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: Peter Spir	PROJECT NO(S).: SUB-13-04	
NON-REFUNDABLE FEE(S): $500	REFUNDABLE DEPOSIT(S): $6,400	TOTAL: $6900-

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
- ☒ Subdivision (SUB)
- ☐ Temporary Uses *
- ☐ Time Extension *
- ☐ Variance (VAR)
- ☐ 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:
22882 WEATHERHILL, WEST LINN

Assessor's Map No.: 21E35B
Tax Lot(s): 00301, 402, 200
Total Land Area: 2.58 Acres

Brief Description of Proposal: APPLICANT PROPOSES AN 11 LOT SUBDIVISION

Applicant Name: (please print) JT SMITH COMPANIES — Phone: 503-209-7555
Address: 5285 MEADOWS ROAD, SUITE 171 — Email: jwyland@jtsmithco.com
City State Zip: LAKE OSWEGO, OR 97035

Owner Name (required): (please print) JOESPH MONAHAN — Phone:
Address: 22882 WEATHERHILL — Email:
City State Zip: WEST LINN, OR 97068

Consultant Name: (please print) ANDREW TULL, 3J CONSULTING, INC. — Phone: 503-545-1907
Address: 10445 SW CANYON ROAD, SUITE 245 — Email: andrew.tull@3j-consulting.com
City State Zip: BEAVERTON, OR 97005

RECEIVED
AUG 2 2013
PLANNING & BUILDING
CITY OF WEST LINN

1. All application fees are non-refundable (excluding deposit). **Any overruns to deposit will result in additional billing.**
2. The owner/applicant or their representative should be present at all public hearings.
3. A denial or approval may be reversed on appeal. No permit will be in effect until the appeal period has expired.
4. **Three (3) complete hard-copy sets (single sided) of application materials must be submitted with this application. One (1) complete set of digital application materials must also be submitted on CD in PDF format. If large sets of plans are required in application please submit only two sets.**

* No CD required / ** Only one hard-copy set needed

The undersigned property owner(s) hereby authorizes the filing of this application, and authorizes on site review by authorized staff. I hereby agree to comply with all code requirements applicable to my application. Acceptance of this application does not infer a complete submittal. All amendments to the Community Development Code and to other regulations adopted after the application is approved shall be enforced where applicable. Approved applications and subsequent development is not vested under the provisions in place at the time of the initial application.

Applicant's signature — Date — Owner's signature *(required)* — Date 7/29/13

Sub_Application_Filled

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Address: 5285 MEADOWS ROAD, SUITE 171 — Email: jwyland@jtsmithco.com
City State Zip: LAKE OSWEGO, OR 97035

Owner Name (required): (please print) HAROLD ELROD — Phone:
Address: NO SITE ADDRESS (TAXLOT 200) — Email:
City State Zip:

Consultant Name: (please print) ANDREW TULL, 3J CONSULTING, INC. — Phone: 503-545-1907
Address: 10445 SW CANYON ROAD, SUITE 245 — Email: andrew.tull@3j-consulting.com
City State Zip: BEAVERTON, OR 97005

RECEIVED
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CITY OF WEST LINN
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Applicant's signature _____ Date _____ Owner's signature ***(required)*** _____ Date _____

Sub_Application_Filled

RECEIVED
AUG 2 2013
CITY OF WEST LINN
BUILDING

Civil Engineering
Water Resources
Land Use Planning

TRANSMITTAL

To:	City of West Linn 22500 Salamo Road West Linn, OR	Date:	August 2 2013
		Project:	Weatherhill Subdivision
		3J Project #:	13118
From	Andrew Tull	Case/File#:	

Transmitting:
☒ Attached
☐ Separate Cover
☐

Via:
☐ Mail
☒ Messenger - Same Day
☐ Fed Ex

Purpose:
☐ As Requested
☒ Land Use Application
☐

Copies	Description
3	Land Use Application Binders
3	11x17 Plan Sets
3	Full Size Plan Sets
1	CD with Digital Application Materials
1	Check for Subdivision and Variance Applications

COMMENTS:

Attached hereto is the Weatherhill Subdivision Application.

Best Regards,

Signed:

Cc: Mr. John Wyland, JT Smith Companies
Mr. Mike Robinson, Perkins Coie

Contents

Appendixes

GENERAL INFORMATION

Property Owner and Applicant:	Harold Elrod & Joseph Monahan LF 7, LLC Attn: John Wyland 5285 Meadows Road, Suite #171 Lake Oswego, OR 97035
Applicant's Representative	**3J Consulting, Inc** 10445 SW Canyon Road Beaverton, OR 97005 Contact: Andrew Tull Phone: 503-545-1907 Email: andrew.tull@3j-consulting.com
Contributing Consultant Contact Details:	**Land Use Planning and Civil Engineering** 3J Consulting, Inc. 10445 SW Canyon Road Suite 245 Beaverton, OR 97005 Contact: Andrew Tull or Brian Feeney, PE Phone: 503-946-9365 Email: andrew.tull@3j-consulting.com or brian.feeney@3j-consulting.com

SITE INFORMATION

Tax Lot Numbers:	2S1E35B00301, 2S1E35B00200 and 2S1E35B00402
Address:	22882 Weatherhill Road
Size:	2.59 Acres
Zoning Designation:	R-7 (City of West Linn)
Neighborhood:	Savanna Oaks
Comprehensive Plan:	Low Density Residential
Existing Use:	There is one single-family home on the site (residential)
Street Functional Classifications:	The site currently takes access from Weatherhill Road, a local street. As proposed, the lots would take access from a new local street that then connects to Weatherhill Road at the location of one of the existing driveways.
Surrounding Zoning:	North and East- FU-10 South and West – R-7

INTRODUCTION

APPLICANT'S REQUEST

The Applicant seeks approval of an application for Subdivision Preliminary Plat for the development of 11 residential lots. This narrative describes the proposed subdivision of the site and documents compliance with the relevant sections of the City of West Linn's Community Development Code ("CDC").

PROPOSED SITE IMPROVEMENTS

The project site consists of a total of 2.59 acres. The property is located between Weatherhill Road to the north and the private terminus of Fircrest Drive to the south, just east of Bland Circle. There is one single-family detached home with a pool in the middle of the property that will be demolished as part of this project.

The intent of this subdivision is to provide eleven buildable lots, each a minimum of 7,000 square feet in size, for development with single-family homes, a use permitted outright in the R-7 zone.

TRAFFIC AND PARKING

The preliminary plat shows that access to the eleven parcels will come from driveways on a newly constructed public street section that will then connect to Weatherhill Road. Additionally, each lot will have adequate off-street parking available.

APPLICABLE CRITERIA

The following sections of the CDC have been extracted as they have been deemed to be applicable to the proposal. Following each applicable criteria or design standard, the Applicant has provided a series of draft findings. The intent of providing code and detailed responses and findings is to document that the proposed development has satisfied the approval criteria for Subdivision Preliminary Plat.

DIVISION 8. LAND DIVISION

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 and any adopted updated plans.

An applicant may submit a written request for a waiver of abutting street improvements if the Transportation System Plan 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 propose a fee amount that will be reviewed by the City Manager or the Manager's designee. The City Manager or the Manager's designee will revise the proposed fee as necessary and establish the amount to be paid on a case-by-case basis. The applicant shall pay an in-lieu fee for improvements to the nearest street identified by the City Manager or Manager's designee as necessary and appropriate. The amount of the in-lieu fee shall be roughly proportional to the impact of the development on the street system as determined in subsection (A)(22) of this section.

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).

Applicant's Finding:

This site is located on Weatherhill Road, a local street. Weatherhill Road adjacent to this site connects Bland Circle to the west with Salamo Road to the east. The connectivity of this local street will not be changed. The current right-of-way width of Weatherhill Road adjacent to the subject site is 30 feet, inadequate based on the requirements of Section 2, below. The Applicant proposes 13-feet of additional right-of-way along the property's frontage on Weatherhill Road, for a total right-of-way width of 43 feet. Sidewalks and planter strips are also proposed.

This section requires that the developer be responsible for internal streets. One internal street is proposed, providing access to all 11 lots. The Applicant proposes full responsibility for construction of this internal street, with a total right-of-way width of 48 feet. The paved surface will be 24 feet in width and 6-foot sidewalks and 6-foot planter strips will be provided on each side of the paved surface.

The requirements of this section have been satisfied.

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

Local street	**40 – 60**

Additional rights-of-way for slopes may be required. Sidewalks shall not be located outside of the right-of-way unless to accommodate significant natural features or trees.

Applicant's Finding: As discussed above, the Applicant proposes the dedication of 13 feet of right-of-way along Weatherhill Road to increase the right-of-way width from 30 feet to 43 feet. From centerline, the right-of-way will increase from 15 feet to 28 feet. This will accommodate a total right-of-way of 56 feet when the property to the north develops in the future. The City's Engineering Department calls out a 56-foot right-of-way in the pre-application notes dated April 4, 2013.

The Applicant further proposes a new local street with a 48 foot right-of-way and 24 foot pavement width. No parking is proposed on this new public street.

The requirements of this section have been satisfied.

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.

Applicant's Finding: As discussed above, the width of the paved section of the new local street will be 24 feet, per the TSP standard for a local street with no on-street parking.

The requirements of this section have been satisfied.

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.**

Applicant's Finding: The City Engineer has reviewed the proposal and made recommendations to the applicant, which are incorporated into the proposed configuration.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The proposed street will serve the 11 proposed lots, no more than a normal Local Street traffic load. The dedication of right-of-way and street improvements will result in adequate facilities on Weatherhill Road. No arterials are adjacent to this proposal.

The requirements of this section have been satisfied.

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

Applicant's Finding: The applicant does not propose reserve strips or street plugs with this application.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The new proposed street does not continue on the north side of Weatherhill Road. The "T" intersection created will be more than 100 feet from the next intersection point along Weatherhill.

The requirements of this section have been satisfied.

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.)

Applicant's Finding: All adjoining land has access to Weatherhill Road, a local street. Extension of streets through this site would not enhance future subdivision of adjoining land. The purpose of a local street, such as Weatherhill Road, is to provide direct access to parcels, including residential lots. These local streets then access collector streets at strategic locations so as to improve safety and the flow of the transportation system.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The new public local street will intersect Weatherhill Road approximately at the location of the existing driveway and as near to a right angle as practical. The curb radii at the intersection will exceed 25 feet.

The requirements of this section have been satisfied.

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.

Applicant's Finding: Additional right-of-way on Weatherhill Road and the new public local street, as discussed above, will be dedicated at time of subdivision.

The requirements of this section have been satisfied.

11. Cul-de-sacs. Cul-de-sacs are not allowed except as required by topography, slope, site limitations, and lot shapes. Cul-de-sacs shall have maximum lengths of 400 feet and serve no more than 12 dwelling units, unless by variance per Chapter 75 CDC. All cul-de-sacs 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).***

Applicant's Finding: The Applicant proposes to construct a single hammerhead styled street to access the proposed lots. The hammerhead is necessary in order to account for the steep grades present on the site and to allow for the retention of significant groves of trees on the

property.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The Applicant proposes the name Prince George Court for the new street within the development.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The grade of the new local public street will not exceed 15 percent, per this standard. No street will have a centerline radius of less than 50 feet.

The requirements of this section have been satisfied.

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.

Applicant's The subject property does not abut nor contain an existing or proposed Major Arterial

Finding: Street, nor is an intersection of a Local Residential Street with an Arterial Street proposed.

The requirements of this section have been satisfied.

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. ***

Applicant's Finding: No alleys are proposed with this subdivision.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The applicant proposes to install a 6-foot sidewalk plus planter strip along the Weatherhill Road frontage of this property, and along the new public street within the development, per this standard.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The applicant proposes to install a 6-foot planter strip between all proposed sidewalks and paved street sections on Weatherhill Road and the new local public street.

The requirements of this section have been satisfied.

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

Applicant's Finding: No reservations or restrictions are proposed with the street dedication.

The requirements of this section have been satisfied.

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.

Applicant's Finding: All lots in the subdivision will have access to the new public street proposed.

The requirements of this section have been satisfied.

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.

Applicant's Finding: Gated streets are not proposed.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The applicant does not propose to construct entryway treatments to the subdivision at this time.

The requirements of this section have been satisfied.

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.

Applicant's Finding: Right-of-way dedication and street improvements are proposed with this application proportionate to the construction of eleven new lots. Off-site improvements are not necessary or proportionate to mitigate impacts from this 11-lot subdivision.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The proposed public street intersects Weatherhill Road where an existing driveway is located. This access provides the best option for traffic safety, convenience, access, circulation and control. All 11 proposed lots will take access from the new public street, which will then connect to Weatherhill Road.
The requirements of this section have been satisfied.

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.

Applicant's Finding: Weatherhill Road currently extends from Salamo Road on the east to Bland Circle on the West. The new public street proposed with this subdivision application will intersection Weatherhill Road near the middle of the distance between Salamo and Bland. However, due to topographical constraints (steep slope) and legal constraints (Fircrest Drive to the south is a private tract without public access), the new public street will terminate within the subdivision. Pedestrian/bicycle paths are proposed to extend to the east and west of the terminus of the new public street.

The requirements of this section have been satisfied.

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.

Chapter 12- Single-Family Residential Detached and Attached, R-7 standards are as follows:

Lot Size (Detached Dwelling Units)	**7,000 square feet**
Lot Size (Attached Dwelling Units)	**5,500 square feet**
Front Lot Line Length/Minimum Lot Width at Front Lot Line	**35 feet**
Average Minimum Lot Width	**50 feet**
Lot Depth	**Less than 2.5x Width and greater than Average Depth of 90 feet**

Applicant's Finding: All proposed lots are a minimum of 7,000 square feet in size to accommodate single-family detached dwelling units. All 11 proposed lots exceed the minimum requirements for front lot line length, lot width and lot depth

The requirements of this section have been satisfied.

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

Applicant's Finding: The proposed access to the subdivision conforms to the provisions of CDC Chapter 48 because all lots will take access from a Local Street. No more than one driveway per lot is proposed.

The requirements of this section have been satisfied.

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.

Applicant's No through lots are proposed with this application.

Finding:

The requirements of this section have been satisfied.

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.

Applicant's Finding: Though the shape of the subject site is somewhat irregular, all side lot lines run at right angles to the streets upon which they face as far as practicable.

The requirements of this section have been satisfied.

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. ***

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.

Applicant's Finding: Lots 4, 5, 6 7 and 8 are proposed as flag lots. The street frontage of the accessway serving the 4 lots is 32 feet wide (8 feet per lot). All setback, lot size, lot depth and access requirements are met.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The lots of the proposed subdivision, ranging in size from 7,092 square feet to 11,296 square feet, are not large enough for future division in the R-7 zone.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The applicant is proposing a 10 foot pedestrian access easement with 6-foot all-weather surface path from the new public street within the subdivision to both the east and west property lines.

The requirements of this section have been satisfied.

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.

Applicant's Finding: Transit facilities have not been identified by Tri-Met or the City Engineer adjacent to this property.

The requirements of this section have been satisfied.

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.

Applicant's Finding: All grading on site will be done in conformance with these standards.

The requirements of this section have been satisfied.

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.

Applicant's Finding:

The subject property is located in the Horton and Rosemont water pressure zone. The City Engineering Department's comments in the pre-application notes dated April 4, 2013 indicate that there is a surplus in supply capacity during normal conditions and that there is no storage volume deficit during normal conditions in the Horton pressure zone. The applicant will connect all lots to public water per the submitted public improvement plans. This plan is consistent with the adopted Comprehensive Water System Plan.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The applicant will connect all lots to public sanitary sewer per the submitted public improvement plans. The proposed sanitary sewer system is consistent with the Sanitary Sewer Master Plan, is in the correct basin and allows for full gravity service.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The proposed stormwater treatment and detention is designed to meet city standards, as detailed in the submitted stormwater report.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The applicant will establish utility easements as determined by the City Engineer and shown on the preliminary plat.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The proposed subdivision does not impact any wetlands or natural drainageways.

The requirements of this section have been satisfied.

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.

Applicant's Finding: No greenways have been identified for dedication on this property. This property is not adjacent to the Willamette or Tualatin River and, therefore, a river greenway is not feasible on this site.

The requirements of this section have been satisfied.

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

Applicant's Finding: Street trees will be installed as part of the public improvements with the development of this subdivision.

The requirements of this section have been satisfied.

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.

Applicant's Finding: Any street light installation with the subdivision will utilize high or low pressure sodium light bulbs.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The applicant is proposing right-of-way dedication and improvements that are roughly proportional to the development of an 11-lot subdivision. Additional dedication and/or public improvements would exceed rough proportionality of this development.

The requirements of this section have been satisfied.

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.

Applicant's Finding: All utilities will be installed in compliance with this section.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The R-7 zone permits a maximum density of 6.2 dwelling units per net acre. Net acre is defined as "The total gross acres less the public right-of-way and other acreage deductions, as applicable". The net acreage of this site after removal of dedicated right-of way is 2.34 acres. At 6.2 dwelling units per net acre, the maximum number of dwelling units on this site is 14. The proposed 11 dwelling units would be 78 percent of the maximum density.

The requirements of this section have been satisfied.

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.

Applicant's Finding: This property is zoned R-7 and, therefore, the use of the parcel as an entirely residential development is permitted.

The requirements of this section have been satisfied.

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.

Applicant's Finding: No heritage trees have been identified on this site. Tree preservation is discussed further in this report.

The requirements of this section have been satisfied.

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)

Applicant's Finding: This property is within the City limits.

The requirements of this section have been satisfied.

CHAPTER 33. STORMWATER QUALITY AND 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.

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

Applicant's Finding: The proposed stormwater design meets non-point source pollution control standards, as shown in the stormwater report.

The requirements of this section have been satisfied.

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.

Applicant's Finding: The stormwater detention and pollution reduction facilities and related calculations were prepared by a professional engineer licensed to practice in the state of Oregon.

The requirements of this section have been satisfied.

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.

Applicant's Finding: Soil stabilization techniques, erosion control and adequate improvements to accommodate drainage are detailed in the stormwater report and meet all standards.

The requirements of this section have been satisfied.

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.

Applicant's Finding: No stormwater detention or treatment facilities are proposed near or encroaching into the boundary of a water quality resource area.

The requirements of this section have been satisfied.

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

Applicant's Finding: All stormwater detention and treatment facilities will be vegetated with plants from Metro's Native Plant List.

The requirements of this section have been satisfied.

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).

Applicant's Finding: No soil amendments are proposed.

The requirements of this section have been satisfied.

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

Applicant's Interim erosion control measures will be used as necessary.

Finding:

The requirements of this section have been satisfied.

33.060 MAINTENANCE AND ACCESS REQUIREMENTS

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

Applicant's Finding: The stormwater report includes maintenance and access pursuant to Public Works Design Standards.

The requirements of this section have been satisfied.

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)

Applicant's Finding: The planting plan for the water quality tract is included within the stormwater report and meets the requirements of this section.

The requirements of this section have been satisfied.

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.

Applicant's Finding: All clear vision areas at the intersections of public streets with driveways or other public streets on the subject site will be free of plantings, fences, walls, structures and obstructions, meeting the requirements for clear vision areas.

The requirements of this section have been satisfied.

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.

Applicant's Finding: New fences are not indicated on the proposed plans because the exact locations have yet to be determined. All fences constructed as part of this subdivision will meet the requirements of these standards.

The requirements of this section have been satisfied.

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.

Applicant's Finding: Any fences built on retaining walls will meet these standards.

The requirements of this section have been satisfied.

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.

Applicant's Finding: This site is residential and no service, repair or storage activities in connection with commercial, business or industry activities are proposed.

