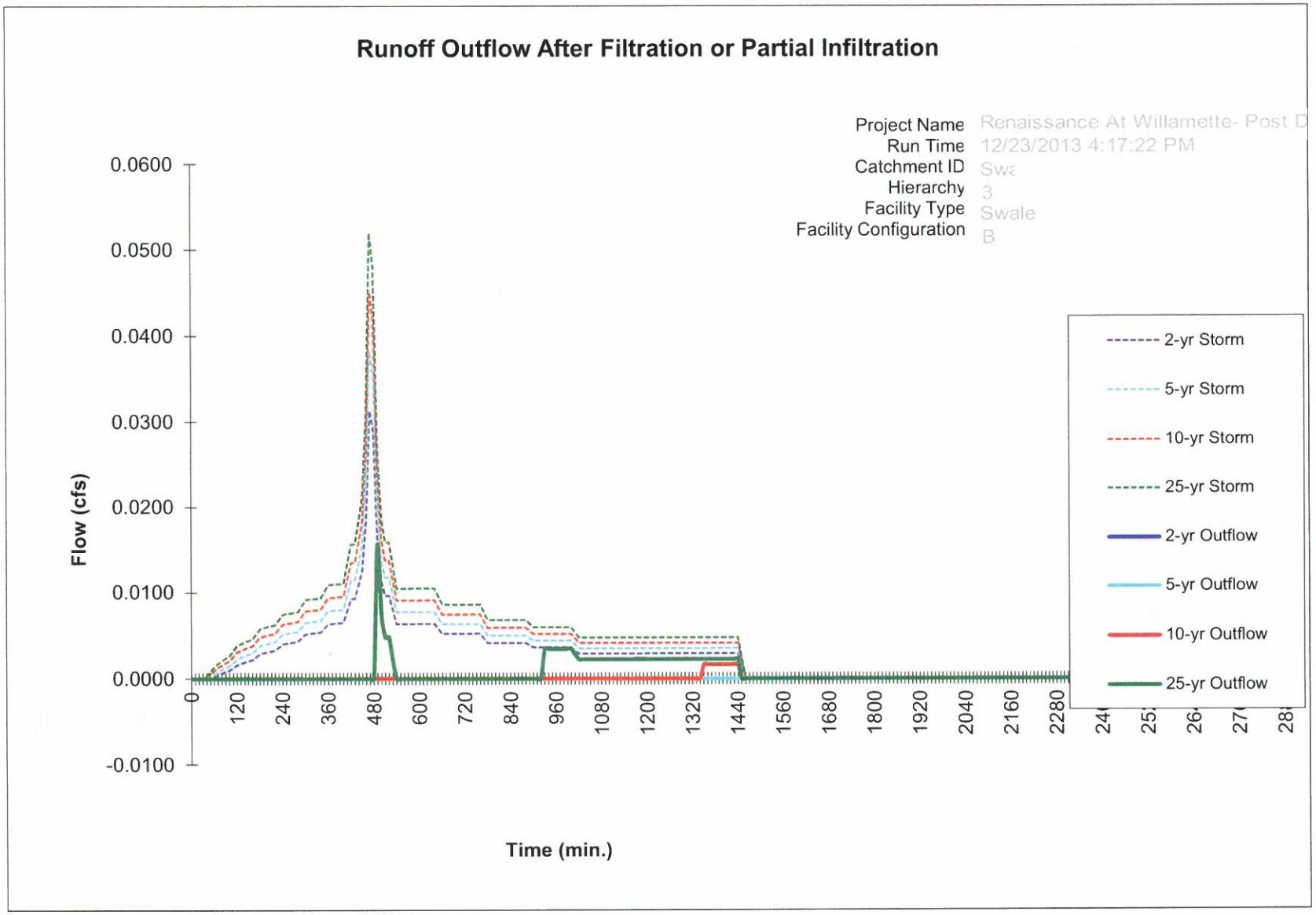
BES - Presumptive Approach Calculator - Ver 1.2

Output Chart



Presumptive Approach Calculator ver. 1.2

Catchment Data

Catchment ID: Swale C
Date: 12/23/13
Permit Number: 0

Run Time 12/23/2013 3:37:28 PM

Project Name: Renaissance At Willamette- Pre Dev
Project Address: 1770 Ostman Road, West Linn, Oregon
Designer: VN
Company: AKS Engineering

Drainage Catchment Information

Catchment ID	Swale C	
	Catchment Area	
Impervious Area	2,215	SF
Impervious Area	0.05	ac
Impervious Area Curve Number, CN_{imp}	58	
Time of Concentration, Tc, minutes	20	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.45	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

Correction Factor Component

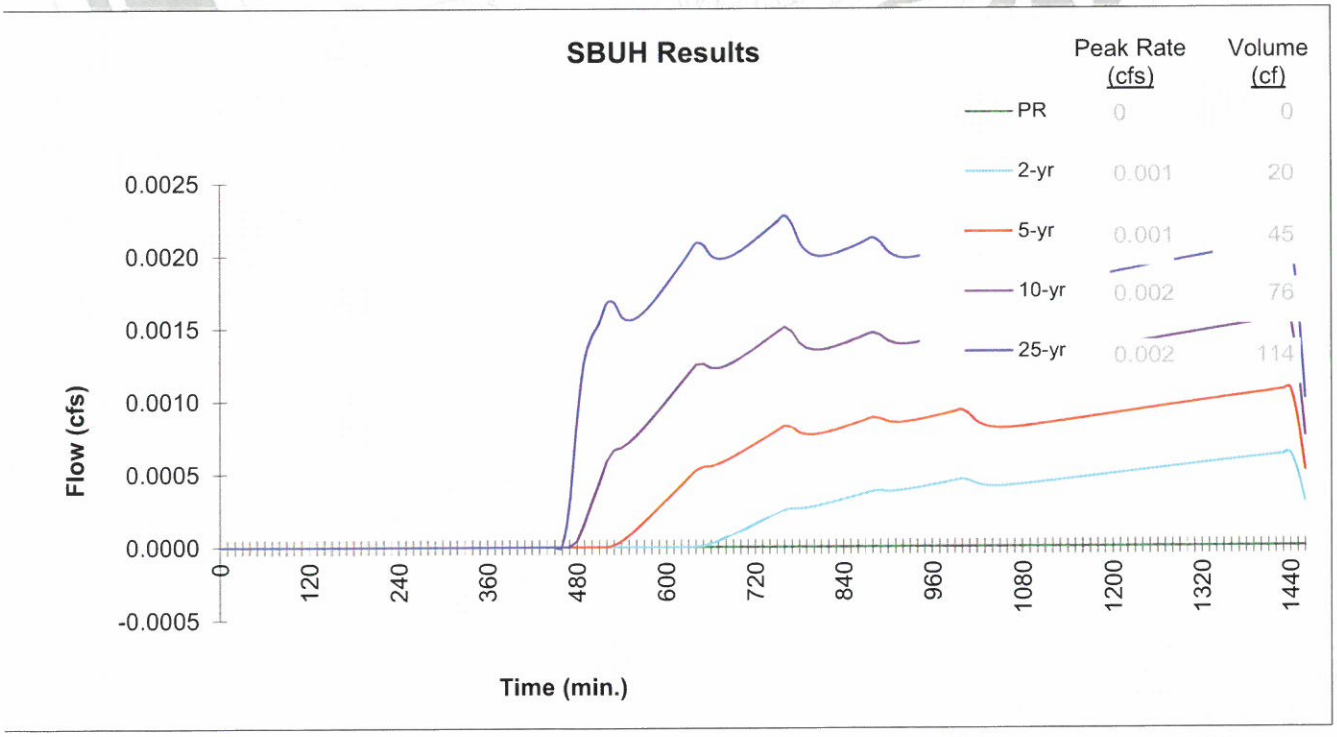
CF_{test} (ranges from 1 to 3)	2	

Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.23	in/hr	Design infiltration rate < 0.5 in/hr
I_{dsgn} for Imported Growing Medium:	2.00	in/hr	

Execute SBUH

SBUH Results



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Presumptive Approach Calculator ver. 1.2

Catchment Data

Catchment ID:	**Swale C**
Project Name:	**Renaissance At Willamette- Post Dev**
Date:	**12/23/13**
Project Address:	**1770 Ostman Road**
Permit Number:	**0**
	West Linn, Oregon
Run Time	12/23/2013 4:10:59 PM
Designer:	**VN**
Company:	**AKS Engineering**

Drainage Catchment Information

Catchment ID	Swale C	
	Catchment Area	
Impervious Area	2,215	SF
Impervious Area	0.05	ac
Impervious Area Curve Number, CN_{imp}	98	
Time of Concentration, Tc, minutes	5	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.45	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

Correction Factor Component

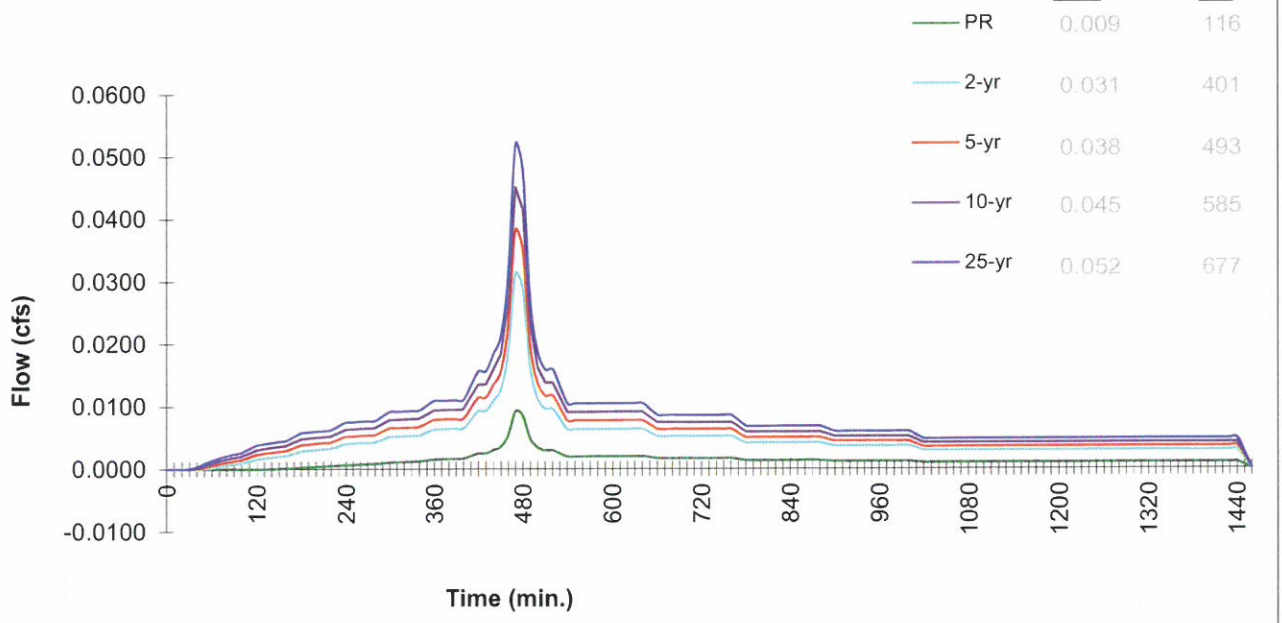
CF_{test} (ranges from 1 to 3)	2	

Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.23	in/hr	Design infiltration rate < 0.5 in/hr
I_{dsgn} for Imported Growing Medium:	2.00	in/hr	

Execute SBUH

SBUH Results



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Presumptive Approach Calculator ver. 1.2

Catchment ID: Swale C

Run Time 12/23/2013 4:10:59 PM

Project Name: Renaissance At Willamette- Post Dev **Catchment ID:** Swale C **Date:** 12/23/2013

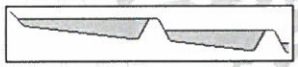
Instructions:
1. Identify which Stormwater Hierarchy Category the facility.
2. Select Facility Type.
3. Identify facility shape of surface facility to more accurately estimate surface volume, except for Swales and sloped planters that use the PAC Sloped Facility Worksheet to enter data.
4. Select type of facility configuration.
5. Complete data entry for all highlighted cells.

Catchment facility will meet Hierarchy Category: 3

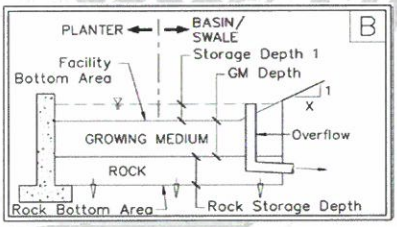
Goal Summary:

Hierarchy Category	SWMM Requirement	RESULTS box below needs to display...	
		Pollution Reduction as a	10-yr (aka disposal) as a
3	Off-site flow to drainageway, river, or storm-only pipe system.	PASS	N/A

Facility Type = Swale



Facility Configuration: B



Refer to Sloped Facility Worksheet and enter Variable Parameters

Calculation Guide
Max. Rock Stor. Bottom Area
Per Swale Dims

DATA FOR ABOVE GRADE STORAGE COMPONENT

Infiltration Area = 237 sf
Surface Capacity Volume = 75.9 cf

BELOW GRADE STORAGE

Rock Storage Bottom Area = 483 sf
Rock Storage Depth = 24 in
Rock Void Ratio = 0.3

Growing Medium Depth = 18 in
Freeboard Depth = N/A in

Surface Capacity at Depth 1 = 76 cf
Infiltration Area at 75% Depth1 = -61 SF
GM Design Infiltration Rate = 2.00 in/hr
Infiltration Capacity = 0.011 cfs

Rock Storage Capacity = 290 cf

Native Design Infiltration Rate = 0.23 in/hr
Infiltration Capacity = 0.003 cfs

RESULTS

Pollution Reduction	Overflow Volume		
PASS	0 CF	0% Surf. Cap. Used	Run PAC
		4% Rock Cap. Used	

Output File

	2-yr	5-yr	10-yr	25-yr
Peak cfs	0.000	0.000	0.002	0.037

FACILITY FACTS

Total Facility Area Including Freeboard = 483 SF
Sizing Ratio (Total Facility Area / Catchment Area) = 0.218

Presumptive Approach Calculator Ver 1.2

Instructions:

1. Refer to facility graphics on the Graphics tab, then fill in all relevant facility parameters in the Data Entry table below. Data entry cells vary based on Facility Configuration selected on Facility Design Data tab.
2. Delete all facility parameters that may have been entered by the previous iteration that are no longer applicable.

Run Time 12/23/2013 4:10:59 PM

Project Name: Renaissance At Willamette- Post Dev **Date:** 12/23/2013 **Catchment ID:** Swale C

Data Entry

Parameters | **Rock Storage Parameters** | **Error Messages**

Facility Segment	Length of facility segment (ft) $L_{segment}$	Downstream Check Dam Length (ft) L_{dam}	Longitudinal Facility Slope (ft/ft) S	Bottom Width (ft) W_{bottom}	Side Slope Right X_{right}:1	Side Slope Left X_{left}:1	Downstream Depth (inches) D_{ds}	Landscape Width (ft) $W_{landscape}$	Rock Storage Width (ft) W_{rock}	Rock Storage Depth (inches) D_{rock}	Rock Void Ratio v
1	7	2	0.063	5.5	3	3	6	11.5	11.5	24	0.3
2	7	2	0.063	5.5	3	3	6	11.5	11.5		
3	7	2	0.063	5.5	3	3	6	11.5	11.5		
4	7	2	0.063	5.5	3	3	6	11.5	11.5		
5	7	2	0.063	5.5	3	3	6	11.5	11.5		
6	7	2	0.063	5.5	3	3	6	11.5	11.5		
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Project Name: Depth 2= Depth 3=

Worksheet Calculations

Parameters | **Rock Storage Parameters**

Facility Segment	Adjusted Length of facility segment (ft) L_{adjust}	Adjusted Length if $D_{up} = 0$ (ft) $L_{adjust2}$	Upstream Depth (inches) D_{up}	Downstream Top Width (ft) $W_{top\text{-}ds}$	Upstream Top Width (ft) $W_{top\text{-}up}$	Downstream Cross-sectional Area (sf) A_{ds}	Upstream Cross-sectional Area (sf) A_{up}	**Surface Capacity Volume (cf) $V_{surface}$**	75% of Max. Downstream Depth (inches) $D_{ds75\%}$	75% of Max. Upstream Depth (inches) $D_{up75\%}$	75% of Max. Adjusted Length if $D_{up75\%} = 0$ (ft) $L_{adjust3}$	75% of Max. Downstream Top Width (ft) $W_{top\text{-}ds75\%}$	75% of Max. Upstream Top Width (ft) $W_{top\text{-}up75\%}$	**Infiltration Area @ 75% Full (sf) $A_{75\%}$**	Rock Storage Length (ft) L_{rock}	**Rock Storage Bottom Area (sf) A_{rock}**	**Rock Storage Capacity Volume (cf) V_{rock}**
1	6.00	N/A	1.46	8.50	6.23	3.50	0.72	13	4.50	0.00	5.95	7.75	5.50	39	7	81	48
2	6.00	N/A	1.46	8.50	6.23	3.50	0.72	13	4.50	0.00	5.95	7.75	5.50	39	7	81	48
3	6.00	N/A	1.46	8.50	6.23	3.50	0.72	13	4.50	0.00	5.95	7.75	5.50	39	7	81	48
4	6.00	N/A	1.46	8.50	6.23	3.50	0.72	13	4.50	0.00	5.95	7.75	5.50	39	7	81	48
5	6.00	N/A	1.46	8.50	6.23	3.50	0.72	13	4.50	0.00	5.95	7.75	5.50	39	7	81	48
6	6.00	N/A	1.46	8.50	6.23	3.50	0.72	13	4.50	0.00	5.95	7.75	5.50	39	7	81	48
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
								76	**$V_{surface}$ @ Depth1**					**237**		**483**	**290**

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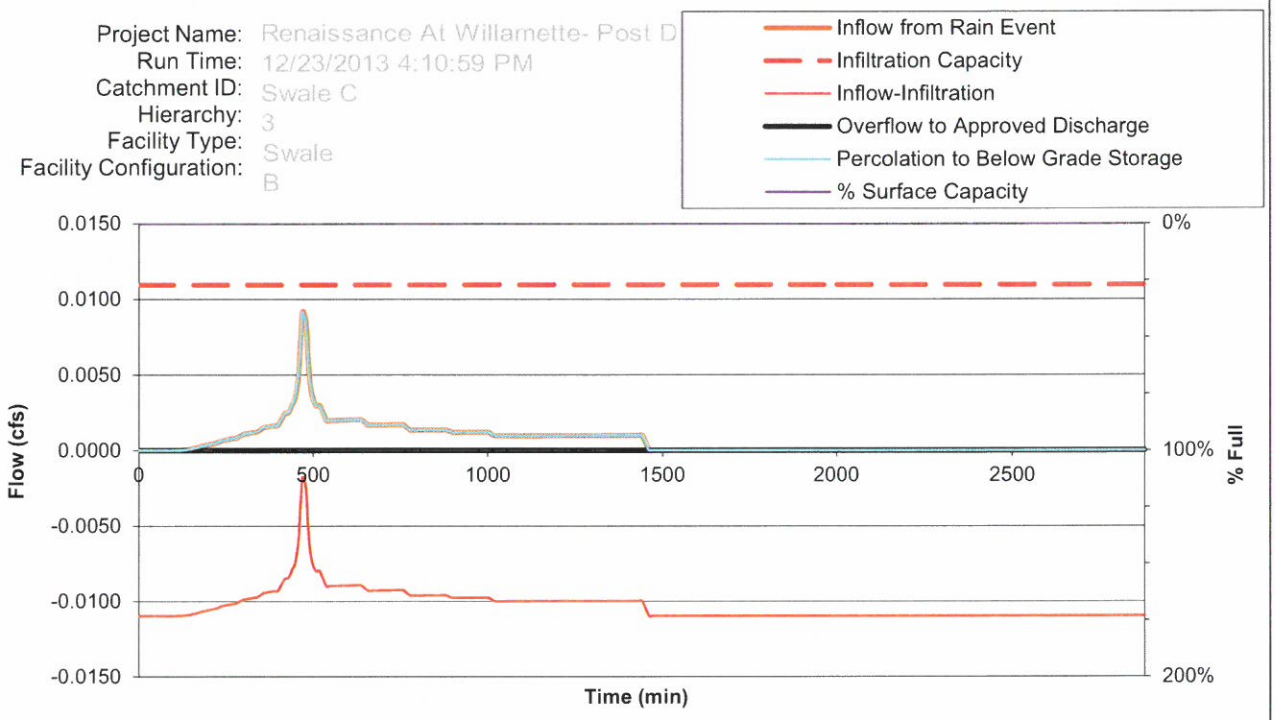
BES - Presumptive Approach Calculator - Ver 1.2

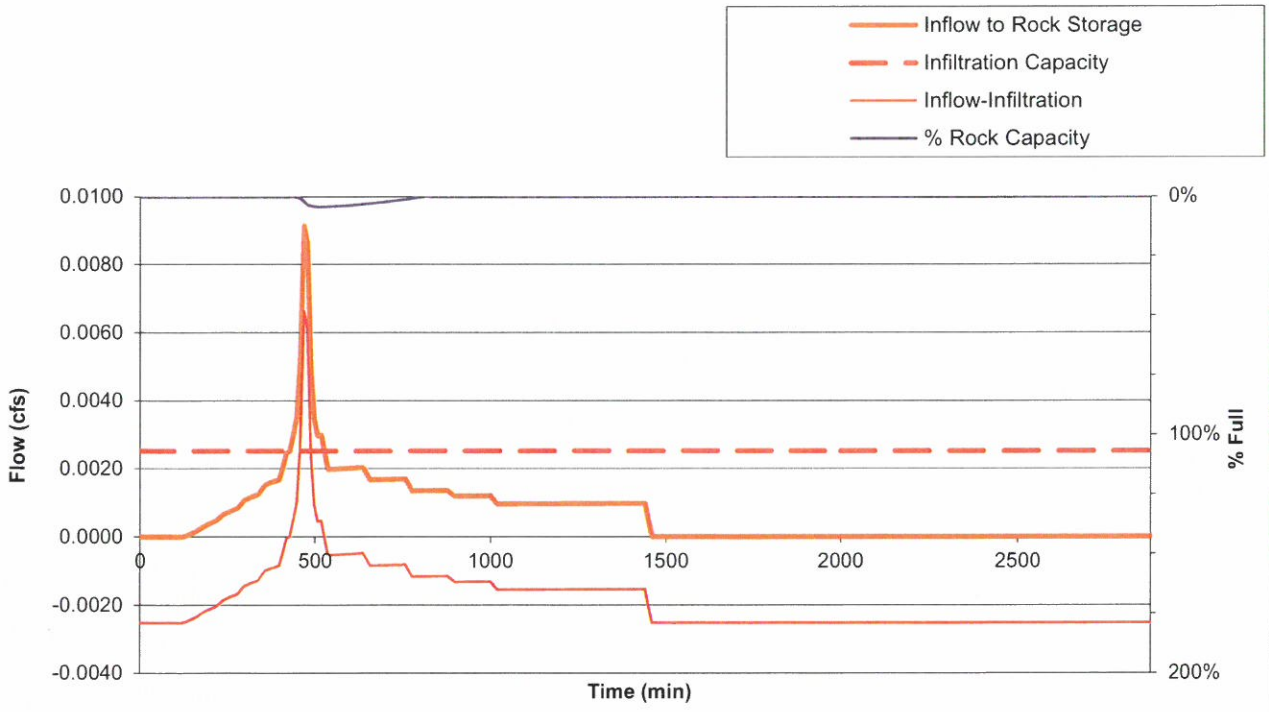
PR Con-A&B

Pollution Reduction Event
Surface Facility Modeling

Project Name: Renaissance At Willamette- Post D
Run Time: 12/23/2013 4:10:59 PM
Catchment ID: Swale C
Hierarchy: 3
Facility Type: Swale
Facility Configuration: B



Pollution Reduction Event
Below Grade Modeling



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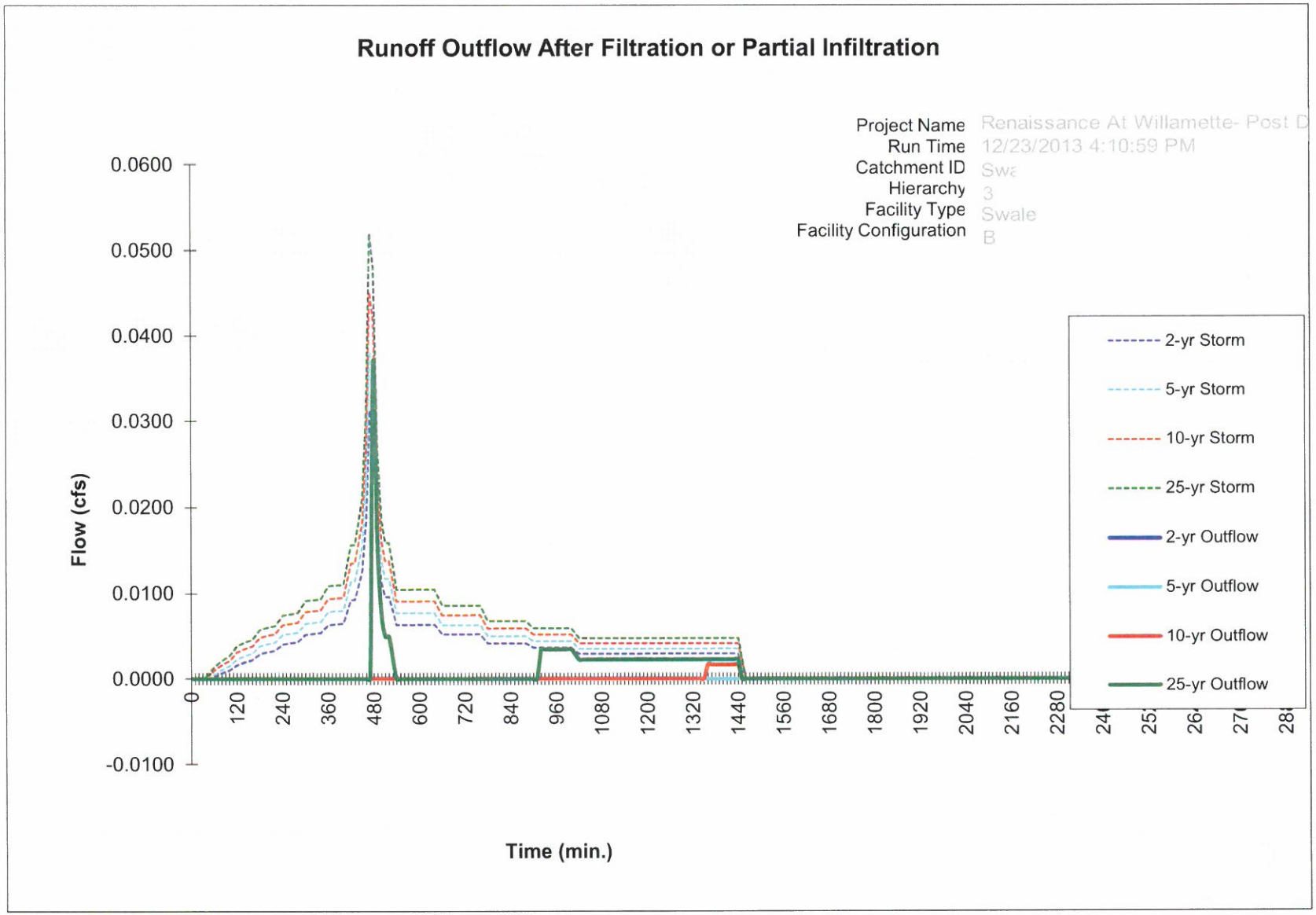
BES - Presumptive Approach Calculator - Ver 1.2

Output Chart



Presumptive Approach Calculator ver. 1.2

Catchment Data

Catchment ID:	**Swale D**
Date:	**12/23/13**
Permit Number:	**0**
Run Time	12/23/2013 3:37:28 PM

Project Name:	**Renaissance At Willamette- Pre Dev**
Project Address:	**1770 Ostman Road**
	West Linn, Oregon
Designer:	**VN**
Company:	**AKS Engineering**

Drainage Catchment Information

Catchment ID	Swale D	
	Catchment Area	
Impervious Area	2,000	SF
Impervious Area	0.05	ac
Impervious Area Curve Number, CN_{imp}	58	
Time of Concentration, Tc, minutes	20	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.45	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

Correction Factor Component

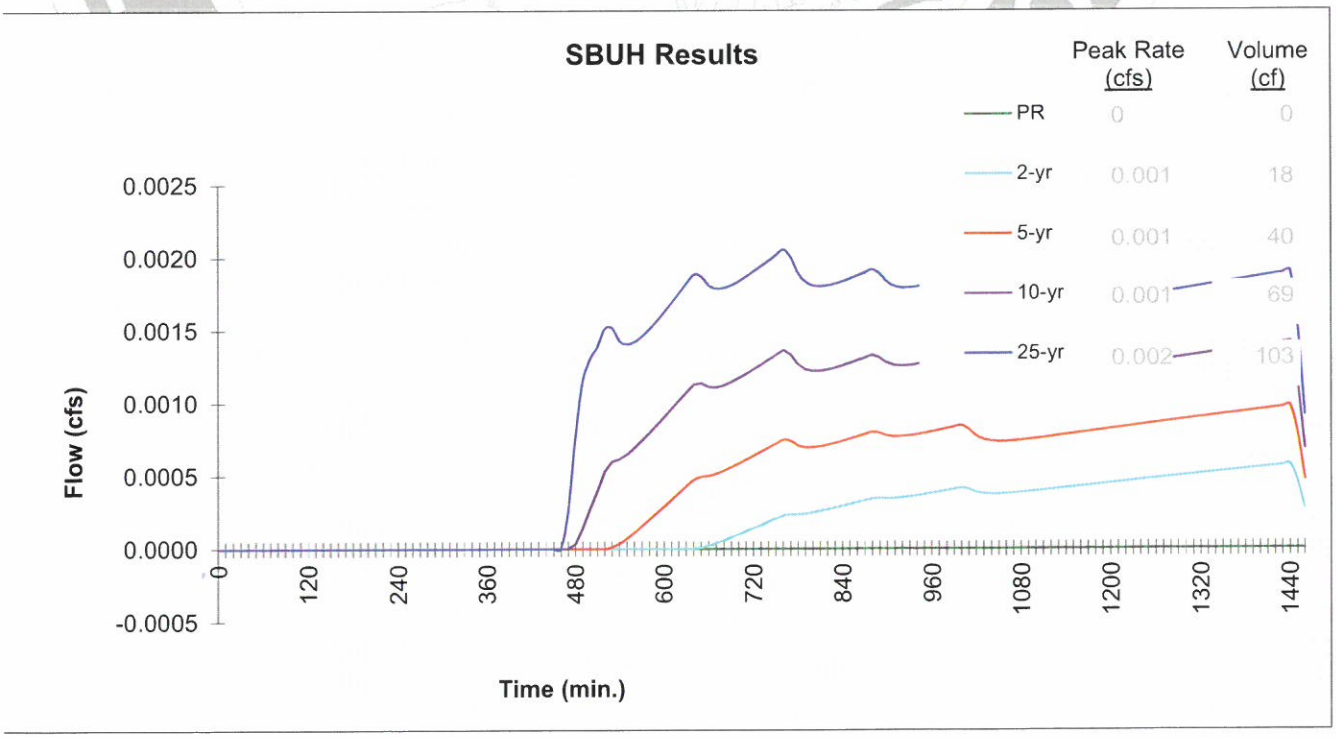
CF_{test} (ranges from 1 to 3)	2	

Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.23	in/hr	Design infiltration rate < 0.5 in/hr
I_{dsgn} for Imported Growing Medium:	2.00	in/hr	

Execute SBUH

SBUH Results



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Presumptive Approach Calculator ver. 1.2

Catchment Data

Catchment ID: Swale D

Project Name:	Renaissance At Willamette- Post Dev
Project Address:	1770 Ostman Road
	West Linn, Oregon
Designer:	VN
Company:	AKS Engineering
Date:	12/23/13
Permit Number:	0

Run Time 12/23/2013 4:41:07 PM

Drainage Catchment Information

Catchment ID	Swale D	
	Catchment Area	
Impervious Area	2,000	SF
Impervious Area	0.05	ac
Impervious Area Curve Number, CN_{imp}	98	
Time of Concentration, Tc, minutes	5	min.