The requirements of this section have been satisfied.

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.

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

Applicant's Finding: Any fences built will meet these standards.

The requirements of this section have been satisfied.

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.

Applicant's Finding: This subdivision application includes a tree inventory and preservation plan focused on maintaining significant trees and clusters.

The requirements of this section have been satisfied.

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.

Applicant's Finding: No parking areas, aside from driveways, are required for residential subdivisions. No parking reduction is requested.

The requirements of this section have been satisfied.

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

Applicant's Finding: The developer will comply with all municipal code requirements for tree protection.

The requirements of this section have been satisfied.

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.

Applicant's Finding: No heritage trees have been identified on this site.

The requirements of this section have been satisfied.

E. (Not applicable to single-family residential)

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)

Applicant's Finding: The applicant will pay for the installation of street trees by the City and maintain the trees for the two-year establishment period.

The requirements of this section have been satisfied.

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.

Applicant's Finding: 6-foot-wide planting strips will be installed between the sidewalk and the asphalt within the new street right-of-way and along Weatherhill Road.

The requirements of this section have been satisfied.

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.

Applicant's Finding: All landscaping installation will meet the requirements of this section.

The requirements of this section have been satisfied.

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.

Applicant's Finding: There are no existing street trees adjacent to this property.

The requirements of this section have been satisfied.

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.**

Applicant's Finding: The owners of this property, including future homeowners, will be responsible for maintenance of landscaping.

The requirements of this section have been satisfied.

54.070 SPECIFICATION SUMMARY

*****25% of residential/multi-family site must be landscaped.**

Applicant's Finding: A minimum of 25% of this site will be landscaped as part of the yards of future homes.

The requirements of this section have been satisfied.

DIVISION 4. DESIGN REVIEW

CHAPTER 55. DESIGN REVIEW

55.100 APPROVAL STANDARDS - CLASS II DESIGN REVIEW

B. Relationship to the natural and physical environment.

1. The buildings and other site elements shall be designed and located so that 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.

Applicant's Finding: No heritage trees were identified on this site.

The requirements of this section have been satisfied.

2. All heritage trees, as defined in the municipal code, all trees and clusters of trees ("cluster" is defined as three or more trees with overlapping driplines; however, native oaks need not have an overlapping dripline) that are considered significant by the City Arborist, either individually or in consultation with certified arborists or similarly qualified professionals, based on accepted arboricultural standards including consideration of their size, type, location, health, long term survivability, and/or numbers, shall be protected pursuant to the criteria of subsections (B)(2)(a) through (f) of this section. In cases where there is a difference of opinion on the significance of a tree or tree cluster, the City Arborist's findings shall prevail. It is important to acknowledge that all trees are not significant and, further, that this code section will not necessarily protect all trees deemed significant.

a. Non-residential and residential projects on Type I and II lands shall protect all heritage trees and all significant trees and tree clusters by either the dedication of these areas or establishing tree conservation easements. Development of Type I and II lands shall require the careful layout of streets, driveways, building pads, lots, and utilities to avoid heritage trees and significant trees and tree clusters, and other natural resources pursuant to this code. The method for delineating the protected trees or tree clusters ("dripline + 10 feet") is explained in subsection (B)(2)(b) of this section. Exemptions of subsections (B)(2)(c), (e), and (f) of this section shall apply.

b. Non-residential and residential projects on non-Type I and II lands shall set aside up to 20 percent of the area to protect trees and tree clusters that are determined to be significant, plus any heritage trees. Therefore, in the event that the City Arborist determines that a significant tree cluster exists at

a development site, then up to 20 percent of the non-Type I and II lands shall be devoted to the protection of those trees, either by dedication or easement. The exact percentage is determined by establishing the driplines of the trees or tree clusters that are to be protected. In order to protect the roots which typically extend further, an additional 10-foot measurement beyond the dripline shall be added. The square footage of the area inside this "dripline plus 10 feet" measurement shall be the basis for calculating the percentage (see figure below). The City Arborist will identify which tree(s) are to be protected. Development of non-Type I and II lands shall also require the careful layout of streets, driveways, building pads, lots, and utilities to avoid significant trees, tree clusters, heritage trees, and other natural resources pursuant to this code. Exemptions of subsections (B)(2)(c), (e), and (f) of this section shall apply. Please note that in the event that more than 20 percent of the non-Type I and II lands comprise significant trees or tree clusters, the developer shall not be required to save the excess trees, but is encouraged to do so.

c. Where stubouts of streets occur on abutting properties, and the extension of those streets will mean the loss of significant trees, tree clusters, or heritage trees, it is understood that tree loss may be inevitable. In these cases, the objective shall be to minimize tree loss. These provisions shall also apply in those cases where access, per construction code standards, to a parcel is blocked by a row or screen of significant trees or tree clusters.

d. For both non-residential and residential development, the layout shall achieve at least 70 percent of maximum density for the developable net area. The developable net area excludes all Type I and II lands and up to 20 percent of the remainder of the site for the purpose of protection of stands or clusters of trees as defined in subsection (B)(2) of this section.

e. For arterial and collector street projects, including Oregon Department of Transportation street improvements, the roads and graded areas shall avoid tree clusters where possible. Significant trees, tree clusters, and heritage tree loss may occur, however, but shall be minimized.

f. If the protection of significant tree(s) or tree clusters is to occur in an area of grading that is necessary for the development of street grades, per City construction codes, which will result in an adjustment in the grade of over or under two feet, which will then threaten the health of the tree(s), the applicant will submit evidence to the Planning Director that all reasonable alternative grading plans have been considered and cannot work. The applicant will then submit a mitigation plan to the City Arborist to compensate for the removal of the tree(s) on an "inch by inch" basis (e.g., a 48-inch Douglas fir could be replaced by 12 trees, each four-inch). The mix of tree sizes and types shall be approved by the City Arborist.

Applicant's Finding: The applicant has inventoried all trees and tree clusters on the site. The applicant is proposing tree preservation consistent with these requirements, as detailed in the tree plan.

A total of 122,874 square feet of canopy area plus ten feet exists in the area surrounding the significant trees on site. The Applicant has proposed to retain a total of 59,080 square feet of significant tree canopy on site which achieves nearly 50% retention of the existing significant canopy on site. Of the canopy areas retained on site, the significant canopy area to be located within easements for preservation is 13,664 square feet or roughly 23% of the retained tree canopies on site.

The Applicant's proposed roadways and access drives will result in the removal of 170 caliper inches therefore mitigation for 170 inches is required. The Applicant has provided a planting plan showing the installation of 85 trees on the property. All trees installed will be 2 inches

in caliper size or greater, therefore meeting the inch for inch mitigation requirement.

The requirements of this section have been satisfied.

CHAPTER 92. REQUIRED IMPROVEMENTS

92.010 PUBLIC IMPROVEMENTS FOR ALL DEVELOPMENT

The following improvements shall be installed at the expense of the developer and meet all City codes and standards:

A. Streets within subdivisions.

1. All streets within a subdivision, including alleys, shall be graded for the full right-of-way width and improved to the City's permanent improvement standards and specifications which include sidewalks and bicycle lanes, unless the decision-making authority makes the following findings:

a. The right-of-way cannot be reasonably improved in a manner consistent with City road standards or City standards for the protection of wetlands and natural drainageways.

b. The right-of-way does not provide a link in a continuous pattern of connected local streets, or, if it does provide such a link, that an alternative street link already exists or the applicant has proposed an alternative street which provides the necessary connectivity, or the applicant has proven that there is no feasible location on the property for an alternative street providing the link.

2. When the decision-making authority makes these findings, the decision-making authority may impose any of the following conditions of approval:

a. A condition that the applicant initiate vacation proceedings for all or part of the right-of-way.

b. A condition that the applicant build a trail, bicycle path, or other appropriate way.

If the applicant initiates vacation proceedings pursuant to subsection (A)(2)(a) of this section, and the right-of-way cannot be vacated because of opposition from adjacent property owners, the City Council shall consider and decide whether to process a City-initiated street vacation pursuant to Chapter 271 ORS.

Construction staging area shall be established and approved by the City Engineer. Clearing, grubbing, and grading for a development shall be confined to areas that have been granted approval in the land use approval process only. Clearing, grubbing, and grading outside of land use approved areas can only be approved through a land use approval modification and/or an approved Building Department grading permit for survey purposes. Catch basins shall be installed and connected to pipe lines leading to storm sewers or drainageways.

B. Extension of streets to subdivisions. The extension of subdivision streets to the intercepting paving line of existing streets with which subdivision streets intersect shall be graded for the full right-of-way width and improved to a minimum street structural section and width of 24 feet.

C. Local and minor collector streets within the rights-of-way abutting a subdivision shall be graded for the full right-of-way width and approved to the City's permanent improvement standards and specifications. The City Engineer shall review the need for street improvements and shall specify whether full street or partial street improvements shall be required. The City Engineer shall also specify the extent of storm drainage improvements required. The City Engineer shall be guided by the purpose of the City's systems development charge program in determining the extent of improvements which are the responsibility of the subdivider.

D. Monuments. Upon completion of the first pavement lift of all street improvements, monuments shall be installed and/or reestablished at every street intersection and all points of curvature and points of tangency of street centerlines with an iron survey control rod. Elevation benchmarks shall be established at each street intersection monument with a cap (in a monument box) with elevations to a U.S. Geological Survey datum that exceeds a distance of 800 feet from an existing benchmark.

E. Surface drainage and storm sewer system. 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 impacts from increased intensity of runoff off site of a 100-year storm, or the plan and statement shall identify all off-site impacts and measures to mitigate those impacts commensurate to the particular land use application. Mitigation measures shall maintain pre-existing levels and meet buildout volumes, and meet planning and engineering requirements.

F. Sanitary sewers. Sanitary sewers shall be installed to City standards to serve the subdivision and to connect the subdivision to existing mains.

1. If the area outside the subdivision to be directly served by the sewer line has reached a state of development to justify sewer installation at the time, the Planning Commission may recommend to the City Council construction as an assessment project with such arrangement with the subdivider as is desirable to assure financing his share of the construction.

2. If the installation is not made as an assessment project, the City may reimburse the subdivider an amount estimated to be a proportionate share of the cost for each connection made to the sewer by property owners outside of the subdivision for a period of 10 years from the time of installation of the sewers. The actual amount shall be determined by the City Administrator considering current construction costs.

G. Water system. Water lines with valves and fire hydrants providing service to each building site in the subdivision and connecting the subdivision to City mains shall be installed. Prior to starting building construction, the design shall take into account provisions for extension beyond the subdivision and to adequately grid the City system. Hydrant spacing is to be based on accessible area served according to the City Engineer's recommendations and City standards. If required water mains will directly serve property outside the subdivision, the City may reimburse the developer an amount estimated to be the proportionate share of the cost for each connection made to the water mains by property owners outside the subdivision for a period of 10 years from the time of installation of the mains. If oversizing of water mains is required to areas outside the subdivision as a general improvement, but to which no new connections can be identified, the City may reimburse the developer that proportionate share of the cost for oversizing. The actual amount and reimbursement method shall be as determined by the City Administrator considering current or actual construction costs.

H. Sidewalks.

1. Sidewalks shall be installed on both sides of a public street and in any special pedestrian way within the subdivision, except that in the case of primary or secondary arterials, or special type industrial districts, or special site conditions, the Planning Commission may approve a subdivision without sidewalks if alternate pedestrian routes are available.

In the case of the double-frontage lots, provision of sidewalks along the frontage not used for access shall be the responsibility of the developer. Providing front and side yard sidewalks shall be the responsibility of the land owner at the time a request for a building permit is received. Additionally, deed restrictions and CC&Rs shall reflect that sidewalks are to be installed prior to occupancy and it is the responsibility of the lot or homeowner to provide the sidewalk, except as required above for double-frontage lots.

2. On local streets serving only single-family dwellings, sidewalks may be constructed during home construction, but a letter of credit shall be required from the developer to ensure construction of all missing sidewalk segments within four years of final plat approval pursuant to CDC 91.010(A)(2).

3. The sidewalks shall measure at least six feet in width and be separated from the curb by a six-foot minimum width planter strip. Reductions in widths to preserve trees or other topographic features, inadequate right-of-way, or constraints, may be permitted if approved by the City Engineer in consultation with the Planning Director.

4. Sidewalks should be buffered from the roadway on high volume arterials or collectors by landscape strip or berm of three and one-half-foot minimum width.

5. The City Engineer may allow the installation of sidewalks on one side of any street only if the City Engineer finds that the presence of any of the factors listed below justifies such waiver:

a. The street has, or is projected to have, very low volume traffic density;

b. The street is a dead-end street;

c. The housing along the street is very low density; or

d. The street contains exceptional topographic conditions such as steep slopes, unstable soils, or other similar conditions making the location of a sidewalk undesirable.

I. Bicycle routes. If appropriate to the extension of a system of bicycle routes, existing or planned, the Planning Commission may require the installation of separate bicycle lanes within streets and separate bicycle paths.

J. Street name signs. All street name signs and traffic control devices for the initial signing of the new development shall be installed by the City with sign and installation costs paid by the developer.

K. Dead-end street signs. Signs indicating "future roadway" shall be installed at the end of all discontinued streets. Signs shall be installed by the City per City standards, with sign and installation costs paid by the developer.

L. Signs indicating future use shall be installed on land dedicated for public facilities (e.g., parks, water reservoir, fire halls, etc.). Sign and installation costs shall be paid by the developer.

M. Street lights. Street lights shall be installed and shall be served from an underground source of supply. The street lighting shall meet IES lighting standards. The street lights shall be the shoe-box style light (flat lens) with a 30-foot bronze pole in residential (non-intersection) areas. The street light shall be the cobra head style (drop lens) with an approximate 50-foot (sized for intersection width) bronze pole. The developer shall submit to the City Engineer for approval of any alternate residential, commercial, and industrial lighting, and alternate lighting fixture design. The developer and/or homeowners association is required to pay for all expenses related to street light energy and maintenance costs until annexed into the City.

N. Utilities. The developer shall make necessary arrangements with utility companies or other persons or corporations affected for the installation of underground lines and facilities. Electrical lines and other wires, including but not limited to communication, street lighting, and cable television, shall be placed underground.

O. Curb cuts and driveways. Curb cuts and driveway installations are not required of the subdivider at the time of street construction, but, if installed, shall be according to City standards. Proper curb cuts and hard-surfaced driveways shall be required at the time buildings are constructed.

P. Street trees. Street trees shall be provided by the City Parks and Recreation Department in accordance with standards as adopted by the City in the Municipal Code. The fee charged the subdivider for providing and maintaining these trees shall be set by resolution of the City Council.

Q. Joint mailbox facilities shall be provided in all residential subdivisions, with each joint mailbox serving at least two, but no more than eight, dwelling units. Joint mailbox structures shall be placed in the street right-of-way adjacent to roadway curbs. Proposed locations of joint mailboxes shall be designated on a copy of the tentative plan of the subdivision, and shall be approved as part of the tentative plan approval. In addition, sketch plans for the joint mailbox structures to be used shall be submitted and approved by the City Engineer prior to final plat approval. (Ord. 1180, 1986; Ord. 1192, 1987; Ord. 1287, 1990; Ord. 1321, 1992; Ord. 1339, 1993; Ord. 1401, 1997; Ord. 1408, 1998; Ord. 1442, 1999)

Applicant's Finding: All improvements will be installed per the submitted plans and in conformance with the requirements of this title.

The requirements of this section have been satisfied.

92.030 IMPROVEMENT PROCEDURES

In addition to other requirements, improvements installed by the developer, either as a requirement of these regulations or at the developer's own option, shall conform to the requirements of this title and permanent improvement standards and specifications adopted by the City and shall be installed in accordance with the following procedure:

A. Improvement work shall not be commenced until plans have been checked for adequacy and approved by the City. To the extent necessary for evaluation of the proposal, the improvement plans may be required before approval of the tentative plan of a subdivision or partition. Plans shall be prepared in accordance with the requirements of the City.

B. Improvement work shall not be commenced until the City has been notified in advance, and if work has been discontinued for any reason, it shall not be resumed until the City has been notified.

C. Improvements shall be constructed under the Engineer. The City may require changes in typical sections and details in the public interest if unusual conditions arise during construction to warrant the change.

D. All underground utilities, sanitary sewers, and storm drains installed in streets by the subdivider or by any utility company shall be constructed prior to the surfacing of the streets. Stubs for service connections for underground utilities and sanitary sewers shall be placed to a length obviating the necessity for disturbing the street improvements when service connections are made.

E. A digital and mylar map showing all public improvements as built shall be filed with the City Engineer upon completion of the improvements. (Ord. 1408, 1998)

Applicant's Finding: All improvements will be installed in conformance with the requirements of this title.

The requirements of this section have been satisfied.

CHAPTER 99 PROCEDURES FOR DECISION MAKING: QUASI-JUDICIAL

99.030 APPLICATION PROCESS: WHO MAY APPLY, PRE-APPLICATION CONFERENCE, REQUIREMENTS, REFUSAL OF APPLICATION, FEES

A. <u>Who may apply</u>.

1. Applications for approval required under this chapter may be initiated by:

a. The owner of the property that is the subject of the application or the owner's duly authorized representative;

b. The purchaser of such property who submits a duly executed written contract or copy thereof, which has been recorded with the Clackamas Clerk;

c. A lessee in possession of such property who submits written consent of the owner to make such application; or

d. Motion by the Planning Commission or City Council.

2. Any person authorized by this chapter to submit an application for approval may be represented by an agent who is authorized in writing by such a person to make the application.

Applicant's Finding: The owner of the property is initiating this application for approval.

The requirements of this section have been satisfied.

B. <u>Pre-application conferences</u>.

1. Subject to subsection (B)(4) of this section, a pre-application conference is required for, but not limited to, ***j. land divisions.

Applicant's Finding: A pre-application meeting was held March April 4, 2013.

The requirements of this section have been satisfied.

C. The requirements for making an application.

1. The application shall be made on forms provided by the Director as provided by CDC 99.040(A)(1);

2. The application shall be complete and shall contain the information requested on the form, shall address the appropriate submittal requirements and approval criteria in sufficient detail for review and action, and shall be accompanied by the deposit or fee required by CDC 99.033. No application will be accepted if not accompanied by the required fee or deposit. In the event an additional deposit is required by CDC 99.033 and not provided within the time required, the application shall be rejected without further processing or deliberation and all application materials shall be returned to the applicant, notwithstanding any determination of completeness. (Ord. 1527, 2005; Ord. 1568, 2008; Ord. 1590 § 1, 2009; Ord. 1599 § 6, 2011)

Applicant's Finding: This application has been made on forms provided by the City's Planning Department. The application contains the necessary information and the required fee.

The requirements of this section have been satisfied.

99.033 FEES

The Council shall adopt a schedule of fees reasonably calculated to defray the expenses of the administrative process. The Council may establish either a set fee or a deposit system in which the applicant pays a deposit and the City determines the total administrative cost at the end of the process and refunds any unused amount of the deposit to the applicant. No additional deposit shall be required for additional costs that are incurred because the matter is referred to or called up by a higher decision-making authority. The Council shall charge no fees for City-initiated land use applications or appeals filed by a recognized neighborhood association pursuant to the provisions of CDC 99.240. (Ord. 1527, 2005; Ord. 1568, 2008; Ord. 1604 § 70, 2011)

Applicant's Finding: The required fee was submitted with the land use application.

The requirements of this section have been satisfied.