Site Soils & Infiltration Testing Data

Infiltration Testing Procedure:	Open Pit Falling Head	
Native Soil Field Tested Infiltration Rate (I_{test}):	0.45	in/hr
Bottom of Facility Meets Required Separation From High Groundwater Per BES SWMM Section 1.4:	Yes	

Correction Factor Component

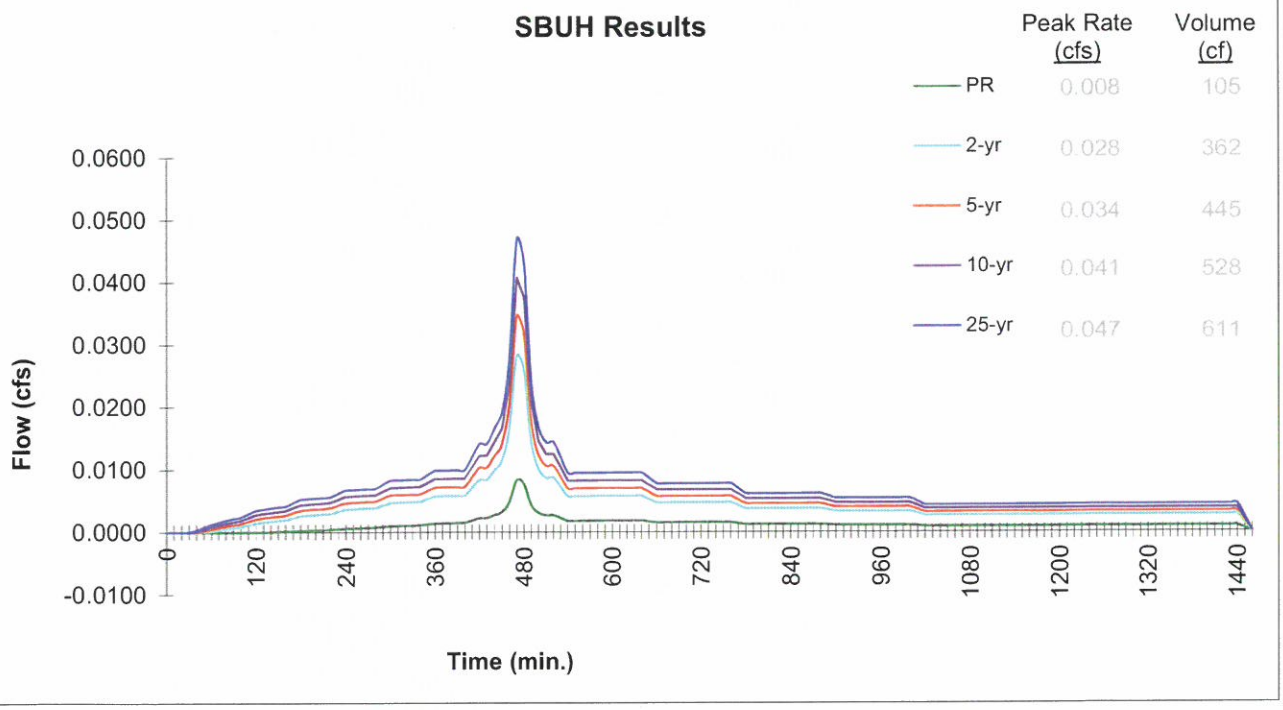
CF_{test} (ranges from 1 to 3)	2	

Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.23	in/hr	Design infiltration rate < 0.5 in/hr
I_{dsgn} for Imported Growing Medium:	2.00	in/hr	

Execute SBUH

SBUH Results



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Presumptive Approach Calculator ver. 1.2

Catchment ID: Swale D

Run Time 12/23/2013 4:41:07 PM

Project Name: Renaissance At Willamette- Post Dev **Catchment ID:** Swale D **Date:** 12/23/2013

Instructions:
1. Identify which Stormwater Hierarchy Category the facility.
2. Select Facility Type.
3. Identify facility shape of surface facility to more accurately estimate surface volume, except for Swales and sloped planters that use the PAC Sloped Facility Worksheet to enter data.
4. Select type of facility configuration.
5. Complete data entry for all highlighted cells.

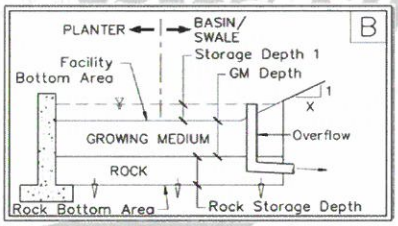
Catchment facility will meet Hierarchy Category: 3

Goal Summary:

Hierarchy Category	SWMM Requirement	RESULTS box below needs to display...	
		Pollution Reduction as a	10-yr (aka disposal) as a
3	Off-site flow to drainageway, river, or storm-only pipe system.	PASS	N/A

Facility Type = Swale

Facility Configuration: B



Refer to Sloped Facility Worksheet and enter Variable Parameters

Calculation Guide
Max. Rock Stor. Bottom Area Per Swale Dims

DATA FOR ABOVE GRADE STORAGE COMPONENT

Infiltration Area = 224 sf
Surface Capacity Volume = 86.9 cf

Growing Medium Depth = 18 in
Freeboard Depth = N/A in

Surface Capacity at Depth 1 = 87 cf
Infiltration Area at 75% Depth1 = -46 SF
GM Design Infiltration Rate = 2.00 in/hr
Infiltration Capacity = 0.010 cfs

BELOW GRADE STORAGE

Rock Storage Bottom Area = 483 sf
Rock Storage Depth = 24 in
Rock Void Ratio = 0.3

Rock Storage Capacity = 290 cf

Native Design Infiltration Rate = 0.23 in/hr
Infiltration Capacity = 0.003 cfs

RESULTS

Pollution Reduction: **PASS**

Overflow Volume: 0 CF

0% Surf. Cap. Used

4% Rock Cap. Used

Run PAC

Output File

	2-yr	5-yr	10-yr	25-yr
Peak cfs	0.000	0.000	0.000	0.002

FACILITY FACTS

Total Facility Area Including Freeboard = **483 SF**

Sizing Ratio (Total Facility Area / Catchment Area) = **0.242**

Presumptive Approach Calculator Ver 1.2

Instructions:

1. Refer to facility graphics on the Graphics tab, then fill in all relevant facility parameters in the Data Entry table below. Data entry cells vary based on Facility Configuration selected on Facility Design Data tab.
2. Delete all facility parameters that may have been entered by the previous iteration that are no longer applicable.

Run Time 12/23/2013 4:41:07 PM

Project Name: Renaissance At Willamette- Post Dev **Date:** 12/23/2013 **Catchment ID:** Swale D

Data Entry

Parameters | **Rock Storage Parameters** | **Error Messages**

Facility Segment	Length of facility segment (ft) $L_{segment}$	Downstream Check Dam Length (ft) L_{dam}	Longitudinal Facility Slope (ft/ft) S	Bottom Width (ft) W_{bottom}	Side Slope Right X_{right}:1	Side Slope Left X_{left}:1	Downstream Depth (inches) D_{ds}	Landscape Width (ft) $W_{landscape}$	Rock Storage Width (ft) W_{rock}	Rock Storage Depth (inches) D_{rock}	Rock Void Ratio v
1	7	2	0.08	5.5	3	3	7	11.5	11.5	24	0.3
2	7	2	0.08	5.5	3	3	7	11.5	11.5		
3	7	2	0.08	5.5	3	3	7	11.5	11.5		
4	7	2	0.08	5.5	3	3	7	11.5	11.5		
5	7	2	0.08	5.5	3	3	7	11.5	11.5		
6	7	2	0.08	5.5	3	3	7	11.5	11.5		
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Project Name: Depth 2= Depth 3=

Worksheet Calculations

Parameters | **Rock Storage Parameters**

Facility Segment	Adjusted Length of facility segment (ft) L_{adjust}	Adjusted Length if $D_{up} = 0$ (ft) $L_{adjust2}$	Upstream Depth (inches) D_{up}	Downstream Top Width (ft) $W_{top\text{-}ds}$	Upstream Top Width (ft) $W_{top\text{-}up}$	Downstream Cross-sectional Area (sf) A_{ds}	Upstream Cross-sectional Area (sf) A_{up}	**Surface Capacity Volume** (cf) **$V_{surface}$**	75% of Max. Downstream Depth (inches) $D_{ds75\%}$	75% of Max. Upstream Depth (inches) $D_{up75\%}$	75% of Max. Adjusted Length if $D_{up75\%} = 0$ (ft) $L_{adjust3}$	75% of Max. Downstream Top Width (ft) $W_{top\text{-}ds75\%}$	75% of Max. Upstream Top Width (ft) $W_{top\text{-}up75\%}$	**Infiltration Area @ 75% Full** (sf) **$A_{75\%}$**	Rock Storage Length (ft) L_{rock}	**Rock Storage Bottom Area** (sf) **A_{rock}**	**Rock Storage Capacity Volume** (cf) **V_{rock}**
1	6.00	N/A	1.24	9.00	6.12	4.23	0.60	14	5.25	0.00	5.47	8.13	5.50	37	7	81	48
2	6.00	N/A	1.24	9.00	6.12	4.23	0.60	14	5.25	0.00	5.47	8.13	5.50	37	7	81	48
3	6.00	N/A	1.24	9.00	6.12	4.23	0.60	14	5.25	0.00	5.47	8.13	5.50	37	7	81	48
4	6.00	N/A	1.24	9.00	6.12	4.23	0.60	14	5.25	0.00	5.47	8.13	5.50	37	7	81	48
5	6.00	N/A	1.24	9.00	6.12	4.23	0.60	14	5.25	0.00	5.47	8.13	5.50	37	7	81	48
6	6.00	N/A	1.24	9.00	6.12	4.23	0.60	14	5.25	0.00	5.47	8.13	5.50	37	7	81	48
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0	0	0	0
								87	**$V_{surface}$ @ Depth1**					**224**		**483**	**290**

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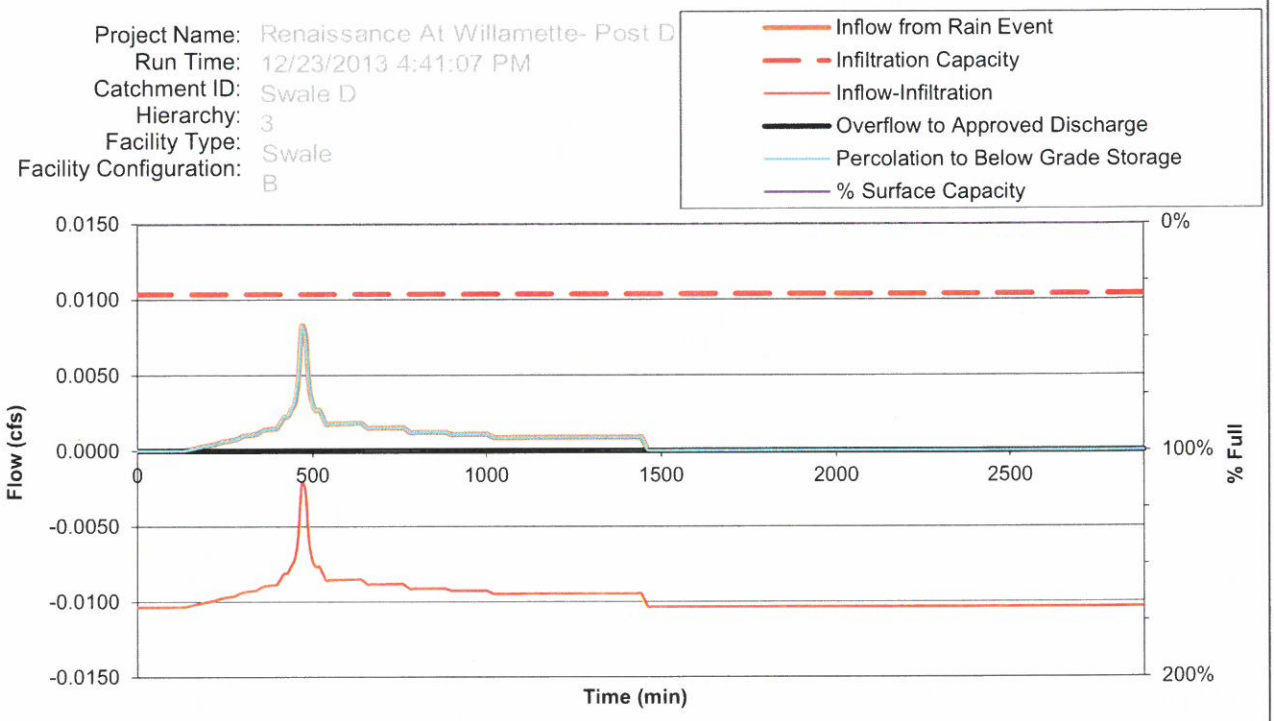
BES - Presumptive Approach Calculator - Ver 1.2

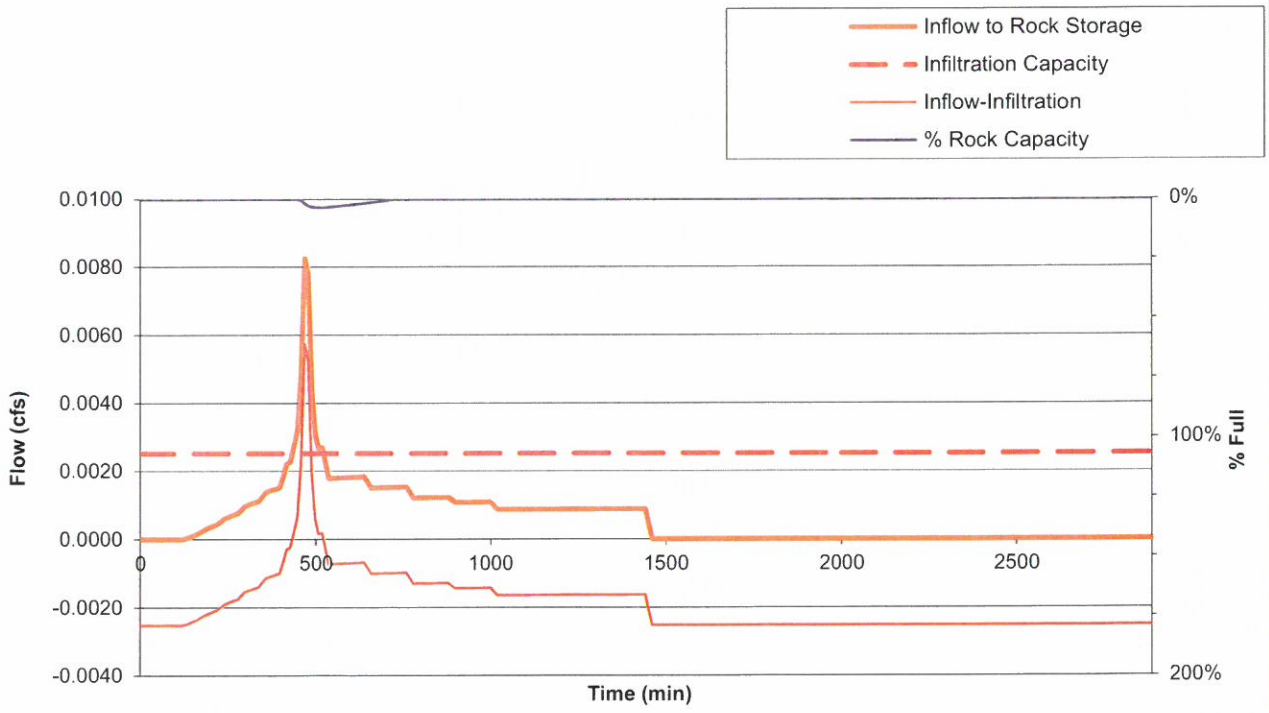
PR Con-A&B

Pollution Reduction Event
Surface Facility Modeling

Project Name: Renaissance At Willamette- Post D
Run Time: 12/23/2013 4:41:07 PM
Catchment ID: Swale D
Hierarchy: 3
Facility Type: Swale
Facility Configuration: B



Pollution Reduction Event
Below Grade Modeling



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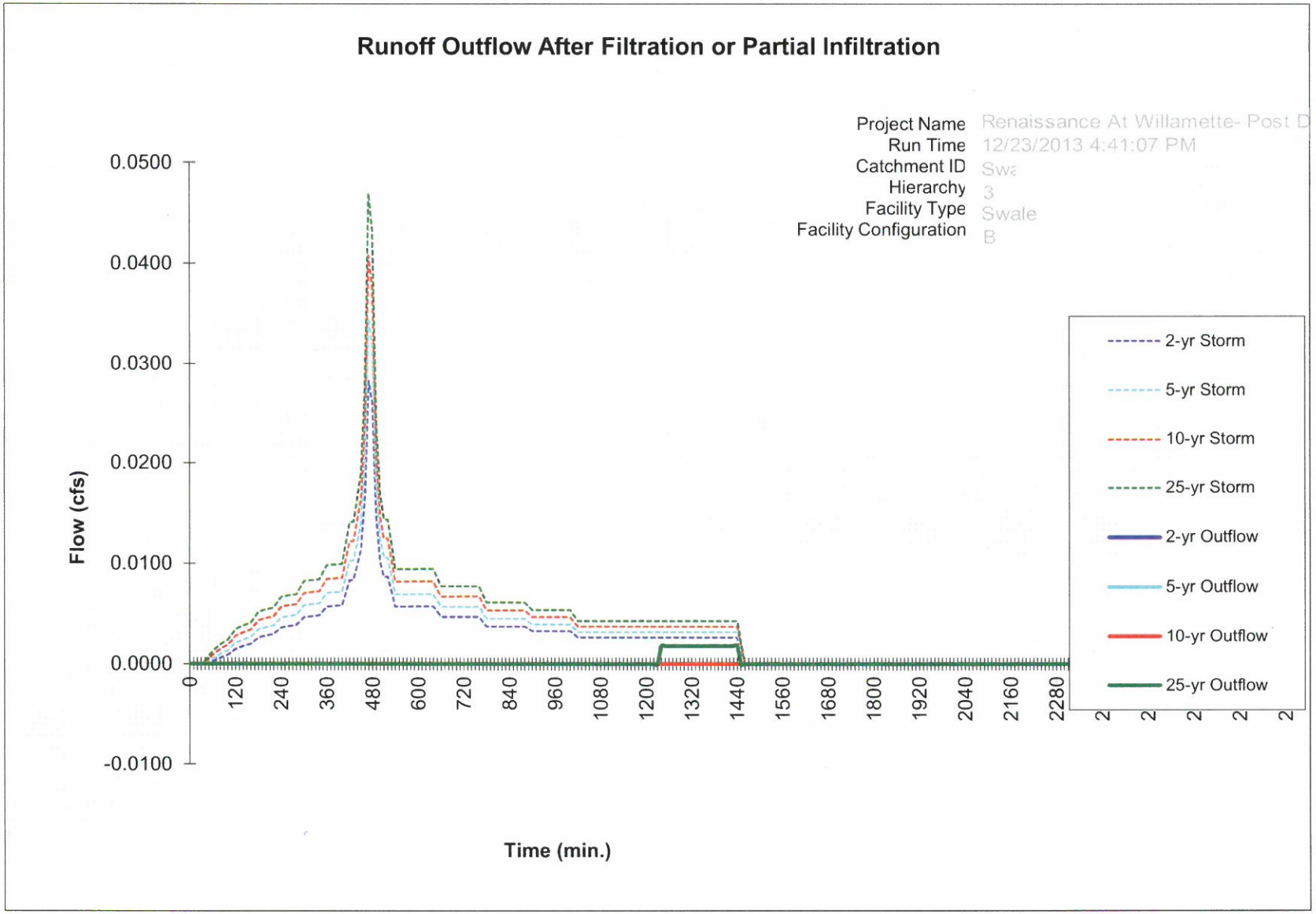
BES - Presumptive Approach Calculator - Ver 1.2

Output Chart



RUNOFF CURVE NUMBERS

Design Storm

The SBUH method also requires a design storm to perform the runoff calculations. For flow control calculations, BES uses a NRCS Type 1A 24-hour storm distribution. This storm is shown in Figure C-1 and Table C-4. The depth of rainfall for the 2 through 100-year storm events is shown below in Table C-1.

Table C-1
24-HOUR RAINFALL DEPTHS AT PORTLAND AIRPORT

Recurrence Interval, Years	2	5	10	25	100
24-Hour Depths, Inches	2.4	2.9	3.4	3.9	4.4

Table C-2
RUNOFF CURVE NUMBERS

Runoff curve numbers for urban areas*

Cover description		Curve numbers for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area	A	B	C	D
Open space (lawns, parks, golf courses, cemeteries, etc.):					
Poor condition (grass cover <50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
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

Runoff curve numbers for other agricultural lands*

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range-continuous forage for grazing					
<50% ground cover or heavily grazed with no mulch	Poor	68	79	86	89
50 to 75% ground cover and not heavily grazed	Fair	49	69	79	84
>75% ground cover and lightly or only occasionally grazed	Good	39	61	74	80
Meadow-continuous grass, protected from grazing and generally mowed for hay	-	30	58	71	78
Brush--weed-grass mixture with brush as the major element					
<50% ground cover	Poor	48	67	77	83
50 to 75% ground cover	Fair	35	56	70	77
>75% ground cover	Good	30	48	65	73
Woods-grass combination (orchard or tree farm)	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79

Runoff curve numbers for other agricultural lands*

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Woods					
Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.	Poor	45	66	77	83
Woods are grazed but not burned, and some forest litter covers the soil.	Fair	36	60	73	79
Woods are protected from grazing, and litter and brush adequately cover the soil.	Good	30	55	70	77

Runoff curve numbers for Simplified Approaches**

Cover description		Curve numbers for hydrologic soil group			
Simplified Approaches	Hydrologic condition	A	B	C	D
Eco-roof	Good	n/a	61	n/a	n/a
Roof Garden	Good	n/a	48	n/a	n/a
Contained Planter Box	Good	n/a	48	n/a	n/a
Infiltration & Flow-Through Planter Box	Good	n/a	48	n/a	n/a
Pervious Pavement	-	76	85	89	n/a
Trees					
New and/or Existing Evergreen	-	36	60	73	79
New and/or Existing Deciduous	-	36	60	73	79

n/a - Does not apply, as design criteria for the relevant mitigation measures do not include the use of this soil type.
*Soil Conservation Service, *Urban Hydrology for Small Watersheds*, Technical Release 55, pp. 2.5-2.8, June 1986.
**CNs of various cover types were assigned to the Proposed Simplified Approaches with similar cover types as follows:
Eco-roof – assumed grass in good condition with soil type B.
Roof Garden – assumed brush-weed-grass mixture with >75% ground cover and soil type B.
Contained Planter Box – assumed brush-weed-grass mixture with >75% ground cover and soil type B.
Infiltration & Flow-Through Planter Box – assumed brush-weed-grass mixture with >75% ground cover and soil type B.
Pervious Pavement – assumed gravel.
Trees – assumed woods with fair hydrologic conditions.

Note: To determine hydrologic soil type, consult local USDA Soil Conservation Service Soil Survey.

NRCS SOIL INFORMATION

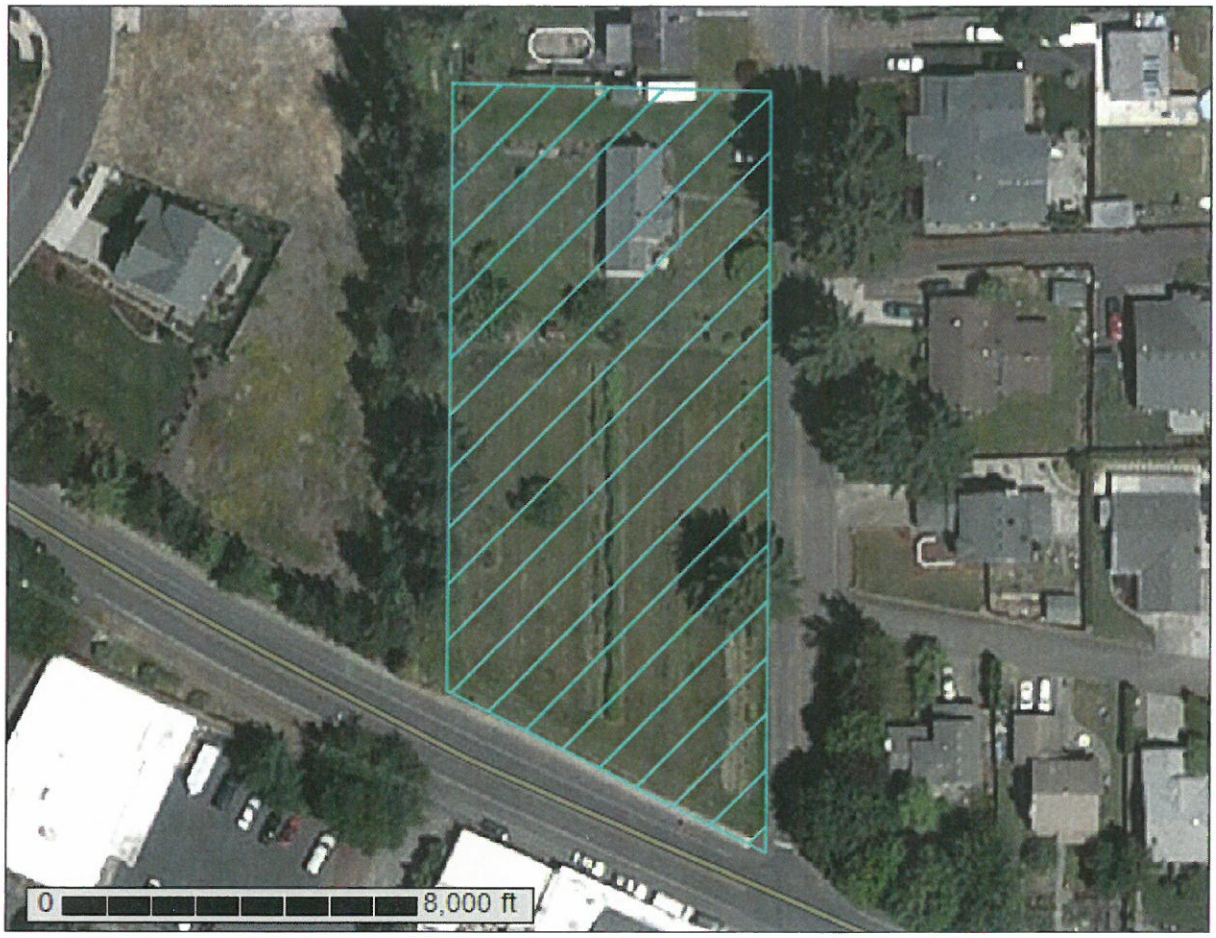
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Clackamas County Area, Oregon



December 23, 2013

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:644 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 5 10 20 30

Feet
0 30 60 120 180

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 7, Aug 20, 2012

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 8, 2010—Sep 4, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Clackamas County Area, Oregon (OR610)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
53C	Latourell loam, 8 to 15 percent slopes	1.1	99.3%
88A	Willamette silt loam, wet, 0 to 3 percent slopes	0.0	0.7%
Totals for Area of Interest		**1.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If

intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Clackamas County Area, Oregon

53C—Latourell loam, 8 to 15 percent slopes

Map Unit Setting

Elevation: 50 to 400 feet
Mean annual precipitation: 40 to 60 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Latourell and similar soils: 85 percent

Description of Latourell

Setting

Landform: Terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stratified glaciolacustrine deposits

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 9.5 inches)

Interpretive groups

Farmland classification: Farmland of statewide importance
Land capability classification (irrigated): 3e
Land capability (nonirrigated): 3e
Hydrologic Soil Group: B

Typical profile

0 to 15 inches: Loam
15 to 48 inches: Loam
48 to 60 inches: Gravelly sandy loam

88A—Willamette silt loam, wet, 0 to 3 percent slopes

Map Unit Setting

Elevation: 150 to 350 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 54 degrees F
Frost-free period: 165 to 210 days

Map Unit Composition

Willamette, wet, and similar soils: 85 percent

Description of Willamette, Wet

Setting

Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stratified glaciolacustrine deposits

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 30 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 12.0 inches)

Interpretive groups

Farmland classification: All areas are prime farmland
Land capability classification (irrigated): 2w
Land capability (nonirrigated): 2w
Hydrologic Soil Group: C

Typical profile

0 to 14 inches: Silt loam
14 to 60 inches: Silty clay loam

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report
Map—Hydrologic Soil Group

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clackamas County Area, Oregon
Survey Area Data: Version 7, Aug 20, 2012

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 8, 2010—Sep 4, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Clackamas County Area, Oregon (OR610)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
53C	Latourell loam, 8 to 15 percent slopes	B	1.1	99.3%
88A	Willamette silt loam, wet, 0 to 3 percent slopes	C	0.0	0.7%
Totals for Area of Interest			**1.1**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://soils.usda.gov/

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://soils.usda.gov/

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://soils.usda.gov/

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://soils.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.glti.nrcs.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://soils.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://soils.usda.gov/

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.

GEOTECHNICAL REPORT

GeoPacific Engineering, Inc.

Real-World Geotechnical Solutions
Investigation • Design • Construction Support

December 12, 2013
Project No. 13-3228

Amy Schnell
Renaissance Development
16771 SW Boones Ferry Road
Lake Oswego, OR 97035

CC: Rand Waltz, AKS Engineering & Forestry via email: rand@aks-eng.com

SUBJECT: INFILTRATION TEST RESULTS
RENAISSANCE AT WILLAMETTE
1770 OSTMAN ROAD
WEST LINN, OREGON

This letter presents the results of our soil infiltration testing for aid in design of an on-site stormwater infiltration system for the new subdivision located at 1770 Ostman Road in the City of West Linn, Oregon. It is our understanding that a swale will be located along Ostman Road and that stormwater will be directed to infiltration systems located at the rear of each lot.

On December 5, 2013, GeoPacific Engineering, Inc.'s geologist, Beth Rapp, observed the excavation of four test pits and conducted falling head infiltration tests. Test pits TP-1 through TP-4 were excavated to depths of 4 to 5 feet below existing grade at the approximate locations indicated on the attached site plan (Figure 1). Infiltration tests were conducted in the bottom of the explorations. Design of the stormwater infiltration system is to be completed by others.

SOIL CONDITIONS

Soils in test pits generally consisted of a moderately organic topsoil horizon consisting of silt (OL-ML) extending to a depth of 9 to 12 inches. The topsoil was underlain by light brown, highly mottled silt (ML) with a stiff to very stiff consistency. In test pits TP-3 and TP-4, the silt was underlain by sandy SILT (ML) below a depth of approximately 3.5 feet.

GROUNDWATER

On December 5, 2013, soils encountered were moist. Neither static groundwater nor groundwater seepage was encountered to a maximum depth of 5 feet. It is anticipated that

groundwater conditions will vary depending on the season, local subsurface conditions, changes in site utilization, and other factors.

INFILTRATION TESTING

The pushed pipe method of infiltration testing was performed in test pits TP-1 through TP-4. Soils were pre-saturated for a period of over 1 hour. Following the soil saturation, the infiltration tests were conducted. The water level was measured to the nearest sixteenth of an inch with reference to the ground surface. Tests were conducted at half hour intervals and continued until two successive measurements did not vary by more than 1/16th of an inch. The total test period was 4 hours. Table 1 presents the results of our falling head infiltration tests.

Table 1. Summary of Infiltration Test Results

Exploration Designation	Depth (feet)	Soil Type	Infiltration Rate(in/hr)	Hydraulic Head Range (inches)
TP-1	5	SILT (ML)	0.45	10-13
TP-2	4	SILT (ML)	0.52	17-19
TP-3	5	Sandy SILT (ML)	1.38	3-9
TP-4	4	Sandy SILT (ML)	1.47	7-11

CONCLUSIONS AND RECOMMENDATIONS

The results of our infiltration testing indicate a vertical infiltration rate of 0.45 to 0.52 inches per hour at depths of 4 to 5 feet under a falling head of 10 to 19 inches in silt material. Infiltration rates in the sandy silt material at a depth of 4 to 5 feet ranged from 1.38 to 1.47 inches per hour under a falling head pressure of 3 to 11 inches.

Project No. 13-3228
Renaissance at Willamette Infiltration

UNCERTAINTIES AND LIMITATIONS

This scope of this study includes measuring infiltration rates only. Rates of infiltration that were affected by impermeable soils or groundwater seepage were not reported. This study did not include risk assessment for geologic hazards or flooding on the site. Environmental implications of stormwater disposal or West Linn or ODEQ approval at this site are also beyond the scope of this report.

Infiltration test methods and procedures attempt to simulate the as-built conditions of the planned subsurface disposal system. However, due to natural variations in soil properties, actual infiltration rates may vary from the measured and/or recommended design rates. All systems should be constructed such that potential overflow is discharged in a controlled manner away from structures, and all systems should include an adequate factor of safety. Infiltration rates presented in this report should not be applied to inappropriate or complex hydrological models such as a closed basin without extensive further studies. This report presents infiltration test results only, and should not be construed as an approval of a system design.

Please call if you have any questions or need further information.

Sincerely,

GeoPacific Engineering, Inc.