99.038 NEIGHBORHOOD CONTACT REQUIRED FOR CERTAIN APPLICATIONS

Prior to submittal of an application for any subdivision, conditional use permit, multi-family project, planned unit development, commercial, office, or industrial development of over 1,500 square feet, or a zone change that requires a Comprehensive Plan amendment, the applicant shall contact and discuss the proposed development with any affected neighborhood as provided in this section. Although not required for other or smaller projects, contact with neighbors is highly recommended. The Planning Director may require neighborhood contact pursuant to this section prior to the filing of an application for any other development permit if the Director deems neighborhood contact to be beneficial.

A. Purpose. The purpose of neighborhood contact is to identify potential issues or conflicts regarding a proposed application so that they may be addressed prior to filing. This contact is intended to result

in a better application and to expedite and lessen the expense of the review process by avoiding needless delays, appeals, remands, or denials. The City expects an applicant to take the reasonable concerns and recommendations of the neighborhood into consideration when preparing an application. The City expects the neighborhood association to work with the applicant to provide such input.

B. The applicant shall contact by letter all recognized neighborhood associations whose boundaries contain all or part of the site of the proposed development and all property owners within 500 feet of the site.

C. The letter shall be sent by certified mail, return receipt requested, to the president of the neighborhood association, and to one designee as submitted to the City by the neighborhood association, and shall be sent by regular mail to the other officers of the association and the property owners within 500 feet. If another neighborhood association boundary is located within the 500-foot notice radius, the letter shall be sent to that association's president, and to one designee as submitted to the City by the neighborhood association as well. The letter shall briefly describe the nature and location of the proposed development, and invite the association and interested persons to a meeting to discuss the proposal in more detail. The meeting shall be scheduled at the association's regularly scheduled monthly meeting, or at another time at the discretion of the association, and not less than 20 days from the date of mailing of the notice. If the meeting is scheduled as part of the association's regular monthly meeting, the letter shall explain that the proposal may not be the only topic of discussion on the meeting agenda. The letter shall encourage concerned citizens to contact their association president, or their association designee, with any questions that they may want to relay to the applicant.

Neighborhood contact shall be initiated by the applicant by mailing the association president, and to one designee as submitted to the City by the neighborhood association, a letter, return receipt requested, formally requesting, within 60 days, a date and location to have their required neighborhood meeting. The 60 days shall be calculated from the date that the applicant mails this letter to the association. If the neighborhood association does not want to meet within the 60-day timeframe, or if there is no neighborhood association, the applicant may hold a public meeting during the evening after 6:00 p.m., or on the weekend no less than 20 days from the date of mailing of the notice. All meetings shall be held at a location open to the public within the boundaries of the association or at a public facility within the City of West Linn. If the meeting is held at a business, it shall be posted at the time of the meeting as the meeting place and shall note that the meeting is open to the public and all interested persons may attend.

D. On the same date the letters described in subsections A through C of this section are mailed, the applicant shall provide and post notice on the property subject to the proposed application. The notice shall be posted at a location visible from the public right-of-way. If the site is not located adjacent to a through street, then an additional sign shall be posted on the nearest through street. The sign notice shall be at least 11 inches by 17 inches in size on durable material and in clear, legible writing. The notice shall state that the site may be subject to a proposed development (e.g., subdivision, variance, conditional use) and shall set forth the name of the applicant and a telephone number where the applicant can be reached for additional information. The site shall remain posted until the conclusion of the meeting.

E. An application shall not be accepted as complete unless and until the applicant demonstrates compliance with this section by including with the application:

1. A copy of the certified letter to the neighborhood association with a copy of return receipt;

2. A copy of the letter to officers of the association and to property owners within 500 feet, including an affidavit of mailing and a copy of the mailing list containing the names and addresses of such owners and residents;

3. A copy of the required posted notice, along with an affidavit of posting;

4. A copy of the minutes of the meetings, produced by the neighborhood association, which shall include a record of any verbal comments received, and copies of any written comments from property owners, residents, and neighborhood association members. If there are no minutes, the applicant may provide a summary of the meeting comments. The applicant shall also send a copy of the summary to the chair of the neighborhood association. The chair shall be allowed to supplement the summary with any additional comments regarding the content of the meeting, as long as such comments are filed before the record is closed;

5. An audiotape of the meeting; and

6. In the event that it is discovered by staff that the aforementioned procedures of this section were not followed, or that a review of the audio tape and meeting minutes show the applicant has made a material misrepresentation of the project at the neighborhood meeting, the application shall be deemed incomplete until the applicant demonstrates compliance with this section. (Ord. 1425, 1998; Ord. 1474, 2001; Ord. 1568, 2008; Ord. 1590 § 1, 2009)

Applicant's Finding:

This section requires the applicant to contact and discuss the proposed development with any affected neighborhood as provided in this section.

A meeting was held with the Savanna Oaks Neighborhood Association on May 7, 2013 and with the Willamette Neighborhood Association on May 8, 2013. The meeting was scheduled and noticed per the requirements of this section, and the required neighborhood meeting documentation is submitted with this application. The applicant provided renderings and information regarding the proposed subdivision and answered all questions asked by the members of the neighborhood association.

A series of follow-up meetings were held on Tuesday, July 2, with the Savannah Oaks neighborhood association and on July 10, with the Willamette neighborhood association. A revised and more detailed plan was provided to the neighborhood association.

This section does not contain any requirements for the presentation or the materials used to make the presentation. The section describes when a neighborhood meeting is required, how notice of the meeting is to be accomplished and what the application must include from the neighborhood meeting. Some changes have occurred in the proposed plan since the neighborhood meeting; however, the basic information of the subdivision (location, general lot layout, street connections, etc.) was presented to and discussed with the neighborhood association members.

The requirements of this section have been satisfied.

SUMMARY AND CONCLUSION

Based upon the materials submitted herein, the Applicant respectfully requests that the City's Planning Commission approve this 11-lot subdivision.

City of West Linn

PRE-APPLICATION CONFERENCE MEETING

Notes

April 4, 2013

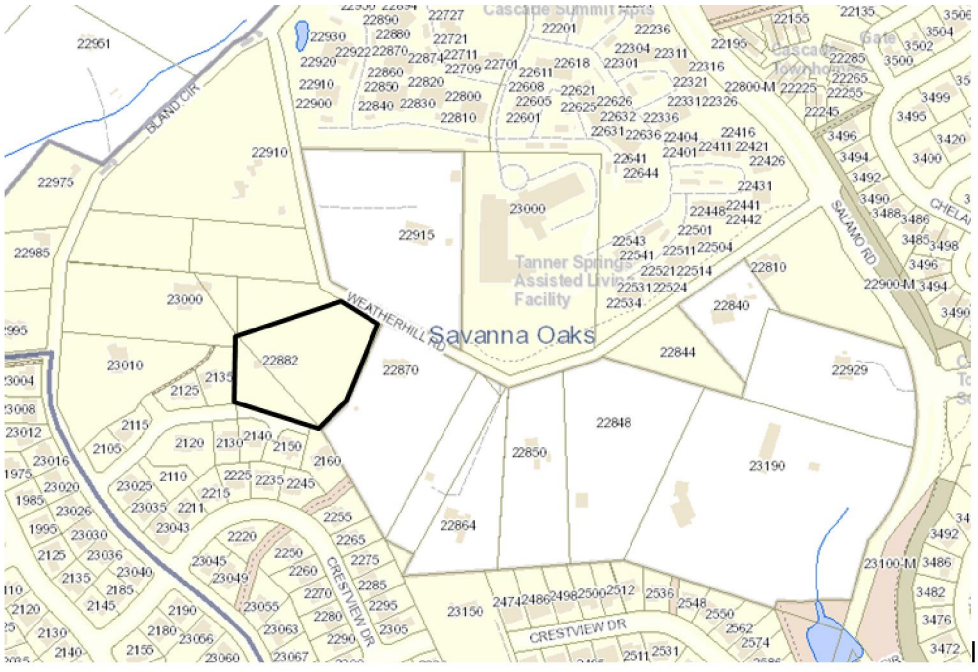
SUBJECT: Nine lot subdivision at 22882 Weatherhill Road

ATTENDEES: Applicants: Jeff Smith, John Wyland, Brian Feeney, Heather Austin, Andrew Tull
Staff: Peter Spir (Planning Department), Khoi Le (Engineering Division)
Neighborhood representative: Ed Schwarz, Savanna Oaks N.A.

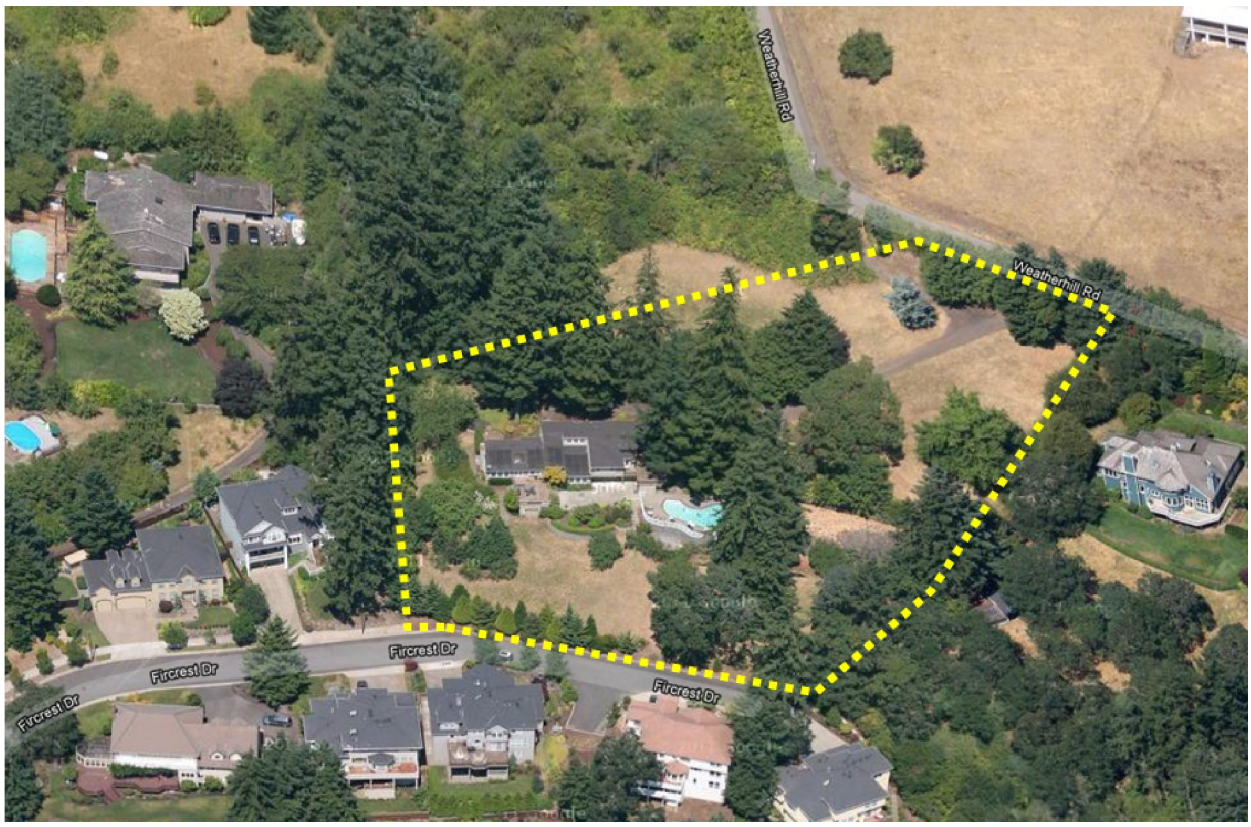
The following is a summary of the meeting discussion provided to you from staff meeting notes. Additional information may be provided to address any "follow-up" items identified during the meeting. <u>These comments are PRELIMINARY in nature</u>. Please contact the Planning Department with any questions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

General Overview

The site address is 22882 Weatherhill Road in the Savanna Oaks neighborhood. It comprises two tax lots (21E 35B tax lots 301 at the front and 402 at the rear) which total 87,940 square feet or 2.01 acres. The zoning is R-7 (single family residential/ 7,000 square foot minimum lot size). The applicant is proposing 9 lots ranging from 7,000 to 8,152 square feet. The irregular form of the parcel has a maximum lot depth of 390 feet from Weatherhill Road to Fircrest Drive and a maximum lot width of 329 feet. Total frontage on Weatherhill Road is 123 feet.



The notable physical characteristics of the site include a near constant downhill slope from Weatherhill Road to Fircrest Drive and a varied and extensive collection of trees, many of them seemingly significant. A single family home is located on the property 200 feet from Weatherhill Road with an adjacent swimming pool and tennis court.



Specific Proposal

Nine lots are proposed for this subdivision. The lots are arranged on either side of T-shaped private driveway. No stubout or connection to adjacent properties or other streets are proposed. Per the R-7 zoning, all lots are over 7,000 square feet in size. To accommodate a storm water treatment and detention pond, tract A is established at the low point adjacent to a private section of Fircrest Drive.

Surrounding Land Uses and Zoning

To the east of the property is a single family home on a 2.58 acre parcel. That property is unincorporated. It is heavily forested in its southern portion which is the origin of an intermittent stream. To the west is a similarly forested vacant .56 acre parcel. To the south is a private driveway which is an extension of Fircrest Drive. Because no part of the subject property is contiguous to a public section of Fircrest Drive, the connection of this subdivision southwards is not possible. To the north, across Weatherhill Road is an unincorporated 3.7 acre parcel occupied by a single family home.

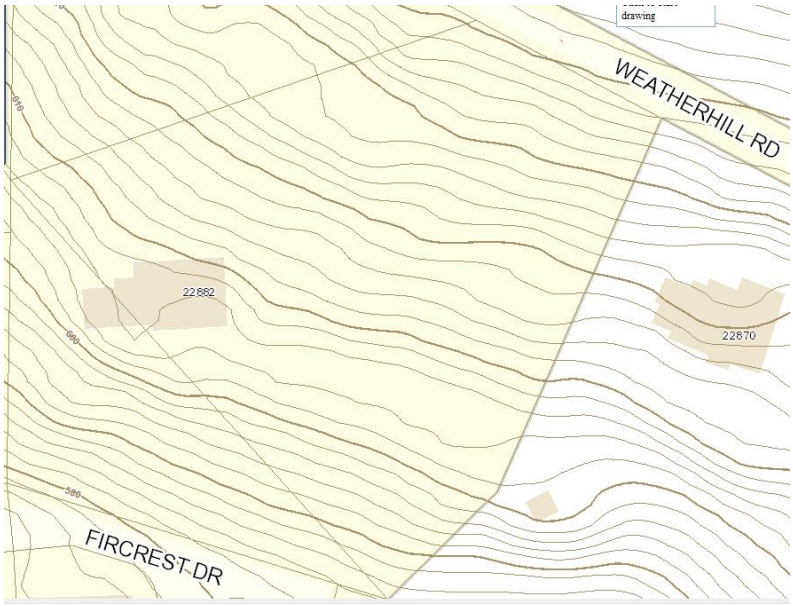
Table 1: Surrounding Land Use and Zoning

DIRECTION FROM SITE	LAND USE	ZONING
North	Single family residential north of Weatherhill Drive	Unincorporated
East	Single family residential	Unincorporated
South	Private Driveway (extension of Fircrest Drive) with Single family residential south of the driveway	R-7
West	Vacant	R-7
Southwest	Single family residential	R-7

Site Analysis

Slopes

The land drops 60 feet from the north edge of the lot to south edge for an average slope of 16 percent. The slopes worsen south of the existing house with a drop down to the private driveway (extension of Fircrest Drive) of 25-28 percent. These steep sloped areas need to be inventoried. If over 25 percent of the site is over 25 percent then this application needs to be processed as a Planned Unit Development (PUD) in addition to the subdivision application. Although the north portion of the site has less severe grades the applicant should be mindful of the maximum allowable driveway grade of 15 percent. No geotechnical report is required.



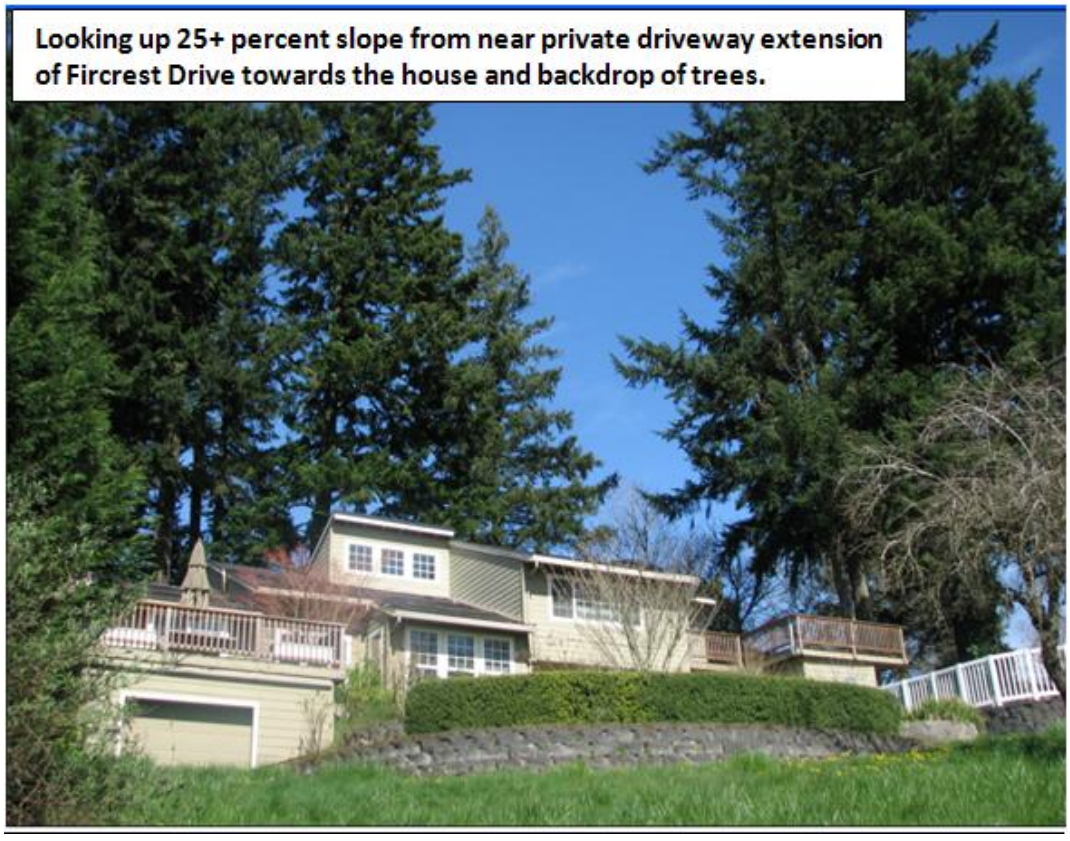
Dark lines are 10 foot contour intervals. Light lines are two foot contour intervals

Trees and Vegetation

The property is dominated by an extensive collection of Oak, Madrone and Douglas Fir trees. There are additional ornamental trees. The dominant ground cover is grass.

Section 55.100(B)(2) provides for significant tree preservation and can require that up to 20 percent of the non-type I and II lands be set aside for their protection. Significant trees on Type I and II lands are given complete protection. The code makes accommodation for the removal of trees in anticipated street alignments (see 55.100(B)(2) exemptions) but the applicant should anticipate being required to mitigate for their loss on an inch by inch basis exclusive of normal street tree requirements. The mitigation can be on or off-site, or can be satisfied by a fee-in-lieu payment, if the Parks Department agrees to this.

The applicant's arborist should contact City Arborist Mike Perkins (503-723-2554 or mperkins@westlinnoregon.gov) once the preliminary tree inventory is complete to verify which trees are significant. Generally speaking, the protection of tree groves that can support each other, over individual trees, is preferred.