REGISTERED PROFESSIONAL ENGINEER
14743PE
OREGON
JAN. 23, 1990
JAMES D. IMBRIE

EXPIRES: 06/30/2015

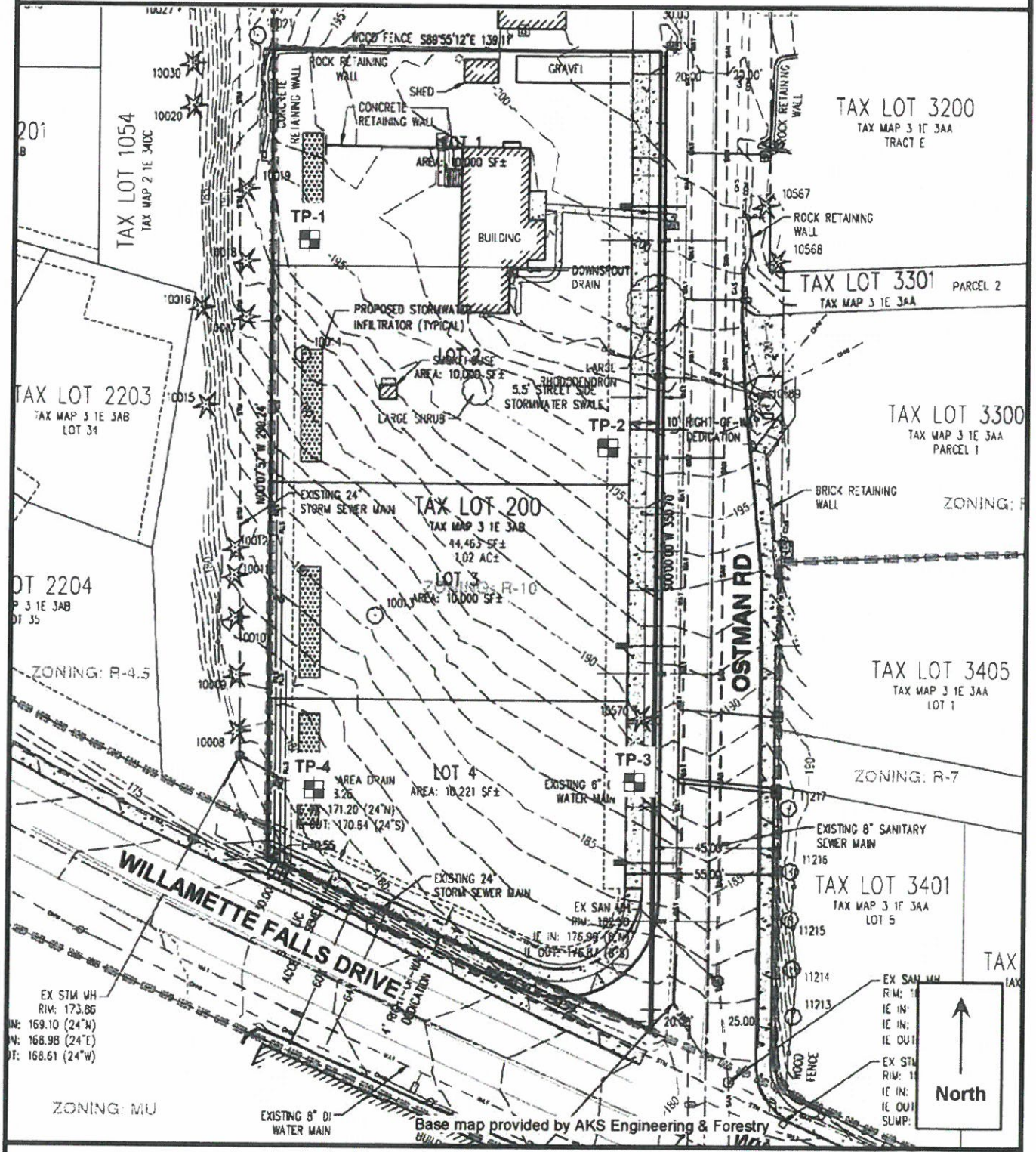
Beth K. Rapp, R.G.
Senior Geologist

James D. Imbrie, G.E., C.E.G.
Geotechnical Engineer

Attachments: Figure 1 - Site and Exploration Plan

GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

SITE PLAN AND INFILTRATION TEST LOCATIONS



Base map provided by AKS Engineering & Forestry

Legend

TP-1 — Test Pit Designation and Approximate Location

0 50'

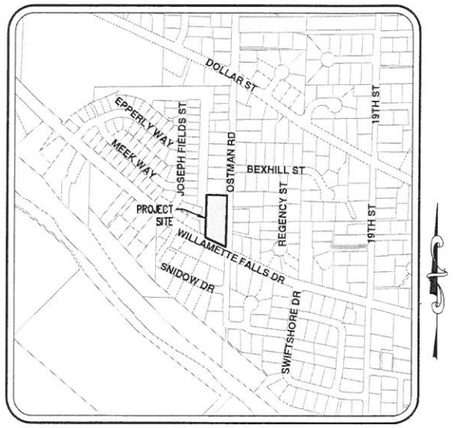
APPROXIMATE SCALE 1"=50'

Date: 12/11/13
Drawn by: EKR

Project: Renaissance at Willamette Infiltration West Linn, Oregon	Project No: 13-3228	FIGURE 1

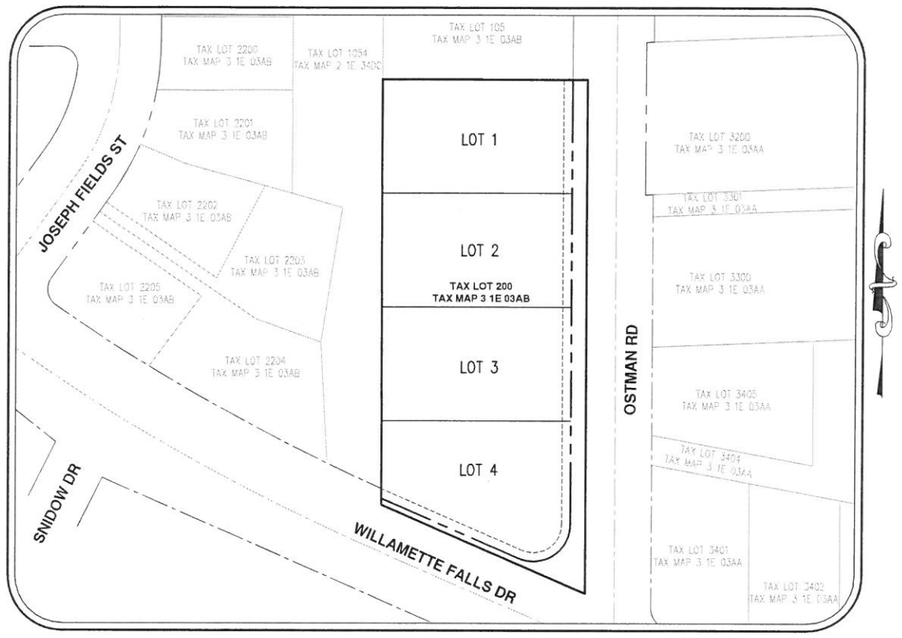
RENAISSANCE AT WILLAMETTE

PRELIMINARY SUBDIVISION PLANS



VICINITY MAP

SCALE: 1" = 500'



SITE MAP

SCALE: 1" = 50'

LEGEND

	EXISTING	PROPOSED		EXISTING	PROPOSED
DECIDUOUS TREE			STORM SEWER CLEAN OUT		
CONIFEROUS TREE			STORM SEWER CATCH BASIN		
FIRE HYDRANT			STORM SEWER MANHOLE		
WATER BLOWOFF			GAS METER		
WATER METER			GAS VALVE		
WATER VALVE			GUY WIRE ANCHOR		
DOUBLE CHECK VALVE			POWER POLE		
AIR RELEASE VALVE			POWER VAULT	P	P
SANITARY SEWER CLEAN OUT			POWER JUNCTION BOX		
SANITARY SEWER MANHOLE			POWER PEDESTAL		
SIGN			COMMUNICATIONS VAULT	C	C
STREET LIGHT			COMMUNICATIONS JUNCTION BOX		
MAILBOX			COMMUNICATIONS RISER		

	EXISTING	PROPOSED
RIGHT-OF-WAY LINE		
BOUNDARY LINE		
PROPERTY LINE		
CENTERLINE		
DITCH		
CURB		
EDGE OF PAVEMENT		
EASEMENT		
FENCE LINE		
GRAVEL EDGE		
POWER LINE	PWR	PWR
OVERHEAD WIRE	OHW	OHW
COMMUNICATIONS LINE	COM	COM
FIBER OPTIC LINE	CFO	CFO
GAS LINE	GAS	GAS
STORM SEWER LINE	STM	STM
SANITARY SEWER LINE	SAN	SAN
WATER LINE	WAT	WAT

OWNER/APPLICANT:

RENAISSANCE HOMES
16771 BOONES FERRY ROAD
LAKE OSWEGO, OR 97035

PLANNING/CIVIL ENGINEERING/SURVEYING LANDSCAPE ARCHITECTURE FIRM (APPLICANT'S REPRESENTATIVE):

AKS ENGINEERING & FORESTRY, LLC
CONTACT: MONTY HURLEY/CHRIS GOODELL
13910 SW GALBREATH DRIVE, SUITE 100
SHERWOOD, OR 97140
PH: 503-925-8799
FAX: 503-925-8969

SITE LOCATION:

1770 OSTMAN ROAD
WEST LINN, OR 97068

SITE DESCRIPTION:

TAX LOT 200, CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB, LOCATED IN THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 3, TOWNSHIP 3 SOUTH, RANGE 1 EAST, WILLAMETTE MERIDIAN, CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON

PROJECT PURPOSE:

FOUR LOT RESIDENTIAL SUBDIVISION FOR FUTURE SINGLE-FAMILY DETACHED HOMES IN THE R-10 ZONE.

BENCHMARK:

VERTICAL DATUM: ELEVATIONS ARE BASED ON NGS BENCHMARK 89 B (PID: RD0258) ON THE WEST SIDE OF HIGHWAY 99E, 2.4 MILES SOUTH OF THE PROJECT SITE WITH A NAVD 88 ELEVATION OF 93.78 FEET.

TOTAL SITE AREA:

44,463 SF± (1.02 ACRES±)

SHEET INDEX

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AKS ENGINEERING · PLANNING · SURVEYING
FORESTRY · LANDSCAPE ARCHITECTURE

RENAISSANCE AT WILLAMETTE

WEST LINN OREGON
TAX LOT 200 CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

COVER SHEET WITH SITE AND VICINITY MAP

DESIGNED BY:	RSW
DRAWN BY:	BLF
CHECKED BY:	MBH
SCALE:	AS NOTED
DATE: 01/16/14	

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 29, 2005
MONTGOMERY B. HURLEY
RENEWAL DATE: 6/30/15

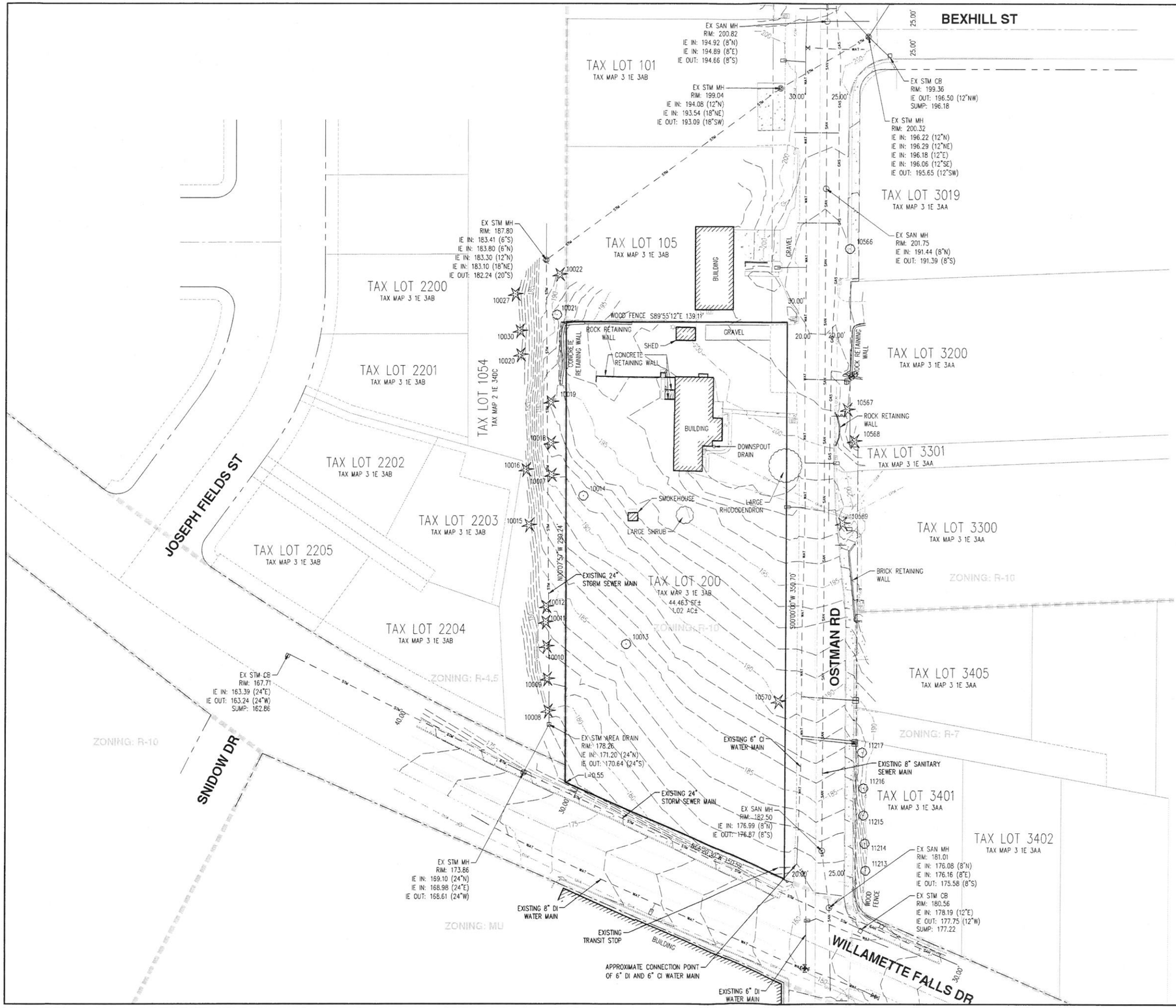
PRELIMINARY NOT FOR CONSTRUCTION

REVISIONS

JOB NUMBER
3745

SHEET
1

AKS DRAWING FILE: 3745 COVERDLING | LAYOUT: P1



NOTES:

1. UTILITIES SHOWN ARE BASED ON UNDERGROUND UTILITY LOCATE MARKINGS BY OTHERS, PROVIDED PER UTILITY LOCATE TICKET NUMBER 13235032. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND LOCATES REPRESENT THE ONLY UTILITIES IN THE AREA. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION.
2. FIELD WORK WAS CONDUCTED OCTOBER 30 – NOVEMBER 6, 2013.
3. VERTICAL DATUM: ELEVATIONS ARE BASED ON NGS BENCHMARK 89 B (PID: RD0258) ON THE WEST SIDE OF HWY 99E, 2.4 MILES SOUTH OF THE PROJECT SITE WITH A NAVD 88 ELEVATION OF 93.78 FEET.
4. THIS MAP DOES NOT CONSTITUTE A PROPERTY BOUNDARY SURVEY.
5. SURVEY IS ONLY VALID WITH SURVEYOR'S STAMP AND SIGNATURE.
6. BUILDING FOOTPRINTS ARE MEASURED TO SIDING UNLESS NOTED OTHERWISE. CONTACT SURVEYOR WITH QUESTIONS REGARDING BUILDING TIES.
7. CONTOUR INTERVAL IS 1 FOOT.
8. ONLY TREES HAVING A DIAMETER OF 6" AND GREATER, MEASURED AT BREAST HEIGHT, WERE SURVEYED.

TREE TABLE

TREE NO.	SPECIES	DBH(IN.)
10008	PINE	18
10009	PINE	6,15
10010	PINE	20
10011	DOUGLAS FIR	20
10012	DOUGLAS FIR	25
10013	CHERRY	8,7,7
10014	APPLE	26(ROTTEN)
10015	PINE	11,11
10016	PINE	12
10017	PINE	23
10018	PINE	15
10019	PINE	19
10020	PINE	9
10021	COTTONWOOD	65(STUMP)
10022	DOUGLAS FIR	31
10027	PINE	9
10030	PINE	6
10566	CHERRY	11,11,12
10567	DOUGLAS FIR	49
10568	DOUGLAS FIR	56
10569	DOUGLAS FIR	27
10570	DOUGLAS FIR	38(DEAD)
11213	MAPLE	26
11214	MAPLE	11
11215	MAPLE	14
11216	MAPLE	13
11217	BIRCH	18

SCALE 1" = 30 FEET

30 0 12 18 24 30

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FORESTRY · LANDSCAPE ARCHITECTURE

RENAISSANCE AT WILLAMETTE

WEST LINN OREGON
TAX LOT 200 CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

EXISTING CONDITIONS PLAN

DESIGNED BY:	RSW
DRAWN BY:	BLF
CHECKED BY:	MBH
SCALE:	AS NOTED
DATE: 01/16/14	

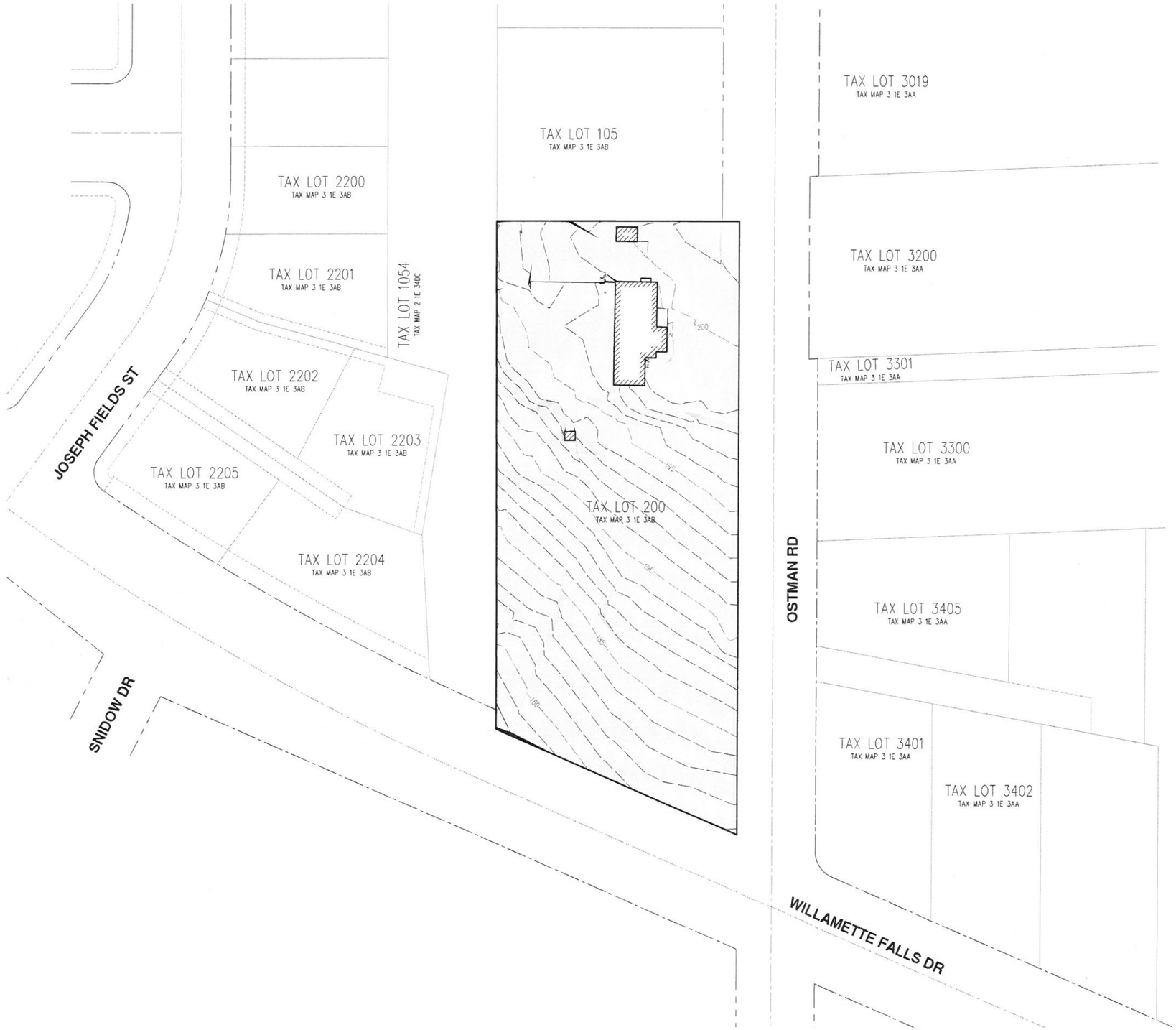
REGISTERED PROFESSIONAL LAND SURVEYOR
PRELIMINARY - NOT FOR CONSTRUCTION
OREGON JULY 09, 2003 MONTGOMERY B. HURLEY 85425
RENEWS: 6/30/15

REVISIONS

JOB NUMBER
3745

SHEET
2

AKS DRAWING FILE: 3745 EX.COND.DWG | LAYOUT: P2



SLOPES TABLE					
NUMBER	MIN SLOPE	MAX SLOPE	AREA	ACRES	COLOR
1	0.00%	15.00%	40,008.64	0.92	
2	15.00%	25.00%	2,524.21	0.06	
3	25.00%	35.00%	151.14	0.00	
4	35.00%	50.00%	38.36	0.00	
5	50.00%	29402.64%	122.70	0.00	
6	BUILDING FOOTPRINT		1,617.85	0.04	

SCALE 1" = 30 FEET

30 0 12 18 24 30

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RENAISSANCE AT WILLAMETTE

WEST LINN OREGON
TAX LOT 200 CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

PRELIMINARY SLOPE ANALYSIS

DESIGNED BY:	RSW
DRAWN BY:	BLF
CHECKED BY:	MBH
SCALE:	AS NOTED
DATE: 01/16/14	

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 13, 2004
TERRY B. HURLEY
RENEWAL DATE: 6/30/15

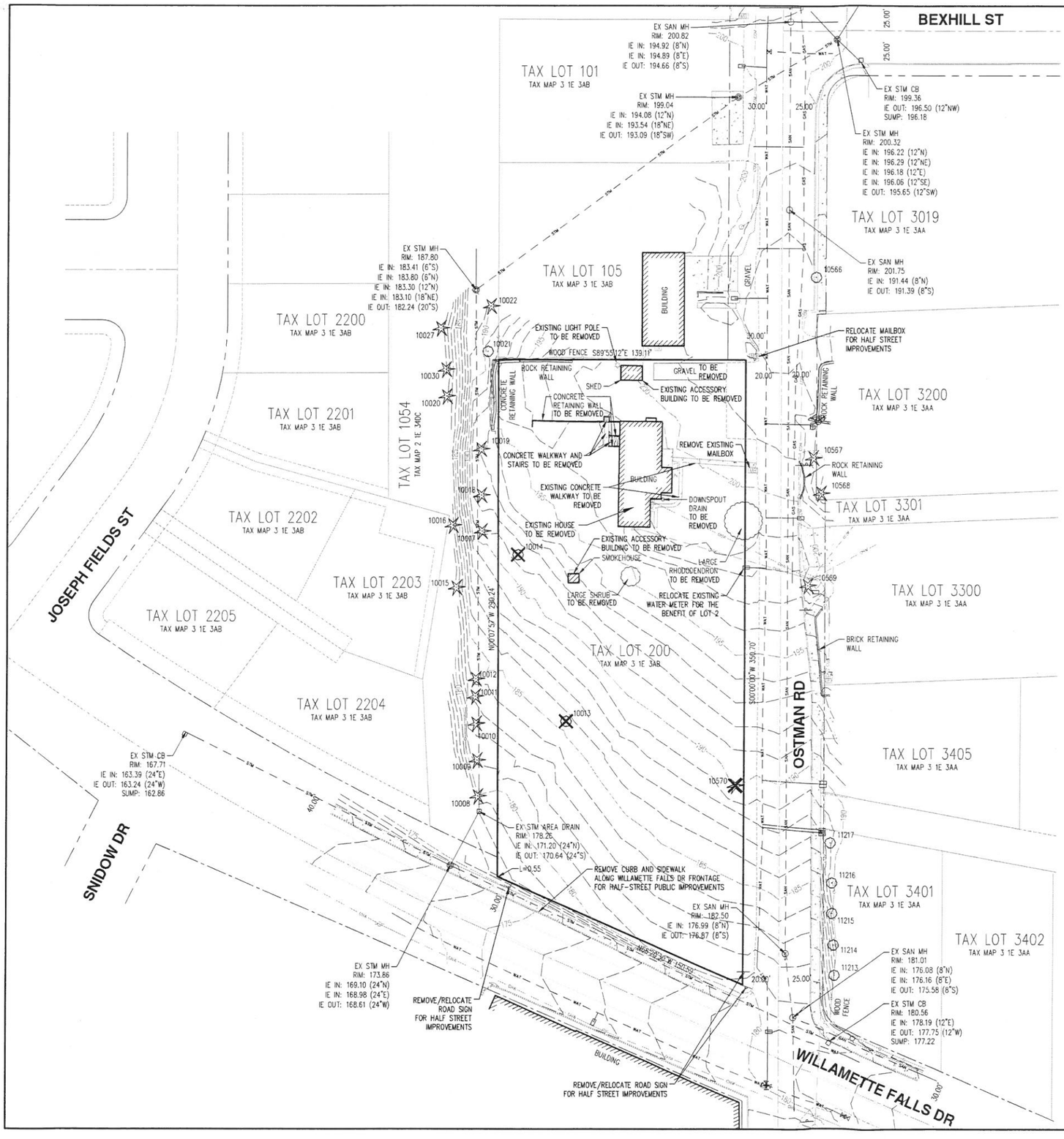
PRELIMINARY NOT FOR CONSTRUCTION

REVISIONS:

JOB NUMBER
3745

SHEET
3

AKS DRAWING FILE: 3745 SLOPE ANALYSIS.DWG | LAYOUT: P3



LEGEND

EXISTING GROUND CONTOUR (1 FT) —— 101 ——

EXISTING GROUND CONTOUR (5 FT) —— 100 ——

EXISTING TREE TO BE REMOVED

EXISTING TREE TO REMAIN

TREE TABLE

	TREE NO.	SPECIES	DBH(IN.)
	10008	PINE	18
	10009	PINE	6,15
	10010	PINE	20
	10011	DOUGLAS FIR	20
	10012	DOUGLAS FIR	25
*	10013	CHERRY	8,7,7
*	10014	APPLE	26(ROTTEN)
	10015	PINE	11,11
	10016	PINE	12
	10017	PINE	23
	10018	PINE	15
	10019	PINE	19
	10020	PINE	9
	10021	COTTONWOOD	65(STUMP)
	10022	DOUGLAS FIR	31
	10027	PINE	9
	10030	PINE	6
	10566	CHERRY	11,11,12
	10567	DOUGLAS FIR	49
	10568	DOUGLAS FIR	56
	10569	DOUGLAS FIR	27
*	10570	DOUGLAS FIR	38(DEAD)
	11213	MAPLE	26
	11214	MAPLE	11
	11215	MAPLE	14
	11216	MAPLE	13
	11217	BIRCH	18

* TREES TO BE REMOVED

SCALE 1" = 30 FEET

30 0 12 18 24 30

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RENAISSANCE AT WILLAMETTE

WEST LINN
TAX LOT 200

OREGON
CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

PRELIMINARY DEMOLITION, TREE REMOVAL, AND TREE PRESERVATION PLAN

DESIGNED BY:	RSW
DRAWN BY:	BLF
CHECKED BY:	MBH
SCALE:	AS NOTED
DATE: 01/16/14	

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 13, 2005
TERRY B. HURLEY
RENEWAL DATE: 6/30/15

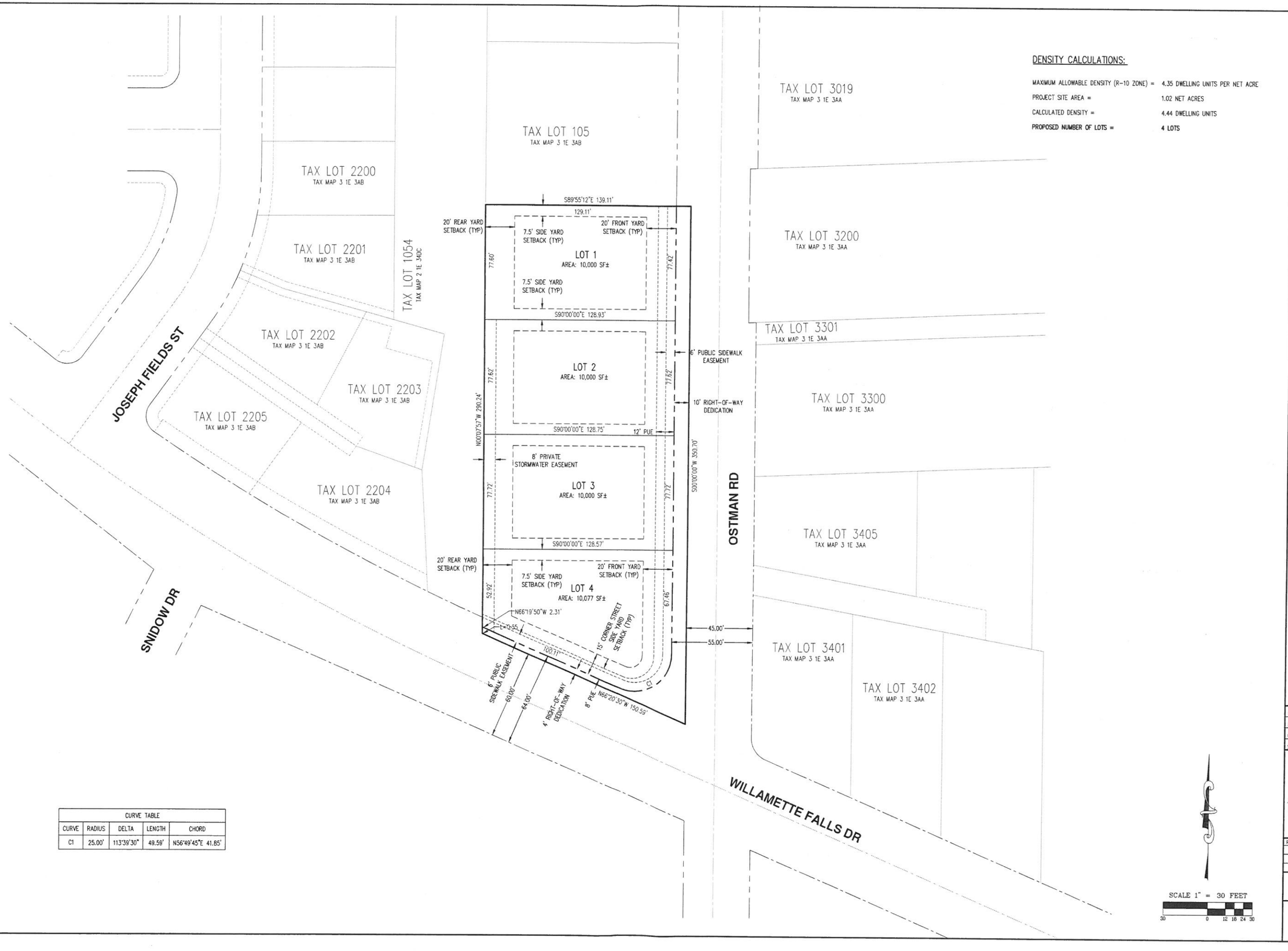
NOT FOR CONSTRUCTION

REVISIONS

JOB NUMBER
3745

SHEET
4

AKS DRAWING FILE: 3745 DEMO AND TREE.DWG | LAYOUT: P4



DENSITY CALCULATIONS:

MAXIMUM ALLOWABLE DENSITY (R-10 ZONE) =	4.35 DWELLING UNITS PER NET ACRE
PROJECT SITE AREA =	1.02 NET ACRES
CALCULATED DENSITY =	4.44 DWELLING UNITS
PROPOSED NUMBER OF LOTS =	**4 LOTS**

CURVE TABLE				
CURVE	RADIUS	DELTA	LENGTH	CHORD
C1	25.00'	113°39'30"	49.59'	N56°49'45"E 41.85'

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RENAISSANCE AT WILLAMETTE

WEST LINN, OREGON
TAX LOT 200
CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