Looking up 25+ percent slope from near private driveway extension of Fircrest Drive towards the house and backdrop of trees.

Looking east from house towards Madrone tree

Douglas Fir and Madrone trees south of the swimming pool /tennis court

Streams
There are no streams, wetlands or other Goal 5 protected resources on the property.

Subdivision of Property and Lot Layout

The lots are shown on both sides of a T-shaped access driveway. All lots exceed the 7,000 square foot minimum lot size of the R-7 zone. All lots meet the shape and dimensional standards of the R-7 zone. Tract "A" at the south edge of the site will accommodate a water treatment/detention facility. Tract "B" is for a landscaped entryway to the subdivision. The applicant is providing 13 feet of dedicated right of way for Weatherhill Road along the project frontage.

The applicant must provide the necessary calculations to demonstrate that the development is attaining at least 70 percent of the maximum allowable denisty of the R-7 zone.

Expected Development Pattern/Street Connectivity

The recent increase in development interest in the Bland Circle/Weatherhill Road area has brought to the forefront the need to develop this area in a comprehensive manner that allows for the extension of connecting streets per the Transportation Planning Rule and the Regional Transportation Functional Plan (see Title 1 section 3.08.110(D) (E) (F)). Allowing each property to be developed with flag lots or individual private driveways off Weatherhill Road, as this plan does, would violate the functional plan. Connecting development in this area also positively responds to the approval criteria of 85.200(A) (1):

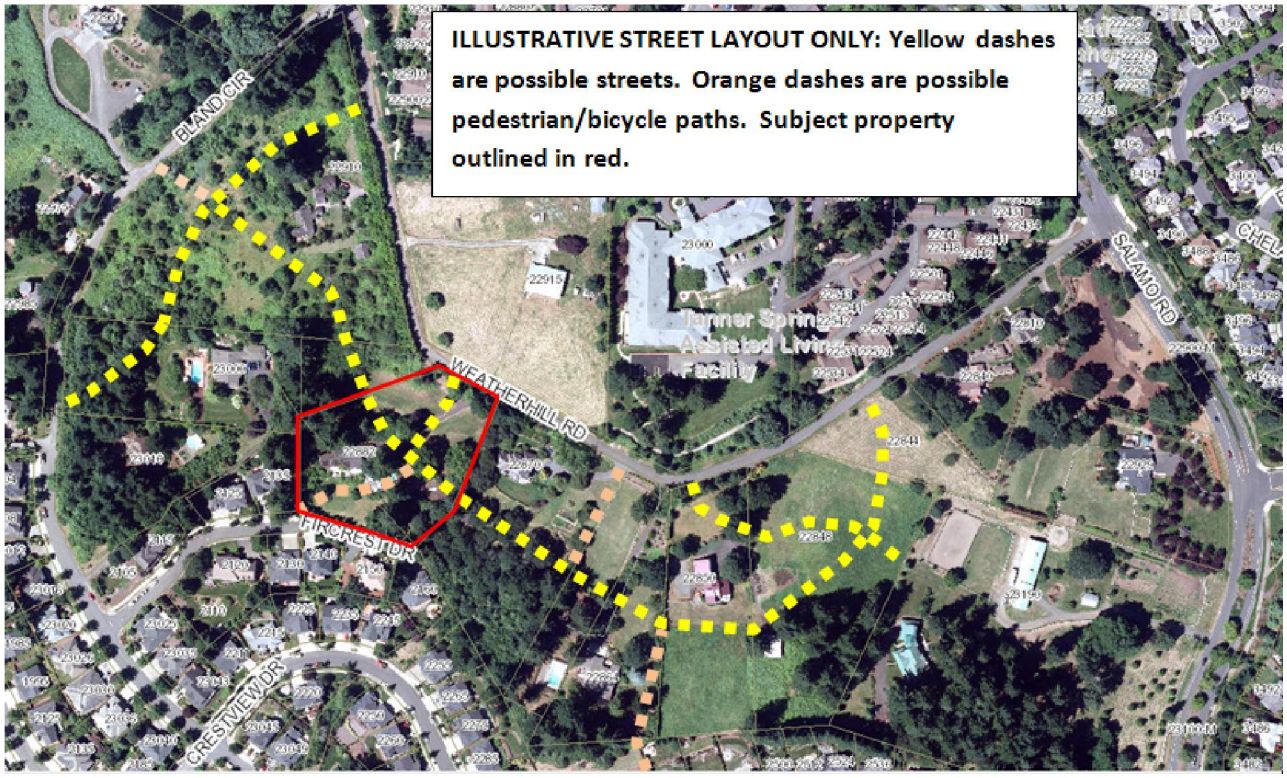
> *"…Streets should provide for the continuation, or the appropriate projection, of existing principal streets in surrounding areas and should not impede or adversely affect development of adjoining lands or access thereto.*
>
> *To accomplish this, the emphasis should be upon a connected continuous pattern of local, collector, and arterial streets rather than discontinuous curvilinear streets and cul-de-sacs."*

Approval criteria of 85.200(A) (8):

> *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.*

Ideally, the properties south of Weatherhill Road will be connected with a road that runs parallel to Weatherhill Road and prevailing contours about 70-100 feet down the hill so that the internal streets could provide access to lots that would otherwise directly access Weatherhill Road. And, consistent with the functional plan, there would be at no more than 530 feet between driveways or streets intersecting Weatherhill Road. There would be a maximum 800-1200 feet spacing between roads that traverse WRAs and in all cases, pedestrian and bicycle links should be more than 330 feet apart.

A recent pre-application conference for the Maslen property at the northwest end of Weatherhill Road produced a street layout that terminates at the north edge of tax lot 200 which is next to this property. (*See also the addendum to these notes which include the approved subdivision (SUB-07-06) for the Maslen property which was never platted*.) The applicant should provide a new design which shows connections to properties to the west and east. The proposed street connection to Weatherhill Road is appropriate in that it will be about 560 feet from the street intersection to the northwest. That is close enough to be considered consistent with the functional plan distance of 530 feet.

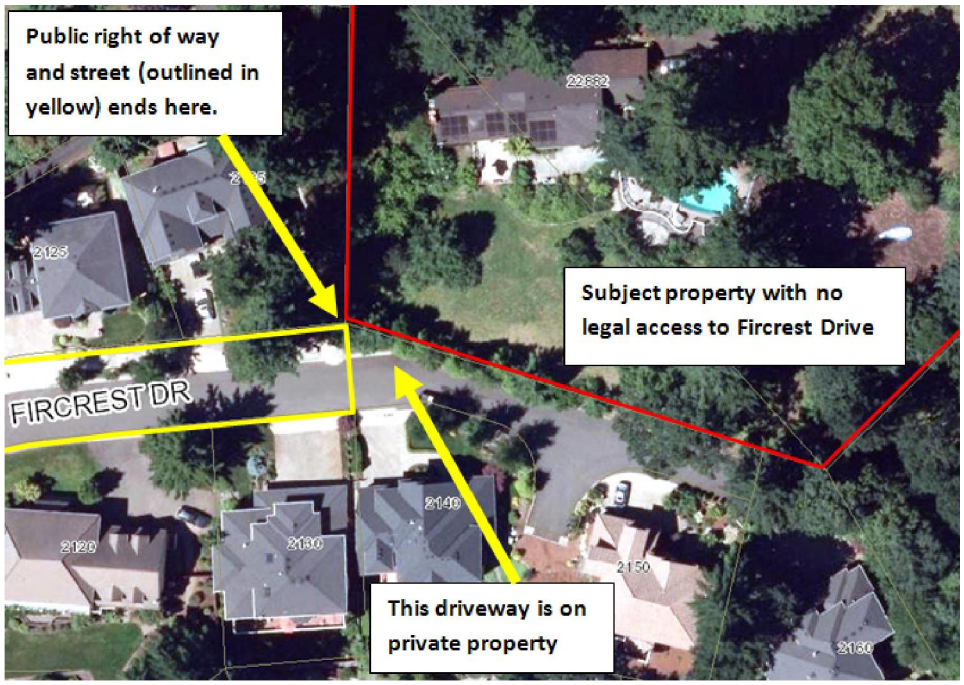


It is acknowledged that the applicant may not have control over the development of adjacent or nearby properties or when that development may occur. Nonetheless, the applicant should propose a design that shows a more comprehensive accommodation of the functional plan and the City's approval criteria.

In a telephone conversation on April 4, 2013, staff had the opportunity to discuss connectivity with David Dean, the owner of the property immediately to the east of the site (tax lot 405). Mr. Dean stated support for the concept of connectivity rather than seeing a pattern of flaglots or individual cul de sacs off Weatherhill Drive. He stated that he had been in talks with other property owners to the east. One issue staff had with connecting to the east is the location of the stream that is shown on Mr. Dean's property. Mr. Dean explained that it originates at a spring about 15 feet north of his south property line. The stream is intermittant. Assuming these facts to be true, the stream would not pose a barrier to connection eastwards but there would still be the concern about significant trees nearby.

Staff also discussed the minimum connectivity standard which would require a street stub out to the northwest through tax lot 200 and a 20 foot wide pedestrian/bicycle corridor to the east (tax lot 405). To facilitate these connections, the applicant may propose that interior streets be the minimum street widths per City standards.

Meanwhile, connectivity to the south of the subject property is frustrated by the lack of legal access to Fircrest Drive. That area was platted with a private driveway adjacent to the subject property.



Legal access aside, the 20-25 percentage slope below the house and pool far exceeds the City's maximum street grade of 15 percent. If the opportunity presented itself to obtain a pedestrian access to Fircrest Drive, the applicant would be encouraged to do so.

Subsection 48.025(B) (6) requires access driveways to meet the standards in Chapter 8 of the Transportation System Plan (TSP). Specifically, it states, "The access spacing standards found in Chapter 8 of the adopted Transportation System Plan (TSP) shall be applicable to all *newly established* public street intersections, private drives, and non-traversable medians." (staff's emphasis) If a public street is proposed using the existing alignment of the driveway it would not be a newly established private drive, and therefore the TSP Chapter 8 standards would not be applicable. From that intersection to the nearest access driveway (Falcon Place) on the north side of Bland Circle is 440 feet so the access separation standards of 150 feet for driveways are met. The nearest public intersection is 1200 feet away so the access separation and 200 feet for public intersections is also met.

Weatherhill Road looking east (above).
Weatherhill Road looking west (below)

Subsection 85.170(B) (2) (c) (1) lists the circumstances that require a traffic impact analysis (TIA).

> c. When required. A Traffic Impact Analysis may be required to be submitted to the City with a land use application, when the following conditions apply:
>
> > 1) The development application involves one or more of the following actions:
> >
> > > (A) A change in zoning or a plan amendment designation; or

(B) Any proposed development or land use action that ODOT states may have operational or safety concerns along a State highway; and

(C) The development shall cause one or more of the following effects, which can be determined by field counts, site observation, traffic impact analysis or study, field measurements, crash history, Institute of Transportation Engineers Trip Generation manual; and information and studies provided by the local reviewing jurisdiction and/or ODOT:

(1) An increase in site traffic volume generation by 250 average daily trips (ADT) or more (or as required by the City Engineer); or

(2) An increase in use of adjacent streets by vehicles exceeding the 20,000-pound gross vehicle weights by 10 vehicles or more per day; or

(3) The location of the access driveway does not meet minimum intersection sight distance requirements, or is located where vehicles entering or leaving the property are restricted, or such vehicles queue or hesitate on the State highway, creating a safety hazard; or

(4) The location of the access driveway does not meet the access spacing standard of the roadway on which the driveway is located; or

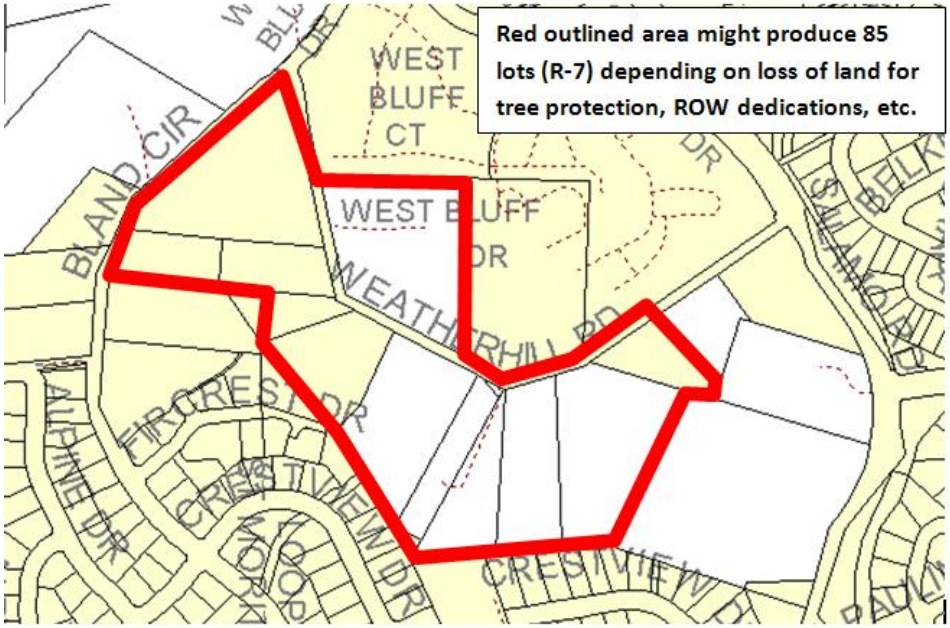
(5) A change in internal traffic patterns that may cause safety problems, such as backup onto the highway or traffic crashes in the approach area.

The proposal does not meet any of the criteria that trigger a TIA. There will be no new or additional points of access to Weatherhill Road. The trip generation of eight new lots (excluding the trip generation of the existing single family home) will not exceed 250 trips per day. Per the Institute of Traffic Engineers (ITE) tables, single family homes are expected to generate 9-10 trips per weekday meaning that this subdivision would produce 80 weekday trips. The PM peak hour (5-6 PM) trip generation of 1.01 will yield 8.08 trips.

The applicant will be required to provide a study by a traffic engineer that addresses, at minimum, trip generation and a discussion of the Weatherhill Road safety (e.g. lines of sight). (The specific study requirements will be determined by the City Engineer.)

Mr. Ed Schwarz asked later whether this project, and more importantly, subsequent development of the Weatherhill corridor, will require a traffic light at Weatherhill Road and Salamo Road. Staff estimates that about 85 homes could occupy lots along

Weatherhill Road at full build out. The applicant's traffic engineer will be asked to comment on whether that would warrant a light at the Salamo Road and Weatherhill Road intersection. Preliminarily, staff anticipates that the answer will be "no" given that Bland Circle has far more homes and still there are no warrants for lights at the Bland Circle/Salamo Road intersection.



Engineering Notes

I. TRANSPORTATION

WEATHERHILL ROAD

	EXISTING CONDITIONS	POTENTIAL POST DEVELOPMENT CONDITIONS
Classification	Local	Local
Zone	R-7	R-7
Right of Way Width	30	56'
Full Pavement Width	16' with no parking	32' with parking
Curb and Gutter	None	Yes
Planter Strip	None	5.5' Planter
Sidewalk	None	6' Sidewalk
Street Light	None	Yes – Cobra Head
Street Tree	None	Yes

ADA Ramps	None	None
Post Speed	25 MPH	25 MPH
Stripe	None	None

A. MINIMUM REQUIRED IMPROVEMENTS

1. Provide at least 56’ of dedication for a complete new street connection.

2. Provide a minimum 32’ pavement improvement with the following sections:
   - 10” of 1-1/2”-0 Crush Rock
   - 2” of ¾” -0 Leveling Course
   - 4” of AC Pavement consisting of 2” Class “C” over 2” Class “B”
   - See Public Works Standards Section 5.0030 Pavement Design for design requirements.

3. Provide curb and gutter. See WL-501 Detail for technical and construction specifications. See Public Works Standards Section 5.0040 Concrete Curb for design requirements.

4. Provide 6’ wide concrete sidewalk with sidewalk ramp at each end to allow access for disability. See WL-508 for sidewalk technical and construction specifications. See WL-507A and WL-507B for ADA technical and construction specifications. See Public Works Standards Section 5.0050 Sidewalks and Section 5.0051 Sidewalk Ramps for design requirements.

5. 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 – Shoe Box on Bronze Pole.
   - Bulb: Flat lens 100 watts maximum

6. Provide Street Tree. Coordinate with Parks Department for requirements.

7. All new and existing overhead utilities along the development must be placed underground.

NEW ROAD

	EXISTING CONDITIONS	POTENTIAL POST DEVELOPMENT CONDITIONS
Classification	Local	Local
Zone	R-7	R-7

Right of Way Width		48’
Full Pavement Width		24’ with no parking
Curb and Gutter		Yes
Planter Strip		5.5’ Planter
Sidewalk		6’ Sidewalk
Street Light		Yes – Acorn
Street Tree		Yes
ADA Ramps		Yes
Post Speed		25 MPH
Stripe		None

B. MINIMUM REQUIRED IMPROVEMENTS

8. Provide at least 48’ of dedication for a complete new street connection.

9. Provide a minimum 32’ pavement improvement with the following sections:
   - 10” of 1-1/2”-0 Crush Rock
   - 2” of ¾” -0 Leveling Course
   - 4” of AC Pavement consisting of 2” Class “C” over 2” Class “B”
   - See Public Works Standards Section 5.0030 Pavement Design for design requirements.

10. Dead end road must design for future East and West connection.

11. Provide curb and gutter. See WL-501 Detail for technical and construction specifications. See Public Works Standards Section 5.0040 Concrete Curb for design requirements.

12. Provide 6’ wide concrete sidewalk with sidewalk ramp at each end to allow access for disability. See WL-508 for sidewalk technical and construction specifications. See WL-507A and WL-507B for ADA technical and construction specifications. See Public Works Standards Section 5.0050 Sidewalks and Section 5.0051 Sidewalk Ramps for design requirements.

13. 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 – Acorn
   - Bulb: Flat lens 100 watts maximum

14. Provide Street Tree. Coordinate with Parks Department for requirements.

15. All new and existing overhead utilities along the development must be placed underground.

C. CITY TRANSPORTATION MASTER PLAN

PEDESTRIAN MASTER PLAN

Weatherhill Road is not indicated in the City Pedestrian Master Plan as one of the roadways with sidewalk deficient.

BICYCLE MASTER PLAN

Weatherhill Road is not indicated in the City Bicycle Master Plan as one of the roadways with bicycle deficient. No bicycle lane improvement was listed on Bicycle Master Plan.

MOTOR VEHICLE MASTER PLAN

Existing Operations Conditions

None of the intersections nearby Weatherhill Road was analyzed in TSP Existing Operation Conditions Section.

D. STREET SDC AND BIKE/PEDESTRIAN EFFECTIVE JULY 1ST 2012

Type of Use	Trip per Use	Factor	Reimbursement	Improvement	Administrative	Total
Per Factor of 1		1.00	$2,146	$4,597	$175	$6,918
Single Family	Per House	1.01	$2,115	$4,643	$177	$6,987

Type of Use	Trip per Use	Factor	Reimbursement	Improvement	Administrative	Total
Per Factor of 1		1.00	$0	$1,503	$39	$1,542
Single Family	Per House	1.00	$0	$1,503	$39	$1,542

I. STORM DRAINAGE

A. MINIMUM REQUIRED IMPROVEMENTS

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. New storm main shall be 12". Catch basins shall be placed at 400 feet maximum.
5. Impervious area created from street widening on Weatherhill Road must be collected, treated and detained as need.
6. Provide City with public easement with hard surface or public road for utility connection.

7. As-Built: Ridgeview Estate Phase II and III and City GIS available per request.

B. SURFACE WATER SDC EFFECTIVE JULY 1ST 2012

Unit		Factor	Reimbursement	Improvement	Administrative	Total
Per Factor of 1		1.00	$773	$232	$51	$1,056
Single Family	Per House	1.00	$773	$232	$51	$1,056

II. SANITARY SEWER

A. MINIMUM REQUIRED IMPROVEMENTS

1. New sanitary sewer system installing to serve the development must be 8" main.
2. Existing public sanitary sewer system is available on Firecrest Drive for connection.
3. Provide City with public easement with hard surface or public road for utility connection.
4. As-Built: Ridgeview Estate Phase II and III and City GIS available per request.

B. SANITARY SEWER SDC EFFECTIVE JULY 1ST 2012

Unit	Meter Size	Factor	Reimbursement	Improvement	Administrative	Total
Per Factor of 1		1.00	$597	$2,325	$108	$3,030
Single Family	Per House	1.00	$597	$2,325	$108	$3,030

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

III. WATER

A. PRESSURE ZONE

1. Zone: Horton
2. Overflow Elevation: 730 Upper Elevation: 620 Lower Elevation: 475
3. Sub pressure zone serves customer at ground elevation as low as 340.
4. Zone Rosemont
5. Overflow Elevation: 860 Upper Elevation: 750 Lower Elevation: 620

B. RESERVOIR AND PUMP STATION

1. Reservoir: Horton is located at the intersection of Horton Rd and Santa Anita Dr. The reservoir usable capacity is approximate 1.5 million gallon. The reservoir is filled by Bolton Pump Station. Horton Reservoir also supplies water to Rosemont Reservoir through Horton Pump Station.
2. Pump Station: Horton Pump Station consists of 4 pumps. Two can pump 900 gpm and two can pump 1,300 gpm with total capacity of 4,400 gpm and a

nominal capacity of 3,100 gpm. There is an emergency standby diesel generator onsite in case power failure.

C. EXISTING POPULATION AND PROJECTED POPULATION AT SATURATION

1. Existing Population: 6,192
2. Projected Population at Saturation: 7,843

D. WATER DEMAND AT SATURATION

Average Day Demand (mgd)	Maximum Day Demand (mgd)	Peak Hour Demand (mgd)
1.1	2.3	12.6

E. RESERVOIR AND PUMP STATION CURRENT OPERATNG CONDITIONS

1. In accordance with Water System Plan, both the reservoir and pump station are listed in good conditions.

F. HORTON 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	**3.1**	**0.5**	**3.6**	**4.3**	**1.3**	**(0.7)**	**1.3**
2015	**3.2**	**0.5**	**3.7**	**4.3**	**1.3**	**(0.6)**	**1.4**
2030	**3.6**	**0.5**	**4.1**	**4.3**	**1.3**	**(0.2)**	**1.7**
Saturation	**3.8**	**0.5**	**4.3**	**4.3**	**1.3**	**0**	**1.8**

1. The table above indicates that there is a surplus in supply capacity during a normal condition.

G. HORTON 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**	**1.1**	**0**	**1.3**	**1.1**	**0.2**
2015	**0**	**1.1**	**0**	**1.4**	**1.1**	**0.3**
2030	**0**	**1.1**	**0**	**1.7**	**1.1**	**0.6**
Saturation	**0**	**1.1**	**0**	**1.8**	**1.1**	**0.7**

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

H. HORTON PRESSURE ZONE MASTER PROJECT LIST

Number	Location	Ex. Diameter (inches)	Proposed Diameter (inches)	Priority	Length (ft)	SDC Allocation	Unit Cost ($/lf)	Estimated Project Cost ($)
29	Weatherhill Rd. from Salamo Rd to S Bland Cir. and then South		8	4	2,312	100%	125	$289,000
31	Sussex St. south of Sunset Ave.	4	8	5	248	0%	125	$31,000
32	From River View Ave. to Falls View Dr.	4	8	5	213	0%	125	$26,625
39	Clark St. south of Skyline	6	8	5	425	0%	125	$53,125
42	North of Linn Ln.	6	8	5	369	0%	125	$46,125
43	Parkview Ter. And Rosepark Dr.	6	8	5	765	0%	125	$95,625
47	Apollo Rd. west of Athena Rd.	6	8	5	385	0%	125	$48,125
48	Palomino Wy. from Saddle Ct. to Palomino Cir.	6	8	4	246	100%	125	$30,750

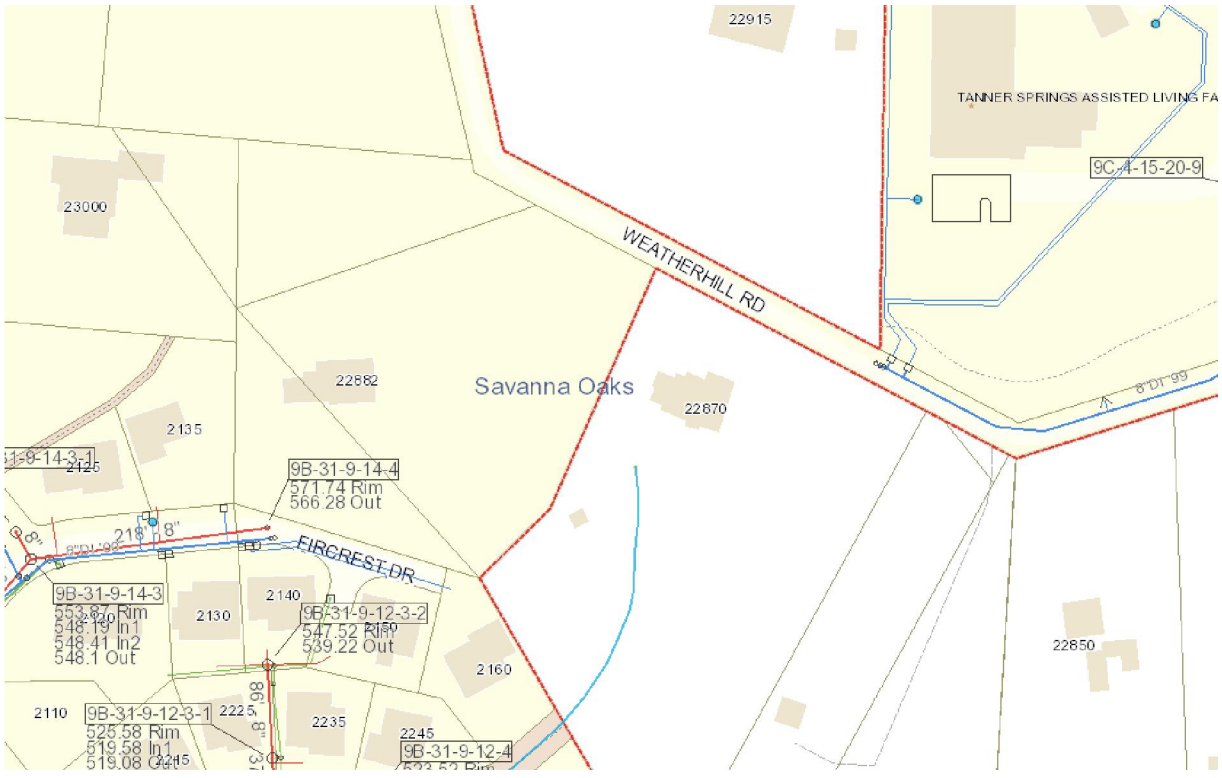
1. The table above indicates that there is no improvement required along the proposed project frontage.

I. MINIMUM REQUIRED IMPROVEMENTS

1. New water system installing to serve the development must be 8" main.
2. Loop system is recommended if possible. Dead end main will only be supported with review and approval from City Water Consultants after a hydraulic model run and mitigation provided appropriately. If not looped, extend dead end main to Weatherhill for City future connection.
3. Houses located above elevation of 620 must be on Rosemont pressure zone.
4. Provide City with public easement with hard surface or public road for utility connection.
5. As-Built: As-Built: Ridgeview Estate Phase II and III and City GIS available per request.

J. WATER SDC EFFECTIVE JULY 1ST 2012

Unit	Meter Size	Factor	Reimbursement	Improvement	Administrative	Total
Per Factor of 1		1.00	$571	$6,793	$191	$7,555
5/8" Meter	1		$571	$6,793	$191	$7,555



Process

A subdivision approval is required. A neighborhood meeting is required for a subdivision approval per 99.038. Follow the requirements of that code section explicitly. The site is within the Savanna Oaks neighborhood but is also within 500 feet of the Willamette neighborhood. Contact Ed Schwarz, President of the Savanna Oaks Neighborhood Association, at savannaoaksNA@westlinnoregon.gov and Beth Smolens, President of the Willamette Neighborhood Association at willametteNA@westlinnoregon.gov . The applicant is required to provide the neighborhood associations with conceptual plans and other material at least 10 days prior to the meeting. **Because of the time and scheduling requirements of 99.038, the applicant should address this requirement as soon as possible.**

Follow 85.150-170 strictly and completely regarding submittal requirements (including plans, maps, etc.). 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.

Submit the application 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 of $6,400 in this case. The final plat fee is $2,000. There is also a $500 fee for final site inspection.

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/community-development-code-cdc.

There is the option to process the subdivision under the expedited land division procedures. Section 99.060(E) provides for expedited land division applications whereby the decision making authority is the Planning Commission and shall be processed by the Planning Commission without a public hearing pursuant to Oregon Revised Statutes (ORS) 197.360 through 197.380. Appeals of the Planning Commission decision on an expedited land division shall be review pursuant to Chapter 197 ORS.

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

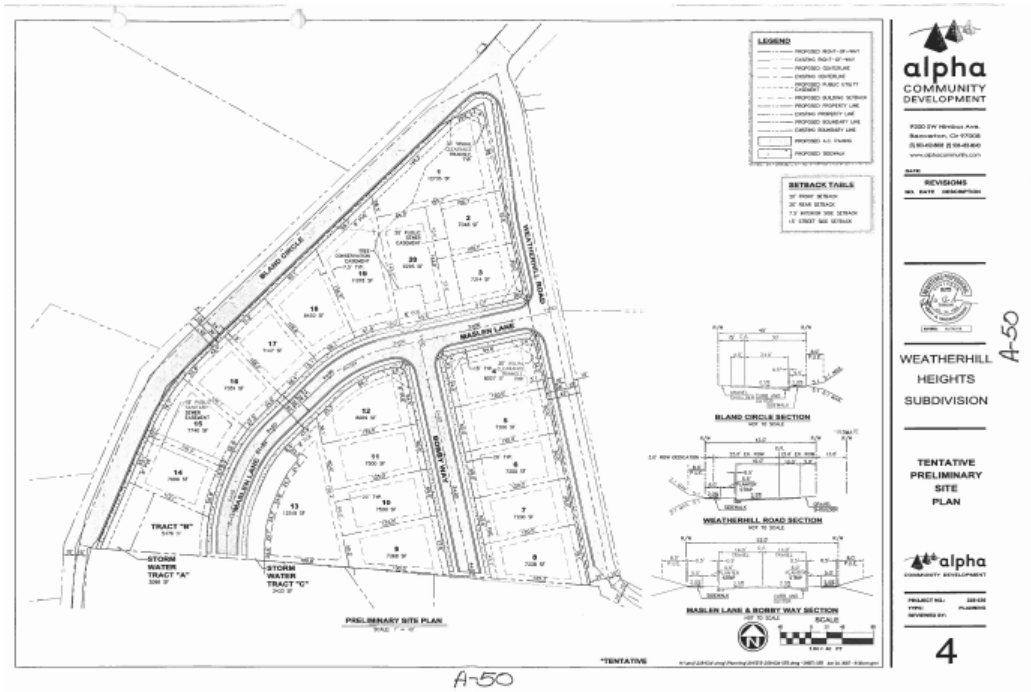
Typical land use applications can take 6-10 months from beginning to end.

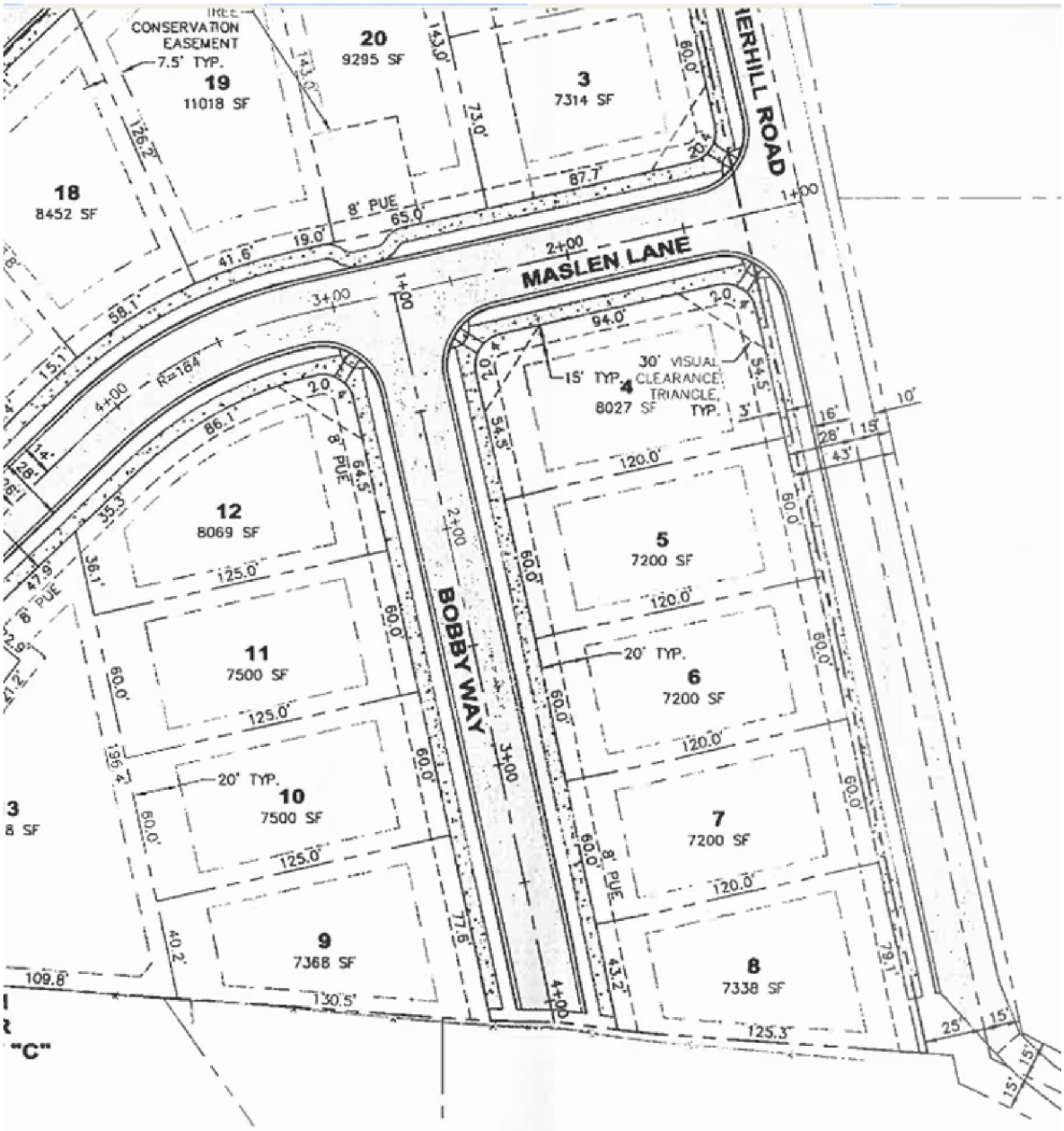
DISCLAIMER: This summary discussion covers issues identified to date. It does not imply that these are the only issues. The burden of proof is on the applicant to demonstrate that all approval criteria have been met. These notes do not constitute an endorsement of the proposed application. Staff responses are based on limited material presented at this pre-application meeting. New issues, requirements, etc. could emerge as the application is developed. Thus, there is no "shelf life" for pre-apps.

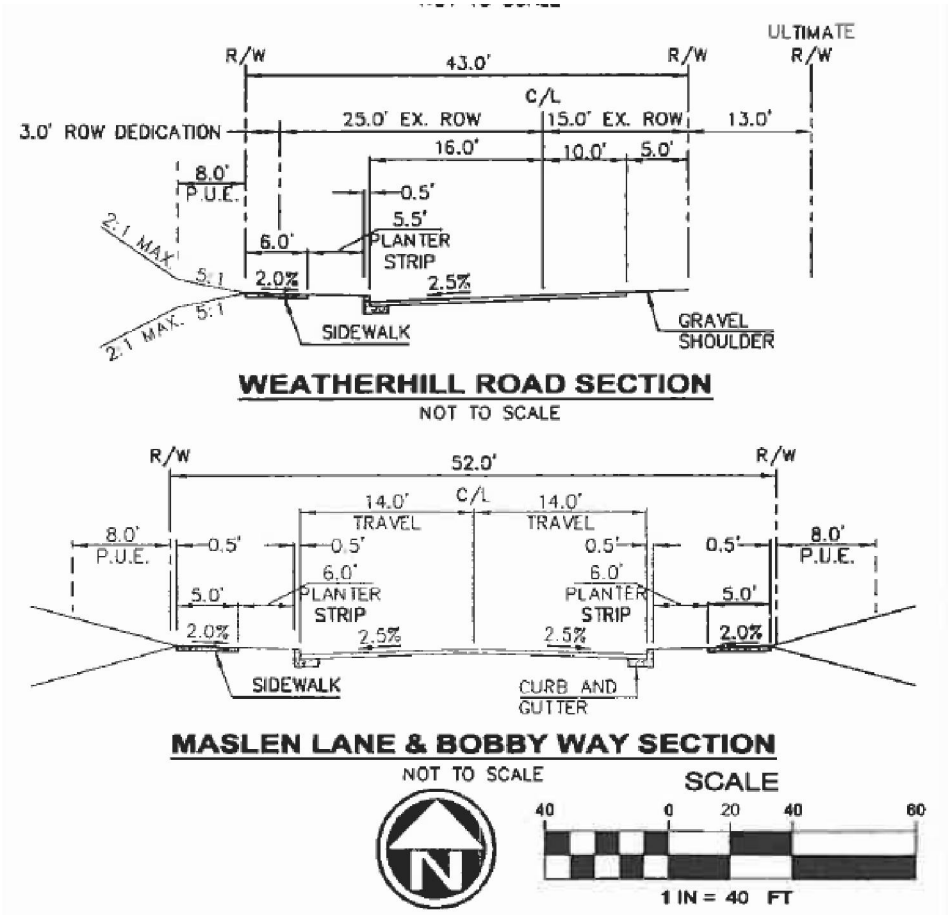
Pre-app2011/Pre-app April 4 2013-Pre-app notes newest WEATHERHILL subdivision

ADDENDUM

Excerpted site plans and COAs from file SUB-07-06
Weatherhill Heights: a 20 lot subdivision approved in 2007 on the "Maslen" property




TREE CONSERVATION EASEMENT 7.5' TYP.
19
11018 SF
20
9295 SF
3
7314 SF
18
8452 SF
MASLEN LANE
IERHILL ROAD
30' VISUAL CLEARANCE TRIANGLE TYP.
15' TYP.
4
8027 SF
12
8069 SF
11
7500 SF
10
7500 SF
9
7368 SF
5
7200 SF
6
7200 SF
7
7200 SF
8
7338 SF
BOBBY WAY
8' PUE
20' TYP.
"C"