PRELIMINARY SUBDIVISION PLAT WITH BUILDING SETBACKS

DESIGNED BY:	RSW
DRAWN BY:	BLF
CHECKED BY:	MBH
SCALE:	AS NOTED
DATE:	01/16/14

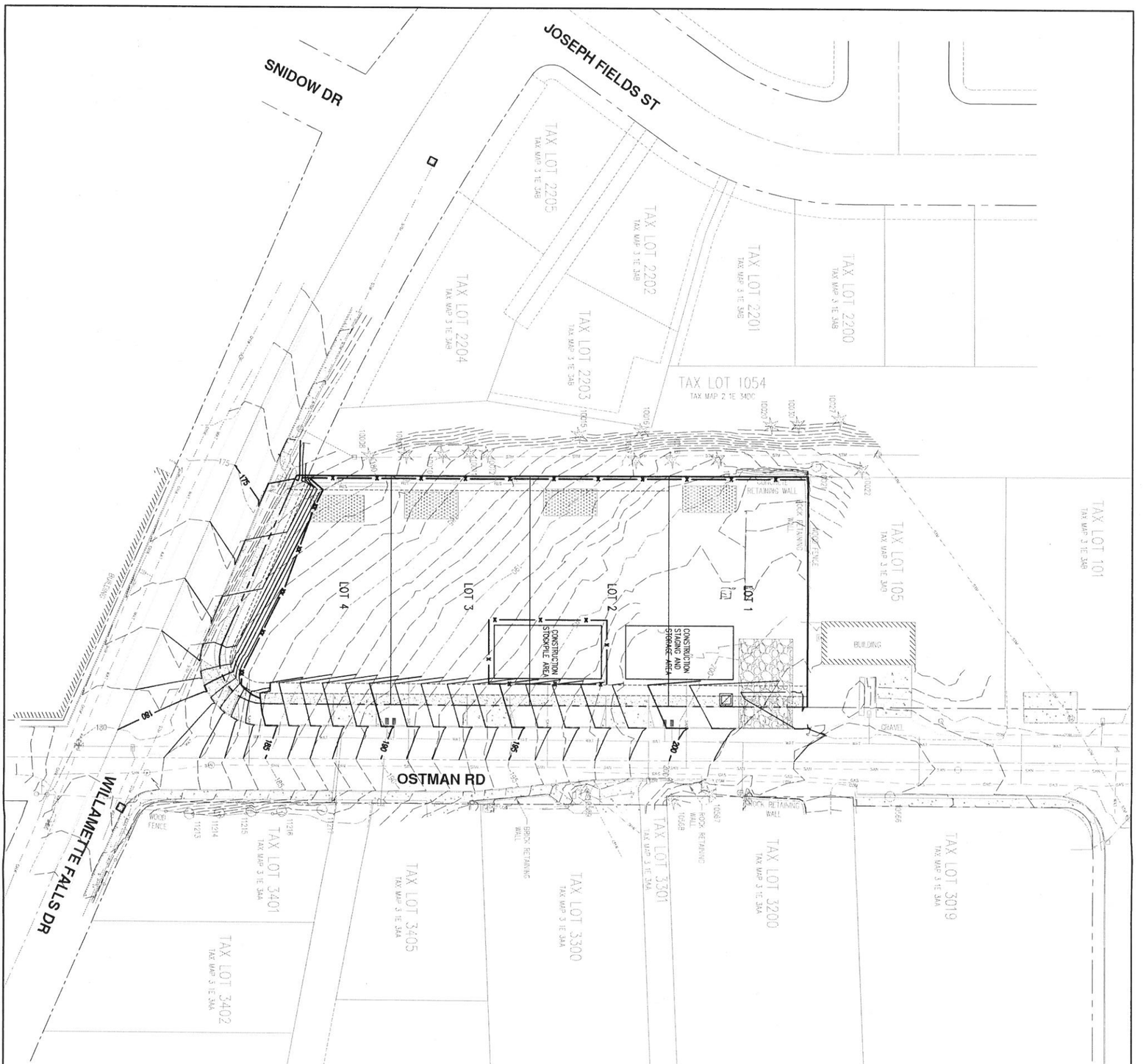
REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON JULY 13, 2005 TERRY B. HURLEY
RENEWAL DATE: 6/30/15

REVISIONS

JOB NUMBER
3745

SHEET
5

AKS DRAWING FILE: 3745 PLAT.DWG | LAYOUT: P5



LEGEND

- EXISTING GROUND CONTOUR (1 FT) — 101 —
- EXISTING GROUND CONTOUR (5 FT) — 100 —
- FINISH GRADE CONTOUR (1 FT) — 101 —
- FINISH GRADE CONTOUR (5 FT) — 100 —
- EXISTING TREES
- SEDIMENT FENCE (TO BE INSTALLED PRIOR TO GRADING) — x —
- SEDIMENT FENCE (TO BE INSTALLED AFTER GRADING) — x —
- GRAVEL CONSTRUCTION ENTRANCE
- CATCH BASIN INLET PROTECTION
- CONCRETE WASHOUT AREA

SCALE 1" = 30' FEET

0 15 30 60

PRELIMINARY GRADING AND EROSION AND SEDIMENT CONTROL PLAN

RENAISSANCE AT WILLAMETTE

WEST LINN
TAX LOT 200

OREGON
CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

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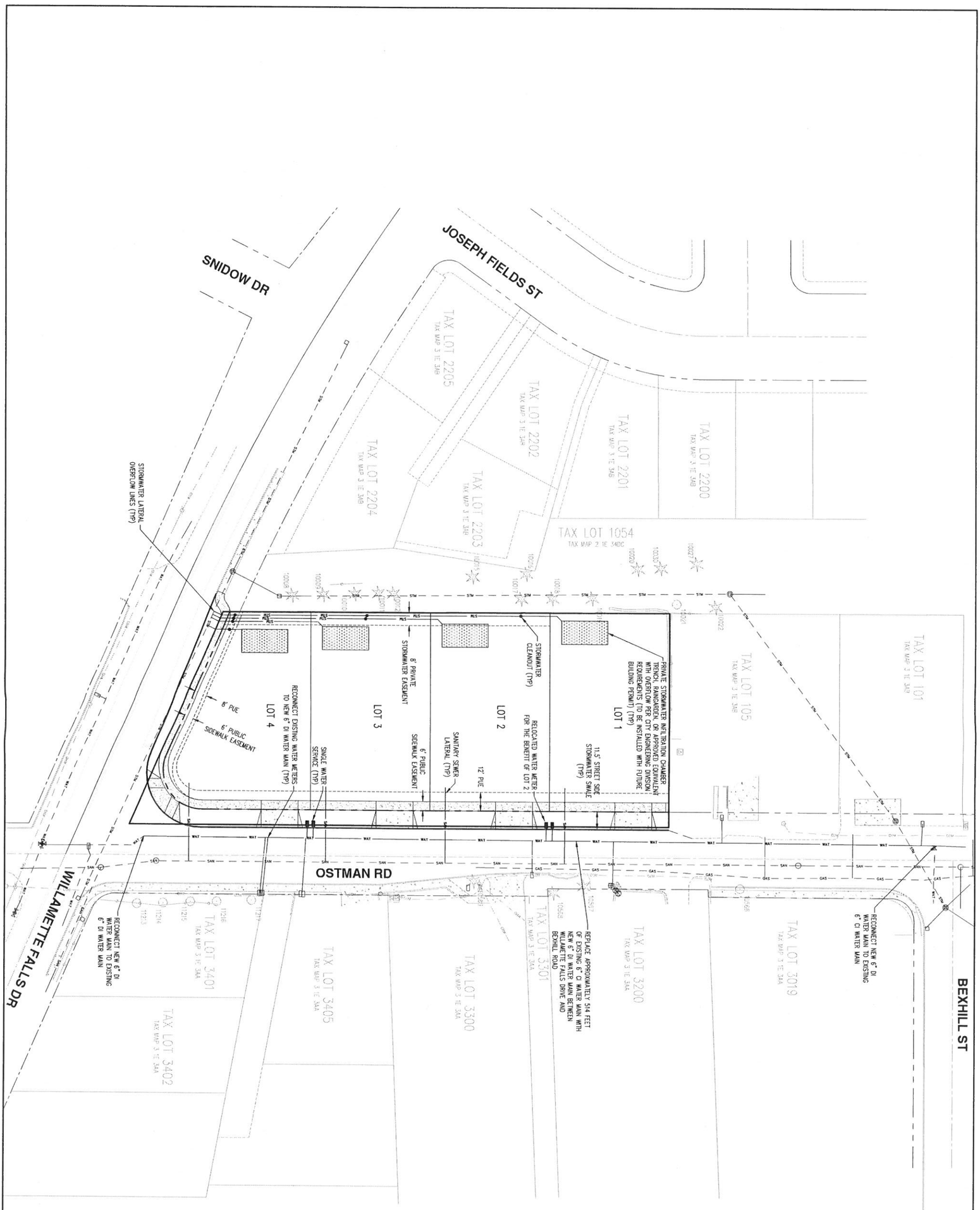
DESIGNED BY: RSW
DRAWN BY: BLE
CHECKED BY: MRH
SCALE: AS NOTED
DATE: 01/16/14

REGISTERED PROFESSIONAL ENGINEER
OREGON
JANUARY 9, 2001
ROBERT S. HURLEY
RENEWAL DATE: 6/30/15

PRELIMINARY NOT FOR CONSTRUCTION

REVISIONS

JOB NUMBER 3745
SHEET 6



SCALE: 1" = 30 FEET

SHEET 7	JOB NUMBER 3745	DESIGNED BY: RSW	**PRELIMINARY COMPOSITE UTILITY PLAN**
		DRAWN BY: BLF	
		CHECKED BY: MRH	
		SCALE: AS NOTED	
		DATE: 07/16/14	
		REVISIONS: PRELIMINARY NOT FOR CONSTRUCTION REGISTERED PROFESSIONAL ENGINEER OREGON JULY 29, 2005 CHRISTOPHER R. HURLEY RENEWS: 6/30/15	

RENAISSANCE AT WILLAMETTE
WEST LINN
TAX LOT 200
OREGON
CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

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BEXHILL ST

TAX LOT 101
TAX MAP 3 1E 3AB

TAX LOT 3019
TAX MAP 3 1E 3AA

TAX LOT 105
TAX MAP 3 1E 3AB

GRAVEL

TAX LOT 2200
TAX MAP 3 1E 3AB

TAX LOT 2201
TAX MAP 3 1E 3AB

TAX LOT 1054
TAX MAP 3 1E 3AD

TAX LOT 2202
TAX MAP 3 1E 3AB

TAX LOT 2203
TAX MAP 3 1E 3AB

TAX LOT 2205
TAX MAP 3 1E 3AB

TAX LOT 2204
TAX MAP 3 1E 3AB

JOSEPH FIELDS ST

SNIDOW DR

END PAVEMENT TAPER, MATCH EXISTING
STA 14+07.21' LT. 12.85'
(OSTMAN RD)

END HALF STREET IMPROVEMENTS
BEGIN PAVEMENT TAPER
STA 13+92.21' LT. 18.00'
(OSTMAN RD)

END SIDEWALK
STA 13+90.23' LT. 30.00'
(OSTMAN RD)

TAX LOT 3200
TAX MAP 3 1E 3AA

LOT 1

LOT 2

TAX LOT 3301
TAX MAP 3 1E 3AA

10' RIGHT-OF-WAY
DEDICATION

TAX LOT 3300
TAX MAP 3 1E 3AA

8' PRIVATE
STORMWATER EASEMENT

LOT 3

6' PUBLIC
SIDEWALK EASEMENT
18' PAVED WIDTH
0.5' CURB
11.5' STORMWATER SWALE
6' SIDEWALK
12' PUE

OSTMAN RD

TAX LOT 3405
TAX MAP 3 1E 3AA

24' DRIVEWAY APPROACH (TYP)

LOT 4

12' MIN. TRAVEL LANE (VARIES)
6' PUBLIC
SIDEWALK EASEMENT
4' RIGHT-OF-WAY
DEDICATION
6' MIN. BICYCLE LANE (VARIES)
21' MIN. PAVED WIDTH (VARIES)
0.5' CURB
5.5' MIN. PLANTER STRIP (VARIES)
6' SIDEWALK
8' PUE

45.00'
55.00'

TAX LOT 3401
TAX MAP 3 1E 3AA

TAX LOT 3402
TAX MAP 3 1E 3AA

OSTMAN RD

END HALF STREET IMPROVEMENTS, MATCH EXISTING
STA 11+95.24' RT. 20.87'
(WILLAMETTE FALLS DR)

END BICYCLE LANE STRIPING, MATCH EXISTING
STA 11+95.24' RT. 13.46' (WILLAMETTE FALLS DR)

END DOUBLE YELLOW CENTERLINE STRIPING, MATCH EXISTING
STA 11+95.24' (WILLAMETTE FALLS DR)

BEGIN BICYCLE LANE STRIPING
STA 10+83.71' RT. 18.00'
(WILLAMETTE FALLS DR)

BEGIN DOUBLE YELLOW CENTERLINE STRIPING
STA 10+25.92' (WILLAMETTE FALLS DR)

BEGIN HALF STREET IMPROVEMENTS
STA 10+00 (WILLAMETTE FALLS DR)
STA 10+00 (OSTMAN RD)

WILLAMETTE FALLS DR

WILLAMETTE FALLS DR

SCALE 1" = 30 FEET

VISION CLEARANCE TRIANGLE DETAIL

SCALE: 1" = 20'

VISION CLEARANCE TRIANGLE

30.00'

30.00'

OSTMAN RD

WILLAMETTE FALLS DR

11+00

10+00

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RENAISSANCE AT WILLAMETTE

WEST LINN OREGON
TAX LOT 200 CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

PRELIMINARY STREET PLAN

DESIGNED BY:	RSW
DRAWN BY:	BLF
CHECKED BY:	MBH
SCALE:	AS NOTED
DATE:	01/16/14

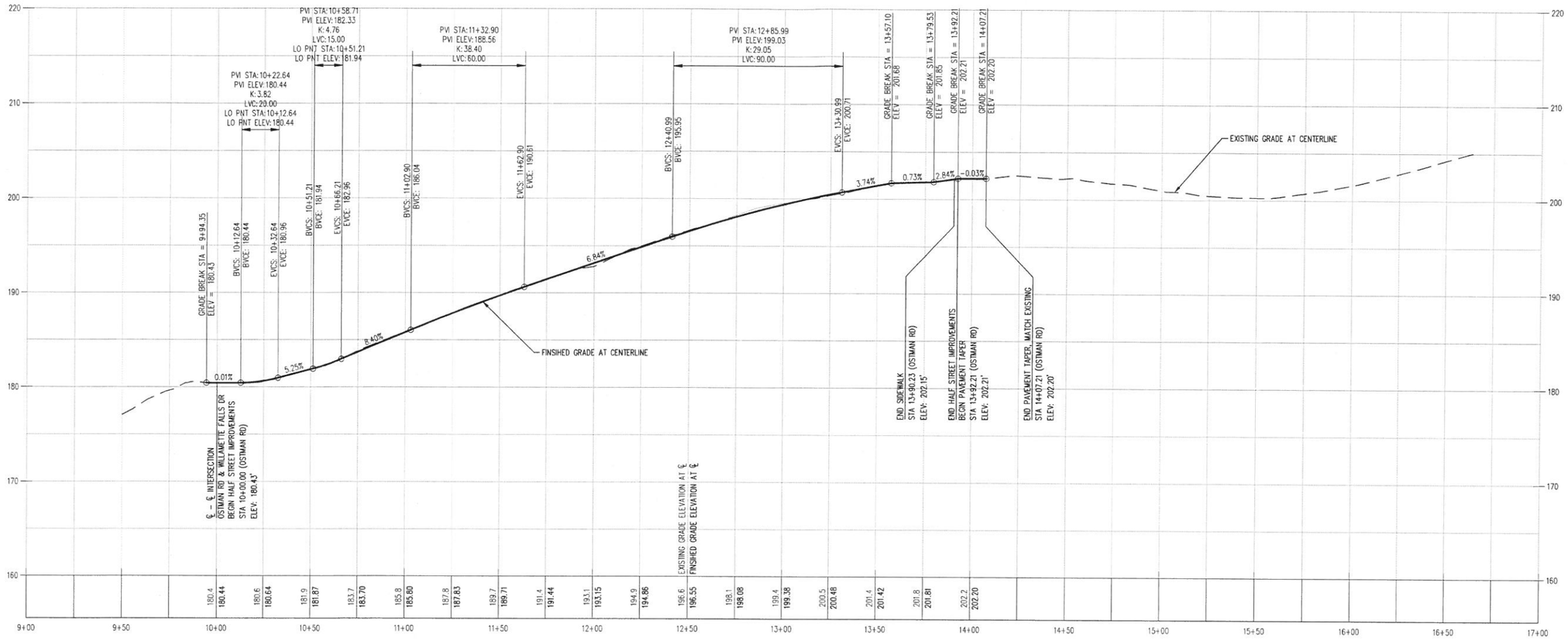
REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 13, 2004
PRELIMINARY NOT FOR CONSTRUCTION
MONTGOMERY B. HURLEY
RENEWAL DATE: 6/30/15