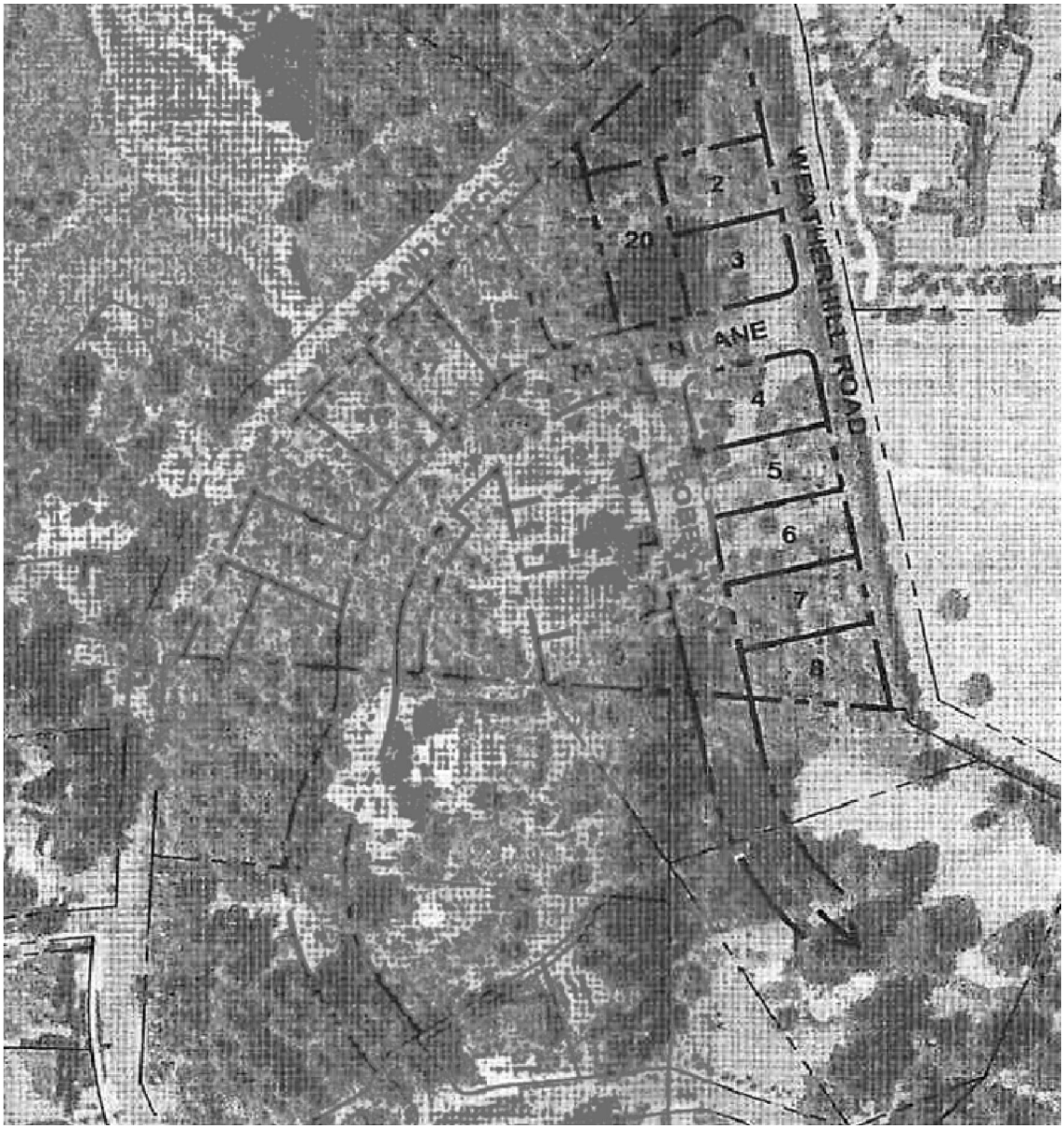


WEATHERHILL ROAD SECTION

NOT TO SCALE

MASLEN LANE & BOBBY WAY SECTION

NOT TO SCALE


2
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WEATHERMEE ROAD

WEST LINN PLANNING COMMISSION
FINAL DECISION NOTICE
SUB-07-06

IN THE MATTER OF THE PROPOSAL OF A 20-LOT SINGLE-FAMILY SUBDIVISION AT 22910 WEATHERHILL ROAD

At their meeting of August 9, 2007, the West Linn Planning Commission held a public hearing to consider the request by Palmer & Associates to approve a subdivision at 22910 Weatherhill Road. The proposal would result in the conversion of three parcels containing one existing house and a three associated outbuildings into a 20-lot subdivision of all new single-family houses. The approval criteria for land division are found within Chapter 85 of the CDC. The hearing was conducted pursuant to the provisions of CDC Chapter 99.

The hearing commenced with a staff report presented by Tom Soppe, Associate Planner. Kirsten Van Loo and Jeff Vanderdasson of Alpha Community Development presented for the applicant. Robert Musalo spoke in opposition to the application. No one else spoke regarding the application. Applicant's rebuttal was provided by Ms. Van Loo.

A motion was made, seconded, and passed to approve the application with three additional findings, an addition to Condition of Approval 6 regarding vehicular access to the lots from Bland Circle, and with rewording to conditions of approval 2 and 5. The additional findings and final complete list of conditions of approval, as approved, are as follows:

Additional Findings

1. Condition of Approval 2, as worded in the staff report, may lead to interbasin transfers of stormwater or other undesirable outcomes related to stormwater collection. If changes are needed regarding the applicant's stormwater main placement plans, these can be discovered through further review by the City's Engineering Department.

2. TVF&R has communicated to staff that, for a subdivision with stub streets where sprinklers are to be installed, the sprinklers are required by TVF&R policy to be installed in all units. This includes units that front to existing through streets.

3. The topographical constraints along the site frontage of Bland Circle require a prohibition on vehicular access between Bland Circle and any lot fronting this street. All lots fronting Bland Circle also front Maslen Lane or Weatherhill Road. These lots will be able to have vehicular access from these streets more easily.

The final conditions of approval are as follows:

1. The applicant shall provide street trees along the west side of Weatherhill Road similar to what is proposed for Maslen Lane and Bobby Way.

2. Applicant shall construct a storm drainage main to the approval of the City Engineer.

3. Pedestrian ramps shall be provided at every intersection.

4. Applicant shall contribute to future construction of signalization of the Rosemont/Salamo/Santa Anita intersection, with the current amount of $1,072.00/peak hour trip as of 11/16/2004 inflation adjusted by ENR CCI at time of building permit issuance.

5. Applicant shall install NFPA 13d sprinkler systems in all houses.

6. No lot in the subdivision will provide direct vehicular access to Bland Circle.

Civil Engineering
Water Resources
Land Use Planning

April 17, 2013

23150 Bland Circle and 22882 Weatherhill Road
Proposed Residential Subdivisions

To Our Neighbors,

3J Consulting acts on behalf of JT Smith Companies regarding two subdivision projects which are located within the Savannah Oaks and Willamette Neighborhood Associations. The first proposed subdivision is a small property located off of Bland Circle and is identified as 23150 Bland Circle. The second proposed subdivision is located on a property which takes access off of Weatherhill Road and is listed as 22882 Weatherhill Road. The location of each property is shown on the attached maps. Both properties are located inside the City of West Linn's boundaries and both properties are zoned R-7 or Single Family Residential.

The Sunbreak Subdivision will create 11 new residential lots. The property currently contains one existing home which will be removed in order to allow for the proposed development. Each of the proposed lots will exceed 7,000 square feet which is the minimum lot size within the R-7 zoning district. The proposed site improvements will include a small extension of Tannler Street, north into the property and the completion of Sunbreak Street and Crestview Drive, which have long been anticipated by the City and the surrounding community. A series of small pedestrian trails may also be included within the development to provide pedestrian connectivity to the surrounding neighborhoods.

The Weatherhill Subdivision will create a total of 9 new residential lots. The property also currently contains one existing home which will be removed in order to allow for the proposed development. Each of the proposed lots within the development will exceed 7,000 square feet which is the minimum lot size within the R-7 zoning district. The proposed improvements will likely involve the installation of a new public road and potential pedestrian network.

Before finalizing and delivering the two subdivision applications to the City's Planning Department, we would like to take the opportunity to discuss this proposal with the members of the Savannah Oaks Neighborhood Association, members of the Willamette Neighborhood Association, and property owners residing within 500 feet of the property.

Two presentations to discuss this proposal have been scheduled to allow interested individuals to learn more about these projects. The presentations have been scheduled during the Savannah Oaks and Willamette Neighborhood Association's regularly scheduled meetings and those presentations will be made in addition to the agendas set by the associations. The meetings are to be held at the following dates and times:

Savannah Oaks Neighborhood Association Meeting
May 7, 2013 at 7:00 pm
Willamette Fire Station 59
1860 Willamette Falls Drive, West Linn, OR 97068

or

Willamette Neighborhood Association Meeting
May 8, 2013 at 7:00 pm
Pacific West Bank in Willamette Marketplace
2000 SW 8th Ave, West Linn, OR 97068

3J Consulting, Inc.
10445 SW Canyon Road Suite 245 Beaverton, OR 97005
Ph: 503-946-9365
andrew.lull@3j-consulting.com

The purpose of these meetings is to provide a forum for surrounding property owners and residents to review both projects and to identify issues so they can be given proper consideration. These meetings will provide the opportunity to share with the project team any special information you know about the property involved. The project team will try to answer questions related to how the project meets the relevant development standards consistent with West Linn's land use regulations.

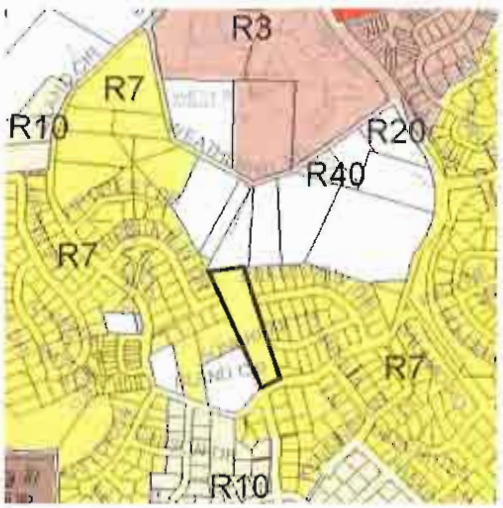
Please note that these will be informational meetings based upon preliminary development plans and that these plans may change slightly before the application is submitted to the City. Additional information may be available from each respective association's President and/or officers and any concerned citizens are encouraged to contact the relevant neighborhood association with any comments or concerns.

We look forward to discussing this proposal with you. Please feel free to contact us at 503-545-1907 or at andrew.tull@3j-consulting.com if you have any questions.

Sincerely,

Andrew Tull
Principal Planner
3J Consulting, Inc.

copy: File



Site Location Map I | Sunbreak Subdivision - 23150 Bland Circle

Site Location Map II | Weatherhill Subdivision - 22882 Weatherhill Road

7012 1010 0000 6641 3095

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Restricted Delivery Fee (Endorsement Required)	$0.00	
Total Postage & Fees	$ $5.75	10/15/2012

Sent To: BETH KIERES
Street, Apt. No.; or PO Box No.: 22106 HORIZON DRIVE
City, State, ZIP+4: WEST LINN, OR 97068

PS Form 3800, August 2006 — See Reverse for Instructions

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Return Receipt Fee (Endorsement Required)	$2.55	Postmark Here
Restricted Delivery Fee (Endorsement Required)	$0.00	APR 17 2013
Total Postage & Fees	$ $6.11	04/17/2013

Sent To: ED SCHWARZ
Street, Apt. No.; or PO Box No.: 2206 TANNLER
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:

ED SCHWARZ
2206 TANNLER
WEST LINN, OR 97068

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Edward Schwarz ☐ Agent ☐ Addressee

B. Received by (Printed Name): EDWARD SCHWARZ
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)* 7012 2920 0001 9457 6988

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

SENDER: COMPLETE THIS SECTION

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1. Article Addressed to:

BETH SMILEY
1852 4TH AVE
WEST LINN, OR 97068

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) LEON HELMONS
C. Date of Delivery 4-12-13

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) 7007 0220 0001 7088 9515

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

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:

ED SCHWARZ
2206 TANNLER DR.
WEST LINN, OR 97068

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) EDWARD SCHWARZ
C. Date of Delivery APR 13 2013

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

WEST LINN OR USPS

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) 7007 0220 0001 7088 9508

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

PUBLIC NOTICE

OF TWO NEIGHBORHOOD MEETINGS

THIS SITE MAY BE SUBJECT TO A PROPOSED SUBDIVISION.

PLEASE CONTACT THE APPLICANT FOR MORE INFORMATION AT
THE FOLLOWING NUMBER OR FEEL FREE TO ATTEND ONE OF THE
TWO SCHEDULED NEIGHBORHOOD MEETINGS:

3J CONSULTING, INC. C/O ANDREW TULL
503-946-9365

NEIGHBORHOOD MEETING 1:

SAVANNAH OAKS NEIGHBORHOOD
ASSOCIATION MEETING
MAY 7, 2013 AT 7:00 PM
WILLAMETTE FIRE STATION 59
1860 WILLAMETTE FALLS DRIVE,
WEST LINN, OR 97068

NEIGHBORHOOD MEETING 2:

WILLAMETTE NEIGHBORHOOD
ASSOCIATION MEETING
MAY 8, 2013 AT 7:00 PM
PACIFIC WEST BANK IN
WILLAMETTE MARKETPLACE
2000 SW 8TH AVE,
WEST LINN, OR 97068

Civil Engineering
Water Resources
Land Use Planning

Meeting Minutes - Weatherhill Subdivision

Date: May 7 & May 8, 2012
Group: Neighborhood Meetings with Willamette and Savannah Oaks
Project: Weatherhill Subdivision
3J No.: 13113

Presenters	Company
Jeff Smith	**JT Smith Companies**
Andrew Tull	**3J**
John Wyland	**JT Smith Companies**
Mike Robinson	**Perkins Coie**

In preparation for the submission of a land use application for the subdivision, the applicant conducted a two neighborhood meetings. The first was with the with the Savannah Oaks Neighborhood Association, the Second was with the Willamette neighborhood association.

Both meetings began with presentations by Andrew Tull, Mike Robison, and Jeff Smith. The project team started by explaining that the property would be subdivided in accordance with the City's development codes. A description of the development, the road access, and the proposed lots was provided. The general timeframe for the land use and construction process was described.

Following the introduction of the project, neighbors and attendees openly asked questions of the project team. The following is a record of the questions and the project teams' responses, from both meetings.

Item	Question	Response
1	A comment was made that the neighborhood plan was less clear to understand than the Sunbreak Plan	The Sunbreak Plan was two months ahead of the Weatherhill plan in detailing and design. The Applicant agreed to attend a second neighborhood meeting to show the revised plans. The Second meeting occurred on July 2, and July 10.
2	A discussion ensued regarding the need to connect roads to adjoining properties.	The Applicant explained that on the property to the east, the property had an existing, unmapped drainage. Because of the unconfirmed location of the drainage, it would be unwise to route a future roadway within that area. To the west, the City's arborist had identified a grove of significant trees. Aligning a road to the west would almost certainly result in the ultimate removal of the trees on the site.
3	What will be the SF of the houses? Value?	Probably 3,000 sf to 3,500 sf. Homes will be valued at probably near $700,000.
4	Residents along Fircrest mentioned that the liked the trees along the northern edge of fircrest and that they would like to see those	The applicant mentioned that the stormwater system was being proposed within that area and that it was likely that those trees would need to

	trees retained. If they needed to be removed, the residents expressed an interest in seeing them replaced.	be removed. The Applicant then explained that replacement trees might be installed there as part of the overall mitigation strategy. The trees which would be used in that area would be western red cedars because of their ability to provide year-round screening.
6	What are the timeframes before you start work	We will submit a land use application. Then the builder will start building. The intent is to start in the spring.
8	The lower part of Tannler is starting to fail. Do you have money budgeted to fix these streets.	The developer will fix what they damage and they will improve the frontages along the project.
9	Will a light come in along Salamo as a result of the development?	The light would be triggered by traffic counts. We do not believe that the City will require a signal.
10	Will the property next door develop?	The Applicant explained that the properties next door do hold development potential. There is always the possibility of the properties next door developing.
11	What are the next steps?	We will submit to the City a formal application for Land Use Approvals.

NEIGHBORHOOD MEETING

AFFIDAVIT OF MAILING

STATE OF OREGON)

SS

County of Clackamas)

I, Andrew Tull, being duly sworn, state that on the 17th day of April, 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 22882 Weatherhill Road. 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 address to said persons and were deposited on the date indicated above in the United States Post Office with postage prepaid thereon.

This 10TH day of MAY, 2013.

Signature

Subscribed and sworn to, or affirmed, before me this 10 day of MAY, 2013.

OFFICIAL SEAL
BRIAN D FAST
NOTARY PUBLIC - OREGON
COMMISSION NO. 446377
MY COMMISSION EXPIRES FEBRUARY 03, 2014

Notary Public for the State of OREGON

County of WASHINGTON

My Commission Expires: 2/3/14

NEIGHBORHOOD MEETING

AFFIDAVIT OF POSTING NOTICE

STATE OF OREGON)

SS

County of Clackamas)

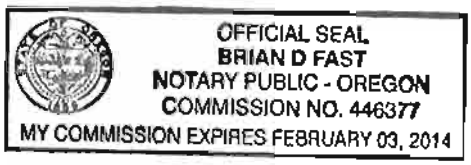
I, Andrew Tull, being duly sworn, state that I represent the party initiating interest in a proposed subdivision affecting the land located at 22882 Weatherhill Road in West Linn, Oregon and that pursuant to Community Development Code Section 99, did on the 17th day of April, 2013 personally post notice indicating that the site may be proposed for a subdivision application.

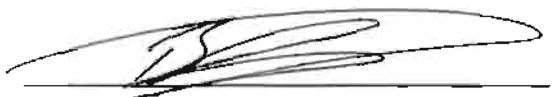
The sign was posted along the northern boundary of the property along Weatherhill Road.

This 10TH day of MAY, 2013.

Signature

Subscribed and sworn to, or affirmed, before me this 10 day of MAY, 2013.