REVISIONS:

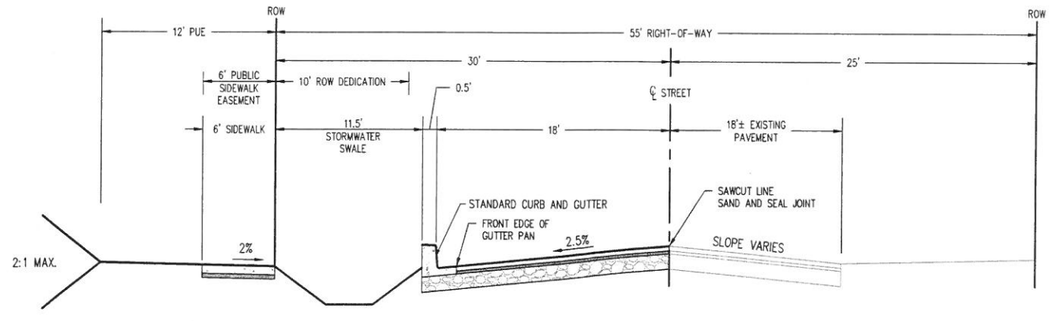
JOB NUMBER
3745

SHEET
8

AKS DRAWING FILE: 3745 STREETS.DWG | LAYOUT: PB



OSTMAN RD
Hor. Scale: 1"= 30'
Vert. Scale: 1"= 6'



OSTMAN ROAD (HALF STREET)
CROSS-SECTION
STA 10+00.00 – STA 14+07.21
NOT TO SCALE

* STA 10+00.00 – STA 10+83.71: INTERSECTION OF OSTMAN RD AND WILLAMETTE FALLS DR

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RENAISSANCE AT WILLAMETTE

WEST LINN — OREGON
TAX LOT 200 — CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

PRELIMINARY STREET PROFILES AND CROSS-SECTIONS

DESIGNED BY:	RSW
DRAWN BY:	BLF
CHECKED BY:	MBH
SCALE:	AS NOTED
DATE: 01/16/14	

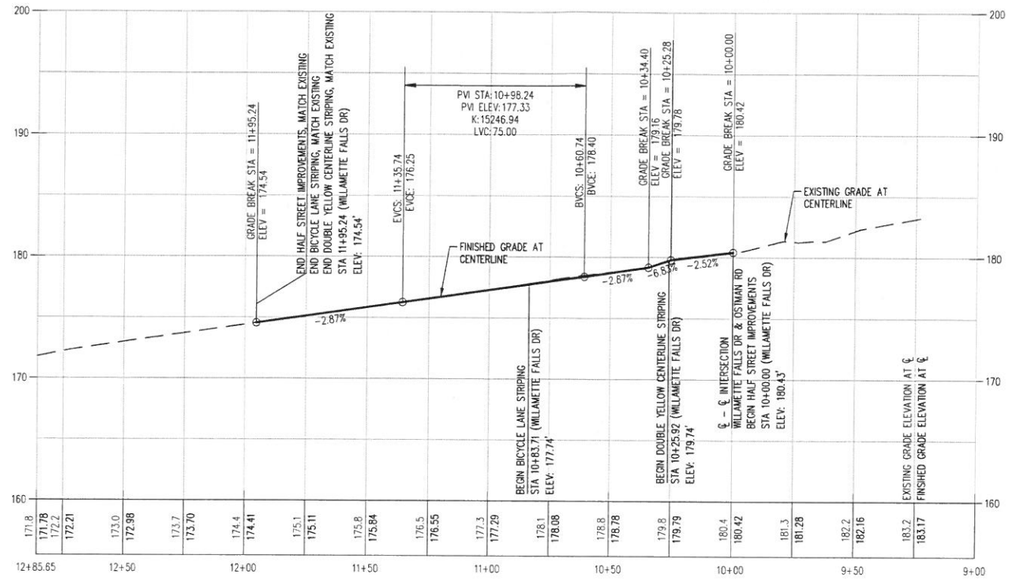
REGISTERED PROFESSIONAL ENGINEER — OREGON — JULY 13, 2004 — TERRY B. HURLEY
PRELIMINARY NOT FOR CONSTRUCTION
RENEWAL DATE: 6/30/15

REVISIONS

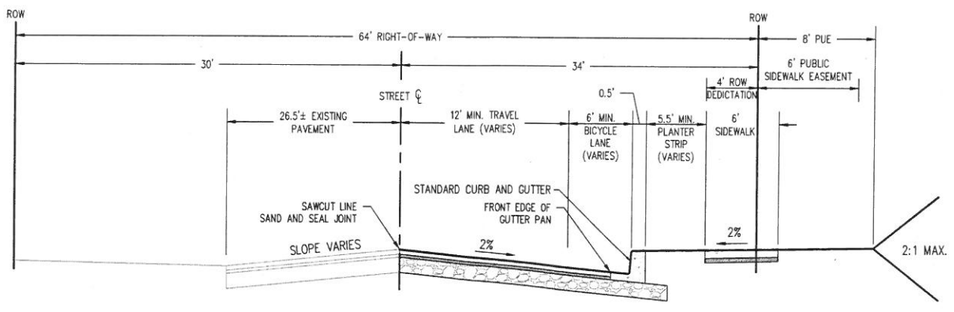
JOB NUMBER 3745

SHEET 9

AKS DRAWING FILE: 3745 STREETS.DWG | LAYOUT: P9



WILLAMETTE FALLS DR
Hor. Scale: 1"= 30'
Vert. Scale: 1"= 6'



WILLAMETTE FALLS DRIVE (HALF STREET)
CROSS-SECTION
STA 10+00.00 – STA 11+95.24*

NOT TO SCALE

* STA 10+00.00 – STA 10+87.63: INTERSECTION OF WILLAMETTE FALLS DR AND OSTMAN RD

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RENAISSANCE AT WILLAMETTE

WEST LINN OREGON
TAX LOT 200 CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

PRELIMINARY STREET PROFILES AND CROSS-SECTIONS

DESIGNED BY:	RSW
DRAWN BY:	BLF
CHECKED BY:	MBH
SCALE:	AS NOTED
DATE: 01/16/14	

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 13, 2005
TERRY B. HURLEY
PRELIMINARY NOT FOR CONSTRUCTION
RENEWAL DATE: 6/30/15

REVISIONS:

JOB NUMBER
3745

SHEET
10

AKS DRAWING FILE: 3745 STREETS.DWG | LAYOUT: P10

PLANTING NOTES:

TREE SIZES AND SPECIES SHALL BE DETERMINED BY THE CITY PRIOR TO PLANTING AND CHARGED TO THE DEVELOPER PER CITY COMMUNITY DEVELOPMENT CODE.

1. IRRIGATION: DEVELOPER SHALL PROVIDE AND INSTALL TEMPORARY IRRIGATION AND MAINTAIN PLANTINGS PER CITY TECHNICAL MANUAL.
2. THE ELECTRICAL CONTRACTOR SHALL PROVIDE A DESIGN BUILD IRRIGATION PLAN FOR THE CITIES APPROVAL.
3. MAINTENANCE GUIDELINES AND PLANTING SHALL BE PERFORMED PER THE CITIES TREE TECHNICAL MANUAL.

SNIDOW DR

JOSEPH FIELDS ST

PROPOSED STREET TREE (TYP)
TO BE DECIDED LATER BY THE CITY

60.00'

64.00'

52'

52'

30'

LOT 4

LOT 3

LOT 2

LOT 1

TAX LOT 2205
TAX MAP 3 1E 34B

TAX LOT 2202
TAX MAP 3 1E 34B

TAX LOT 2201
TAX MAP 3 1E 34B

TAX LOT 2200
TAX MAP 3 1E 34B

TAX LOT 2204
TAX MAP 3 1E 34B

TAX LOT 2203
TAX MAP 3 1E 34B

TAX LOT 1054
TAX MAP 2 1E 34DC

CONCRETE RETAINING WALL

ROCK RETAINING WALL

TAX LOT 105
TAX MAP 3 1E 34B

TAX LOT 101
TAX MAP 3 1E 34B

GRAVEL

55.00'

45.00'

OSTMAN RD

WILLAMETTE FALLS DR

BEXHILL ST

BRICK RETAINING WALL

TAX LOT 3401
TAX MAP 3 1E 34A

TAX LOT 3405
TAX MAP 3 1E 34A

TAX LOT 3402
TAX MAP 3 1E 34A

TAX LOT 3300
TAX MAP 3 1E 34A

TAX LOT 3301
TAX MAP 3 1E 34A

TAX LOT 3220
TAX MAP 3 1E 34A

TAX LOT 3019
TAX MAP 3 1E 34A

SCALE 1" = 30' FEET

0 15 30 60

PRELIMINARY STREET TREE PLAN

RENAISSANCE AT WILLAMETTE

WEST LINN
TAX LOT 200

OREGON
CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

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ENGINEERING · PLANNING · SURVEYING
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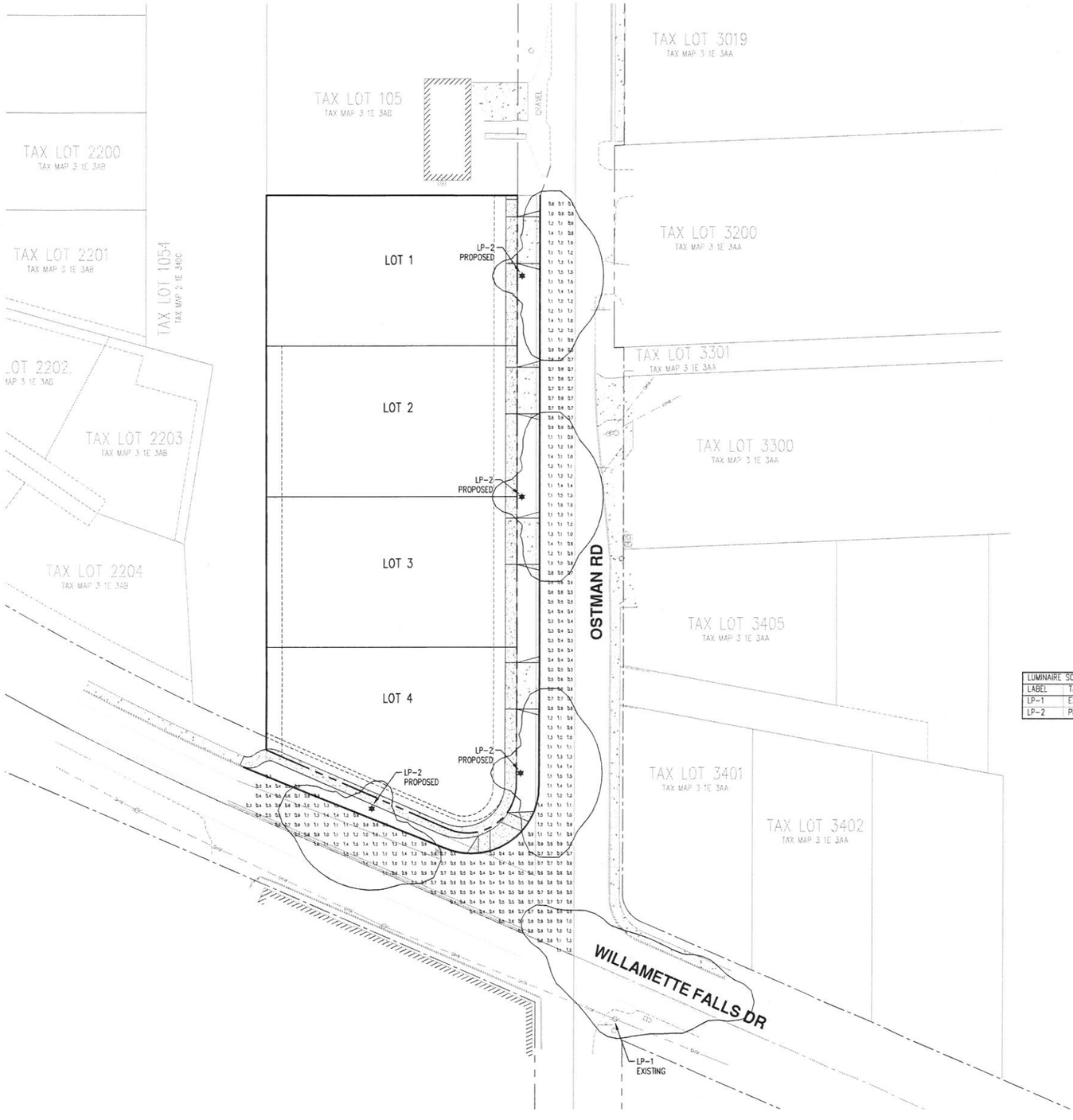
DESIGNED BY: JHI
DRAWN BY: SKW
CHECKED BY: KAH
SCALE: AS NOTED
DATE: 01/16/14

REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT
OREGON
PRELIMINARY NOT FOR CONSTRUCTION

REVISIONS

JOB NUMBER 3745

SHEET 11



LUMINAIRE SCHEDULE						
LABEL	TAG	DESCRIPTION	QTY	TOTAL LAMP LUMENS	LUM. WATTS	LLF
LP-1	EXISTING	HPS, COBRAHEAD DROP LENS, MOUNTED ON UTILITY POLE (25' M.H.)	1	22,000	200	0.720
LP-2	PROPOSED	BETA (CREE) LED, 40 LED, 30' DIRECT BURY/25' M.H BRONZE FIBERGLASS POLE WITH 6' MAST ARM	4	7,549	66	0.940

CALCULATION SUMMARY								
LABEL	CLASSIFICATION	CALCTYPE	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MN
OSTERMAN ROAD/WILLAMETTE FALLS DRIVE	COLLECTOR/MINOR ARTERIAL	Illuminance	Fc	0.87	1.5	0.3	2.90	5.00

LIGHT LEVEL SUMMARY				
ROADWAY	CLASSIFICATION (PEDESTRIAN CONFLICT)		LIGHT LEVEL	UNIFORMITY
OSTERMAN ROAD AND WILLAMETTE FALLS DRIVE	COLLECTOR/MINOR ARTERIAL (RESIDENTIAL)	TARGET	≥ 0.6 FC AVE	≤ 4:1 AVE/MIN
		ACHIEVED	0.87 FC	2.90:1

NOTE:
TARGET = CODE REQUIRED VALUES AS STATED IN PRE-APPLICATION CONFERENCE MEETING NOTES (SEPT 5, 2013)
ACHIEVED = DESIGN VALUE

SCALE 1" = 30 FEET

30 0 12 18 24 30

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RENAISSANCE AT WILLAMETTE

WEST LINN OREGON
TAX LOT 200 CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

PRELIMINARY STREET LIGHTING PLAN

DESIGNED BY: RSW
DRAWN BY: BLF
CHECKED BY: MBH
SCALE: AS NOTED
DATE: 01/16/14

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 13, 2004
MONTGOMERY B. HURLEY
PRELIMINARY NOT FOR CONSTRUCTION
RENEWAL DATE: 6/30/15

REVISIONS

JOB NUMBER
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SHEET
12

AKS DRAWING FILE: 3745 LIGHTING.DWG | LAYOUT: 12

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RENAISSANCE AT WILLAMETTE

WEST LINN OREGON
TAX LOT 200 CLACKAMAS COUNTY ASSESSOR'S MAP 3 1E 03AB

PRELIMINARY AERIAL PHOTOGRAPH PLAN

DESIGNED BY:	RSW
DRAWN BY:	BLF
CHECKED BY:	MBH
SCALE:	AS NOTED

DATE: 01/16/14

REGISTERED PROFESSIONAL ENGINEER OREGON MONTGOMERY B. HURLEY
PRELIMINARY NOT FOR CONSTRUCTION
RENEWAL DATE: 6/30/15

REVISIONS

JOB NUMBER
3745

SHEET
13

AKS DRAWING FILE: 3745 AERIAL PHOTO.DWG | LAYOUT: P13