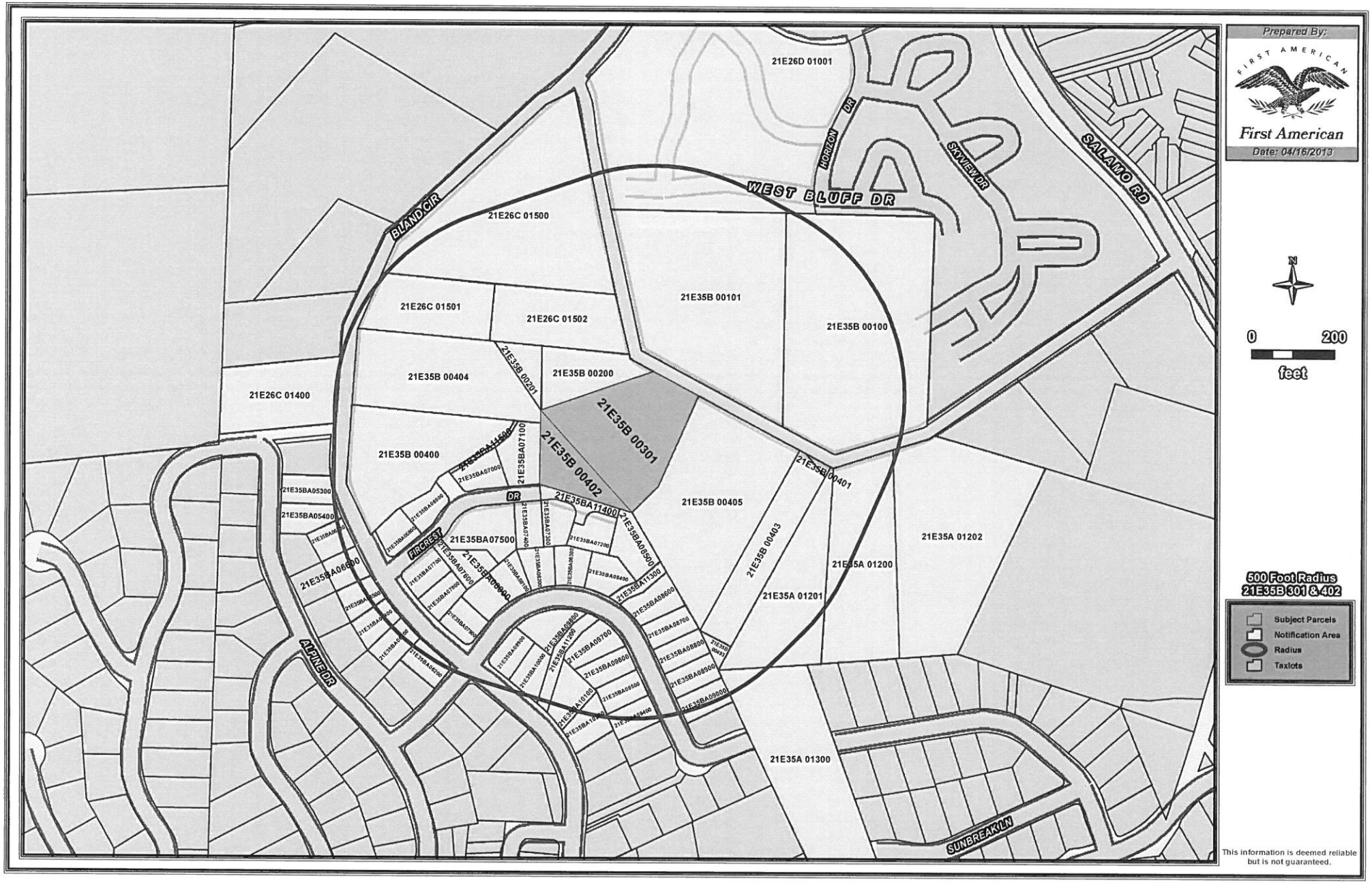




Notary Public for the State of Oregon

County of Washington

My Commission Expires: 2/3/14


Prepared By:
First American
First American
Date: 04/16/2013
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SKYVIEW DR
SALAMO RD
WEST BLUFF DR
BLANDCIR
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21E35B 00100
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DR
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21E35BA09600
21E35BA09700
21E35BA08500
21E35A 01300
SUNBREAK LN
0
200
feet
500 Foot Radius
21E35B 301 & 402
Subject Parcels
Notification Area
Radius
Taxlots
This information is deemed reliable but is not guaranteed.

21E26C 01400
Kenneth & Victoria Pepperling
[illegible]95 Bland Cir
[illegible]st Linn, OR 97068

21E26C 01500
Bobby Lynn & John Maslen
4325 SW 34th Ave
Portland, OR 97239

21E26C 01501
Bobby Lynn & John Maslen
4325 SW 34th Ave
Portland, OR 97239

21E26C 01502
Bobby Lynn & John Maslen
4325 SW 34th Ave
Portland, OR 97239

21E26D 01001
Srp I - Cascade Summit LLC
8110 E Union Ave
Denver, CO 80237

21E35A 01200
Virginia Devries
22850 Weatherhill Rd
West Linn, OR 97068

21E35A 01201
Li Wei
22864 Weatherhill Rd
West Linn, OR 97068

21E35A 01202
Virginia Devries
22850 Weatherhill Rd
West Linn, OR 97068

21E35A 01300
John & Rachel Omlor
23150 Bland Cir
West Linn, OR 97068

21E35B 00100
Sequoia Heights Capital Partners LLC
1101 5th Ave #300
San Rafael, CA 94901

21E35B 00101
William & Ethel Hardy
22915 Weatherhill Rd
West Linn, OR 97068

21E35B 00200
Harold & Linda Elrod
375 Twilight Trl
West Linn, OR 97068

21E35B 00201
Robert & Cameron Bauer
23000 Bland Cir
West Linn, OR 97068

21E35B 00400
John & Lynn Nilsen
23010 Bland Cir
West Linn, OR 97068

21E35B 00401
Li Wei
22864 Weatherhill Rd
West Linn, OR 97068

21E35B 00403
Li Wei
22864 Weatherhill Rd
West Linn, OR 97068

21E35B 00404
Robert & Cameron Bauer
23000 Bland Cir
West Linn, OR 97068

21E35B 00405
David & Diana Dean
22870 Weatherhill Rd
West Linn, OR 97068

21E35B 00493
Li Wei
22864 Weatherhill Rd
West Linn, OR 97068

21E35BA05300
Neil & Mary D'Autremont
23008 Bland Cir
West Linn, OR 97068

21E35BA05400
David Moore
23012 Bland Cir
West Linn, OR 97068

21E35BA06200
Margaret Marshall
23040 Bland Cir
West Linn, OR 97068

21E35BA06300
John & Mary Percin Sr.
23036 Bland Cir
West Linn, OR 97068

21E35BA06400
Robert Bissell
23030 Bland Cir
West Linn, OR 97068

21E35BA06500
Habib Shekarriz
21633 Johnson Rd
West Linn, OR 97068

21E35BA06600
Jeff & Margaret Beachy
23020 Bland Cir
West Linn, OR 97068

21E35BA06700
William Johnson
23016 Bland Cir
West Linn, OR 97068

[illegible]35BA06800
Robert Musalo
2115 Fircrest Dr
West Linn, OR 97068

21E35BA06900
Kristina Musalo
2115 Fircrest Dr
West Linn, OR 97068

21E35BA07000
Margaret Snow
2125 Fircrest Dr
West Linn, OR 97068

21E35BA07100
Stacee Rae Malcolm
[illegible]5 Fircrest Dr
[illegible]st Linn, OR 97068

21E35BA07200
Jiang Yu
2150 Fircrest Dr
West Linn, OR 97068

21E35BA07300
Genevieve Harris
2140 Fircrest Dr
West Linn, OR 97068

21E35BA07400
Thomas & Shelley Corry
2130 Fircrest Dr
West Linn, OR 97068

21E35BA07500
David Huberty
2120 Fircrest Dr
West Linn, OR 97068

21E35BA07600
David Huberty
2120 Fircrest Dr
West Linn, OR 97068

21E35BA07700
Elsie Brigham
23025 Bland Cir
West Linn, OR 97068

21E35BA07800
Yang Zhuang
23035 Bland Cir
West Linn, OR 97068

21E35BA07900
Amanda & Keith Hwang
23043 Bland Cir
West Linn, OR 97068

21E35BA08000
Robert Mays II
2211 Crestview Dr
West Linn, OR 97068

21E35BA08100
Theron Jensen
2215 Crestview Dr
West Linn, OR 97068

21E35BA08200
Donald & Kristi Gabel
2225 Crestview Dr
West Linn, OR 97068

21E35BA08300
Richard & Jeanne Glatt
12492 SE 155th Ave
Happy Valley, OR 97086

21E35BA08400
Avian Charles Newton
2245 Crestview Dr
West Linn, OR 97068

21E35BA08500
Le Hong
2160 Fircrest Dr
West Linn, OR 97068

21E35BA08600
Jessica Mehta
2255 Crestview Dr
West Linn, OR 97068

21E35BA08700
Darren & Leslie Karr
2265 Crestview Dr
West Linn, OR 97068

21E35BA08800
David & Sandra Quesnel
2275 Crestview Dr
West Linn, OR 97068

21E35BA08900
David & Jillian Smith
2285 Crestview Dr
West Linn, OR 97068

21E35BA09000
Tamara Butler
2295 Crestview Dr
West Linn, OR 97068

21E35BA09400
Edison & Tamara Ghorbani-Elizeh
2280 Crestview Dr
West Linn, OR 97068

21E35BA09500
Heather Sobotta
2270 Crestview Dr
West Linn, OR 97068

21E35BA09600
Maria Xavier
2260 Crestview Dr
West Linn, OR 97068

21E35BA09700
John Chan
2250 Crestview Dr
West Linn, OR 97068

21E35BA09800
David & Julie Almodovar
2220 Crestview Dr
West Linn, OR 97068

21E35BA09900
David & Kari Ritter
23045 Bland Cir
West Linn, OR 97068

21E35BA10000
Richard Mreen
23049 Bland Cir
West Linn, OR 97068

[illegible]35BA10100
Cory & Jodi Huot
23055 Bland Cir
West Linn, OR 97068

21E35BA10200
James & Jennifer Meagher
23063 Bland Cir
West Linn, OR 97068

21E35BA11200
City Of West Linn
22500 Salamo Rd #600
West Linn, OR 97068

21E35BA11300
City Of West Linn
22500 Salamo Rd #600
West Linn, OR 97068

21E35BA11400
Genevieve Harris
2140 Fircrest Dr
West Linn, OR 97068

21E35BA11500
City Of West Linn
22500 Salamo Rd #600
West Linn, OR 97068

STORMWATER REPORT

WEATHER HILL
WEST LINN, OR

July 31, 2013

Prepared For:

LF7, LLC
West Linn, OR

Prepared By:
3J Consulting, Inc.
10445 SW Canyon Rd, Suite 245
Beaverton, Oregon 97005
Project No: 13118
BCH

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EXECUTIVE SUMMARY

The existing site is located on private property at 22882 Weatherhill Road in West Linn, Oregon (See Figure 2). The property is approximately 2.6 acres and currently contains a single family home, asphalt driveway, asphalt recreation court, swimming pool, and numerous small and large trees along the west, east, and southern borders of the property. The proposed development will consist of subdividing the property to create 11 lots with minimum area of 7,000 ft^2. Additionally, the 11 proposed lots will be connected to Weatherhill Road via the proposed Prince George Court. Half-street improvements to Weatherhill Road, along the property frontage will be constructed as well.

Stormwater runoff from the proposed development will be conveyed to planters for water quality treatment and detention. The planters have been sized to comply with the following requirements:

- Treat stormwater runoff using the City of Portland's requirement of 0.83 inches of precipitation for a 24-hour storm event.
- Capture and detain the 2, 5, 10 and 25-year, 24-hour post developed runoff rate to release at the 2, 5, 10 and 25-year, 24-hour existing runoff rate.

A geotechnical investigation was completed in April 2013 showing that infiltration rate on the site is 0.1 in/hr at 3.0 feet below ground surface.

The purpose of this report is to describe the facilities being proposed and to show that the design follows the City of West Linn's Public Works Design Standards.

PROJECT DESCRIPTION

The existing site is located on private property at 22882 Bland Circle in West Linn, Oregon (See Figure 1 and 2).

The purpose of this report is to describe the facilities being proposed and show that the design follows the City of West Linn Public Works Design Standards in effect at the time of this report.

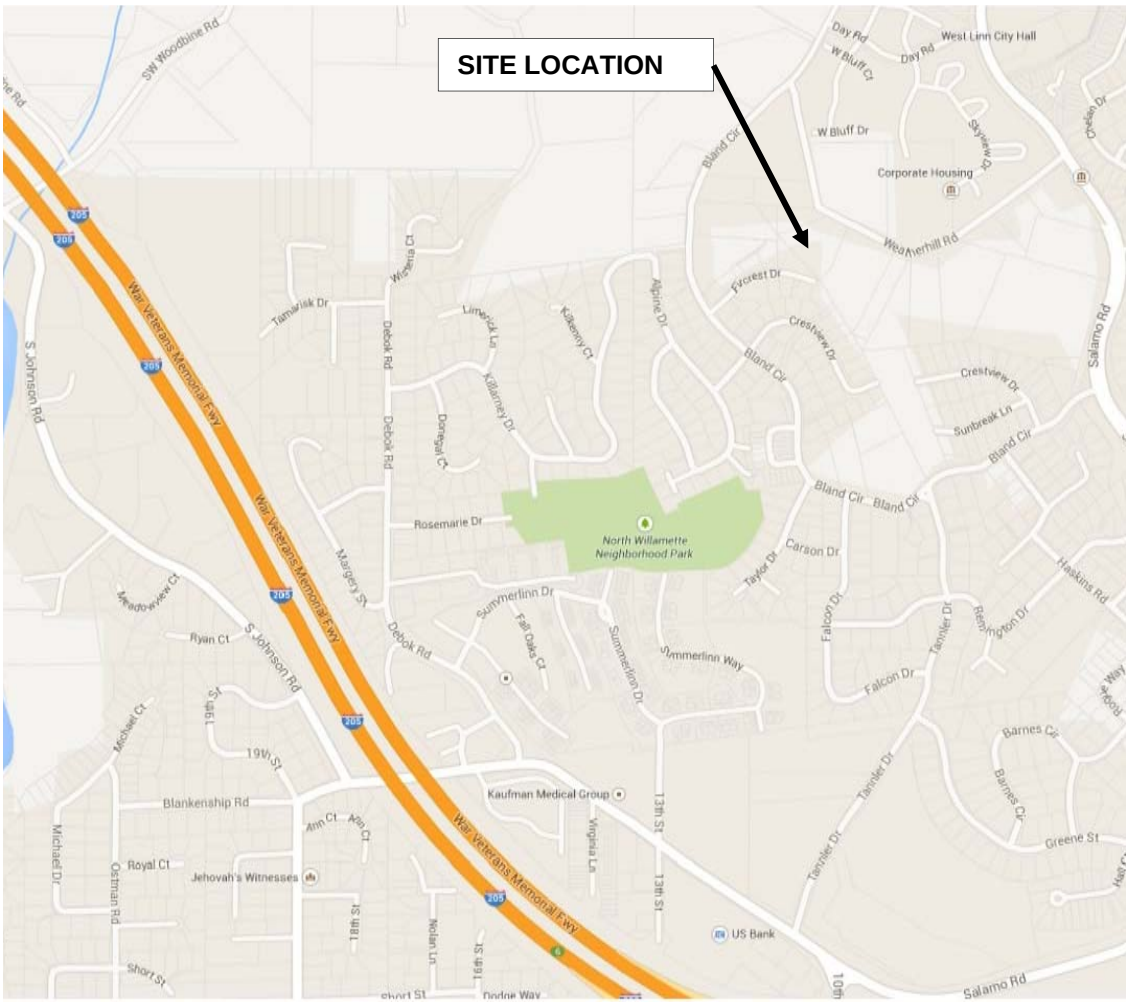


Figure 1 - Vicinity Map

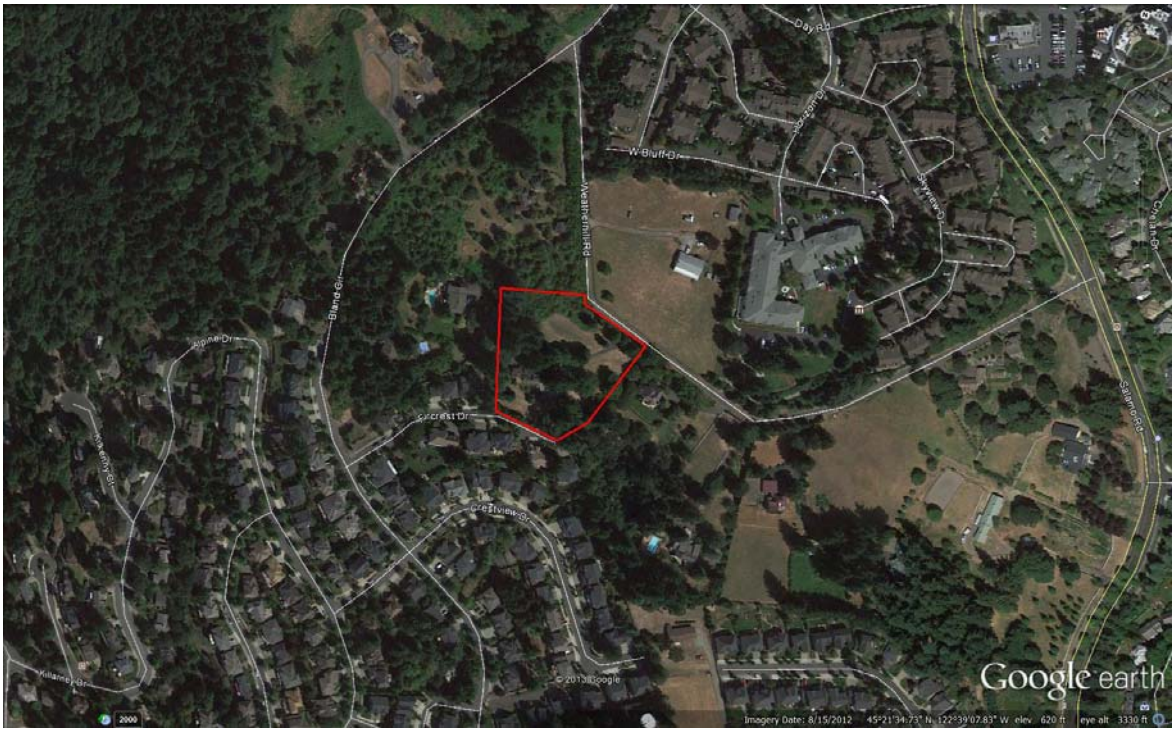


Figure 2 - Site Location

EXISTING CONDITIONS

Site

The topography on the site is sloping down to the south at an average grade of approximately 15% to 25%. Elevations range from a maximum of 640 feet on the northeast side of the property to a minimum of 570 feet on the southwest side. Small portions of the site, between the level areas, have been steepened to grades of approximately 50%. Vegetation on the site consists primarily of grass, brush, and small to large trees. Currently the property contains a single family home, asphalt driveway, asphalt recreation court, swimming pool and numerous small and large trees along the west, east, and southern borders of the property.

Climate

The site is located in Clackamas County approximately 12 miles south of downtown Portland in the West Linn foothills. Average annual rainfall recorded in this area is 47 inches.

Flood Map

The flood plain map shows that the site resides in Zone X, where no base flood elevations have been determined (See Technical Appendix: Exhibits – FIRM Panel 257 of 1175).

Site Geology

The soil type as classified by the United States Department of Agriculture Soil Survey of Clackamas County is identified in Table 1 (See Technical Appendix: Exhibits - Hydrologic Soil Group for Clackamas County Area, Oregon).

Soil Type	Hydrologic Group
Saum silt loam (3-8%)	C
Saum silt loam (8-15%)	C

Table 1 - Soil Characteristics

The soil on the proposed site consists of approximately 20% Saum silt loam (3-8%) and 80% Saum silt loam (8-15%). Both soil types are classified as hydrologic group C. Group C soils generally have slow infiltration rates.

A geotechnical investigation was completed in April 2013 showing that the infiltration rate on the site is 0.1 in/hr at 3 feet below ground surface, (See Technical Appendix: Geotechnical Report).

Existing Drainage

Existing Site

The existing site does not contain a stormwater management system. Stormwater runoff from the site sheet flows generally to the south and southwest, towards and Fircrest Drive.

Basin Areas

Table 2 shows the current impervious and pervious areas for the property (See Technical Appendix: Exhibits – Existing Site Conditions).

Existing Basin Area	sq. ft.	acres
Impervious Area	20,813	0.48
Pervious Area	92,086	2.11
Total Existing Basin Area	112,899	2.59

Table 2 – Existing Basin Areas

Curve Number

The major factors for determining the CN values are hydrologic soil group, cover type, treatment, hydrologic condition, and antecedent runoff condition. The curve number represents runoff potential from the ground. Tables 2-2a and 2-2c in the TR-55 manual were used to determine the appropriate curve numbers (See Technical Appendix: Exhibits – Table 2-2a and 2-2c Runoff Curve Numbers).

The existing site consists of open space, trees, a house, driveway, recreation court and pool. The pervious area was considered to be 1/3 open space (CN=74), and 2/3 woods (CN=70) and the impervious surface has CN=98. The post-developed pervious area was considered to be open space, with conditions assumed to be good (CN=74, grass cover >75%) and poor (CN=86, grass cover < 50%) with a corresponding composite curve number of 84.6.

Time of Concentration

The time of concentration was calculated for the existing site using the TR-55 Method. The time of concentration of 19 minutes was calculated for the existing basin (See Technical Appendix: Calculations– Time of Concentration). The time of concentration for the post-developed conditions was assumed to be 5 minutes.

POST-DEVELOPED CONDITIONS

Post-Developed Site
All storm events up to and including the 25-year will be treated, detained, and released to the existing storm system in Fircrest Drive. Out of the 11 lots within the site, 4 lots will have individual planters to handle and treat the runoff for each of the 4 lots. For the remaining 7 lots, a larger planter facility (Tract A) will accommodate the runoff, including all right-of-way area. The proposed planters will treat and detain the stormwater, releasing it to the existing storm system in Fircrest Drive.

Basin Areas
Table 3 shows the post-developed impervious and pervious areas (See Technical Appendix: Exhibits – Post-Developed Site Conditions).

Post-Developed Basin Area	sq. ft.	acres
LOTS (Lots 4, 5, 8 & 9)		
Assumed Impervious Area (2,640 sf/lot)	10,559	0.24
Landscaping on lots	25,811	0.59
Total Post Developed Area (Lots 4,5,8,9)	36,370	0.83
TRACT A (Remaining lots & ROW)		
Impervious area (includes roof, driveways, sidewalks)	22,084	0.51
Shared paved access	3,687	0.08
R.O.W. (includes road and sidewalk)	9,193	0.21
Landscaping on lots & R.O.W.	41,565	0.95
Total Post Developed Area (TRACT A)	76,529	1.76

Table 3 – Post-Developed Basin Areas

HYDROLOGIC ANALYSIS DESIGN GUIDELINES

Design Guidelines
The site is located within the jurisdiction of the City of West Linn, which follows the City of Portland's Stormwater Management Manual for the design of stormwater facilities. Stormwater runoff from the proposed development will be conveyed to planters for water quality treatment and detention. Each planter has been sized to comply with the following requirements:

- Treat stormwater runoff for water quality storm event (0.83 inches);
- Capture and detain the 2, 5, 10 and 25-year, 24-hour post developed runoff rates to the existing 2, 5, 10 and 25-year, 24-hour existing runoff rates.

Due to the low infiltration rate of 0.1 in/hr, as stated in the April 2013 Geotechnical Report prepared by GeoPacific, infiltration was not accounted for while calculating allowable release rates within the planters.

Hydrograph Method

Naturally occurring rainstorms dissipate over long periods of time. An effective way of estimating storm rainfall is by using the hydrograph method. The Santa Barbara Unit Hydrograph (SBUH) method was used to develop runoff rates. The computer software XPSTORM was used to compute runoff rates and volumes.

Design Storm

The rainfall distribution to be used for this area is the design storm of 24-hour duration based on the standard Type 1A rainfall distribution. Table 4 shows total precipitation depths for the various storm events, which were used as a multiplier for the Type 1A 24-hour rainfall distribution.

Recurrence Interval (years)	Total Precipitation Depth (in.)
2	2.50
5	3.00
10	3.40
25	3.90
100	4.50

Table 4 - Design Storms

Basin Runoff

The existing runoff rates were computed to compare the runoff rates generated for post-developed conditions Basin (LOTS 4, 5, 8 & 9) and for the Basin (TRACT A). The post-developed runoff rate for lots (4, 5, 8 & 9), shown below, are the same for each lot. For simplicity, the values for an individual lot are shown in the table below. These values are the same for the remaining three lots. Table 5 shows the runoff rates for the existing and post-developed conditions (See Technical Appendix: Hydrographs –Existing and Post-Developed Runoff hydrographs).

Recurrence Interval (years)	Existing Runoff Rate (cfs)	Post-Developed Runoff Rate Basin (LOTS) (cfs)	Post-Developed Runoff Rate Basin (TRACT A) (cfs)
PR	N/A	0.011	0.141
2	0.283	0.037	0.482
5	0.403	0.046	0.589
10	0.512	0.054	0.695
25	0.661	0.062	0.801
100	0.853	N/A	N/A

Table 5 - Basin Runoff Rates

HYDRAULIC ANALYSIS AND DESIGN CHARACTERISTICS

System Capacities

The stormwater conveyance system and flow control structure will be sized in the final design phase of the project.

WATER QUALITY/QUANTITY

Water Quality Guidelines

As mentioned previously, lots 4, 5, 8 & 9 will be required to provide water quality treatment. The stormwater facility design follows West Linn's design standards and the City of Portland's Stormwater Management Manual guidelines. The stormwater facilities will be designed for flow control and pollution reduction. The City of Portland's Presumptive Approach Calculator (PAC) was utilized to size a larger planter, which accommodates 7 out of the 11 lots, including all runoff within the newly proposed right of way. The 4 lots mentioned above were also sized using the City of Portland's PAC, and will have individual planters to detain and treat the runoff for each lot.

All basin planters have been designed to release flows at or below the required release rates (as described on the previous page) based on the Existing Runoff Rates shown in Table 5.

Water Quality Facilities Basin (LOTS 4, 5, 8, 9)

Preliminary sizing for water quality and quantity facilities have been included in this report; however, each lot owner will be required to finalize the sizing with specific impervious areas. For the preliminary sizing, each lot was assumed to have impervious area of 2,640 square feet. The City of Portland's PAC was used to size the planters for each individual lot (See Technical Appendix: Calculations – Presumptive Approach Calculator). Each planter was sized to treat and detain all storm events up to and including the 25-year storm event.

Water Quality Facilities Basin (TRACT A & R.O.W.)

The City of Portland's PAC was used to size the larger planter for the remaining portion of the site, and the proposed development within the newly proposed right-of-way. (See Technical Appendix: Calculations – Presumptive Approach Calculator). The planter was sized to treat and detain all storm events up to and including the 25-year storm event.

Planter Volume

Table 6 shows the dimensions used to size the Planters for the above mentioned basins.

Facility	Bottom Area (sf)	Bottom Withdth (ft)	Storage Depth (in)	Growing Medium Depth (in)
Flat Planter (lots 4,5,8,9)	245	14	18	18
Flat Planter (TRACT A & R.O.W.)	2,248	22	18	18

Table 6 – Stormwater Water Quality/Quantity Facilities

Post-Developed Peak Release Rates

As stated above, the stormwater conveyance system and flow control structures will be sized in the final design phase of the project to ensure the 2, 5, 10 and 25-year release rates during the post-developed conditions do not exceed the existing runoff rates for the same storm events.

SUMMARY

The stormwater design for the proposed Weather Hill Subdivision will meet or exceed the City of West Linn's requirements. All sizing of water quality/quantity facilities followed the City of Portland's Stormwater Management Manual.

TECHNICAL APPENDIX

Exhibits
- FIRM Panel 257 of 1175
- Hydrologic Soil Group-Clackamas County Area, Oregon
- Table 2-2a and 2-2c Runoff Curve Numbers
- Existing Site Conditions
- Post-Developed Site Conditions

Drawings
- Sheet C1.0 “Existing Conditions Plan”
- Sheet C3.0“Composite Utility Plan”

Hydrographs
- Existing Runoff Hydrograph
- Presumptive Approach Calculator: Post Developed Runoff Hydrographs

Calculations
- Time of Concentration
- Presumptive Approach Calculator Facility Design Outputs

Geotechnical Reports
- Geotechnical Engineering Report, GeoPacific Engineering, Inc., April 29, 2013

Operations and Maintenance
- Operations and Maintenance Plan for Stormwater Facilities - To be Completed with the Final Design

REFERENCES

1. City of West Linn’s Public Works Design Standards Issued in 2010

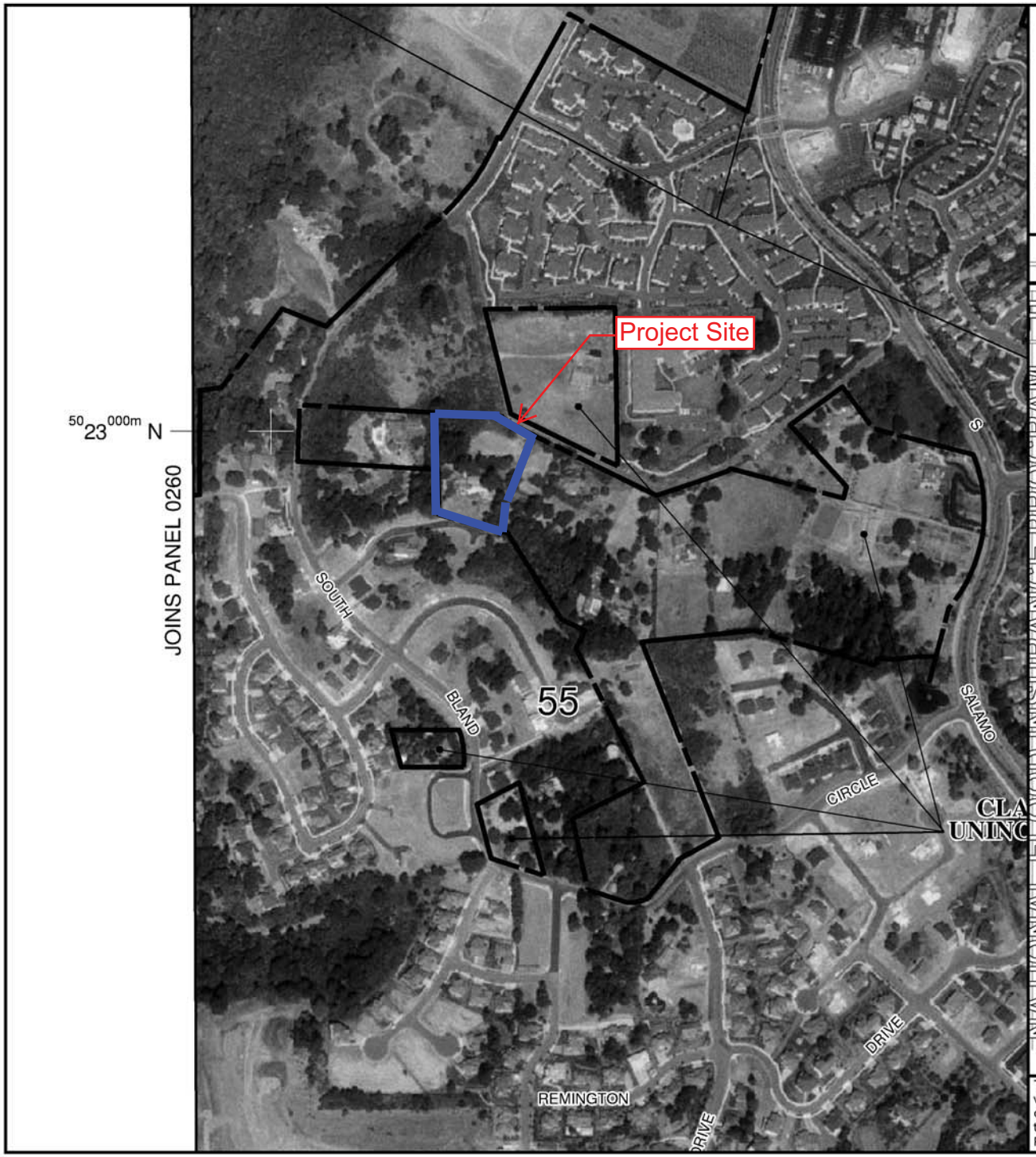
2. City of Portland’s Stormwater Management Manual Issued in August 2008

3. Soil Survey of Clackamas County Area. National Resource Conservation Service

4. Urban Hydrology for Small Watersheds – TR-55 Issued in June 1986 – U.S. Department of Agriculture, Natural Resources Conservation Service, Conservation Engineering Division

5. http://westlinnoregon.gov/publicworks/stormwater-fact-sheet

EXHIBITS



MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM FIP

PANEL 0257D

FIRM

FLOOD INSURANCE RATE MAP

CLACKAMAS COUNTY, OREGON

AND INCORPORATED AREAS

PANEL 257 OF 1175

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CLACKAMAS COUNTY	415588	0257	D
OREGON CITY, CITY OF	410021	0257	D
WEST LINN, CITY OF	410024	0257	D

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
41005C0257D

EFFECTIVE DATE
JUNE 17, 2008

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

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.

Map Unit Legend

Clackamas County Area, Oregon (OR610)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
78B	Saum silt loam, 3 to 8 percent slopes	0.5	19.8%
78C	Saum silt loam, 8 to 15 percent slopes	2.2	80.2%
Totals for Area of Interest		**2.8**	**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

Clackamas County Area, Oregon

78B—Saum silt loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 250 to 800 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

Saum and similar soils: 80 percent

Description of Saum

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Material silty and colluvium

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 8.4 inches)

Interpretive groups

Farmland classification: All areas are prime farmland
Land capability classification (irrigated): 2e
Land capability (nonirrigated): 2e
Hydrologic Soil Group: C

Typical profile

0 to 8 inches: Silt loam
8 to 26 inches: Silty clay loam
26 to 50 inches: Gravelly silty clay loam
50 to 54 inches: Unweathered bedrock

78C—Saum silt loam, 8 to 15 percent slopes

Map Unit Setting

Elevation: 250 to 800 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
Saum and similar soils: 80 percent

Description of Saum

Setting
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Material silty and colluvium

Properties and qualities
Slope: 8 to 15 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 8.4 inches)

Interpretive groups
Farmland classification: Farmland of statewide importance
Land capability classification (irrigated): 2e
Land capability (nonirrigated): 2e
Hydrologic Soil Group: C

Typical profile
0 to 8 inches: Silt loam
8 to 26 inches: Silty clay loam
26 to 50 inches: Gravelly silty clay loam
50 to 54 inches: Unweathered bedrock

Table 2-2a Runoff curve numbers for urban areas [1/]

Cover description		Curve numbers for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area [2/]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3/]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4/]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5/]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

1 Average runoff condition, and $I_a = 0.2S$.

2 The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

3 CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4 Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5 Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2c Runoff curve numbers for other agricultural lands [1/]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range—continuous forage for grazing. [2/]	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element. [3/]	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30 [4/]	48	65	73
Woods—grass combination (orchard or tree farm). [5/]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods. [6/]	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30 [4/]	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

1 Average runoff condition, and $I_a = 0.2S$.

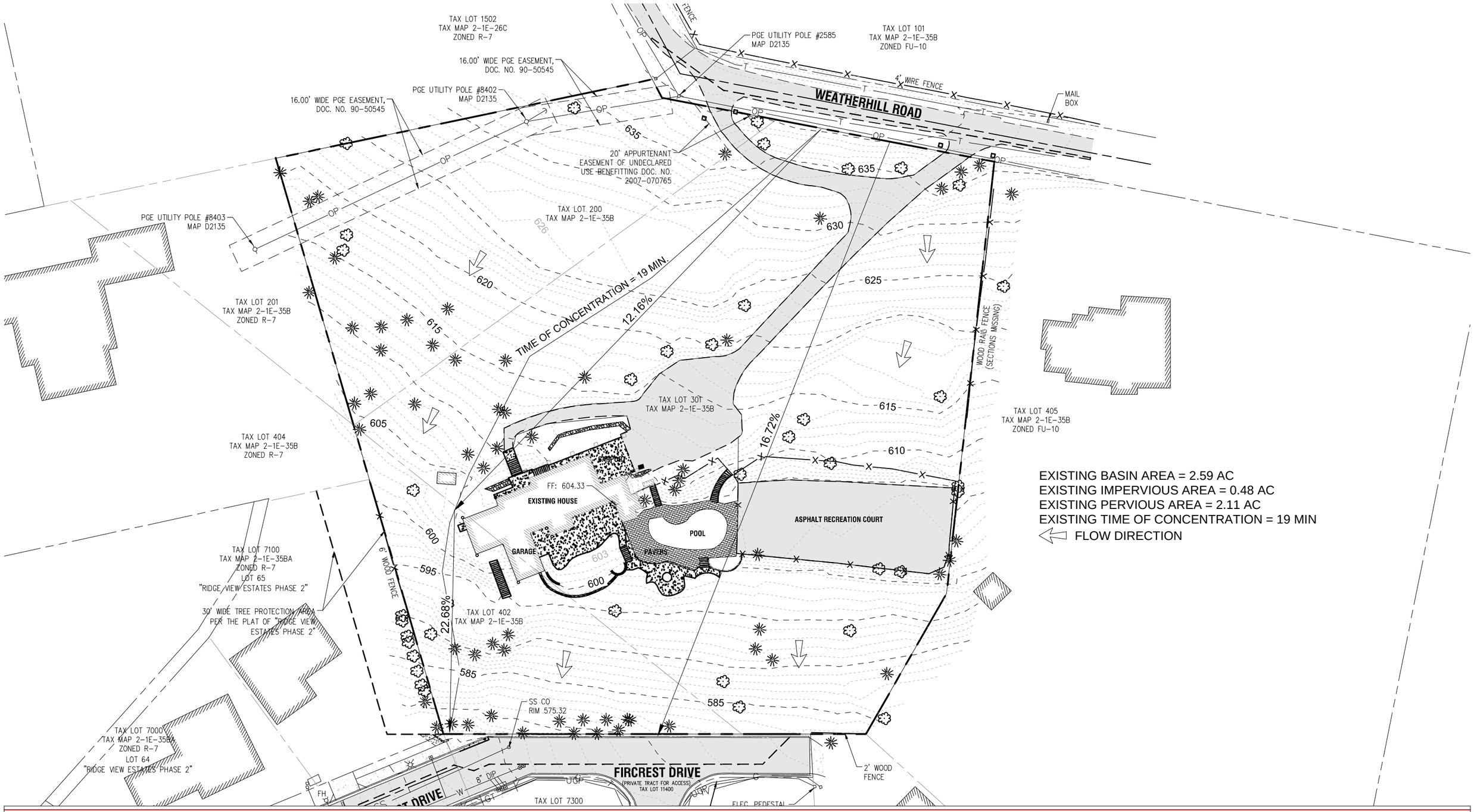
2 *Poor:* <50%) ground cover or heavily grazed with no mulch.
Fair: 50 to 75% ground cover and not heavily grazed.
Good: > 75% ground cover and lightly or only occasionally grazed.

3 *Poor*: <50% ground cover.
Fair: 50 to 75% ground cover.
Good: >75% ground cover.

4 Actual curve number is less than 30; use CN = 30 for runoff computations.

5 CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

6 *Poor:* Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.
Fair: Woods are grazed but not burned, and some forest litter covers the soil.
Good: Woods are protected from grazing, and litter and brush adequately cover the soil.



EXISTING BASIN AREA = 2.59 AC
EXISTING IMPERVIOUS AREA = 0.48 AC
EXISTING PERVIOUS AREA = 2.11 AC
EXISTING TIME OF CONCENTRATION = 19 MIN
⇦ FLOW DIRECTION

3J CONSULTING, INC

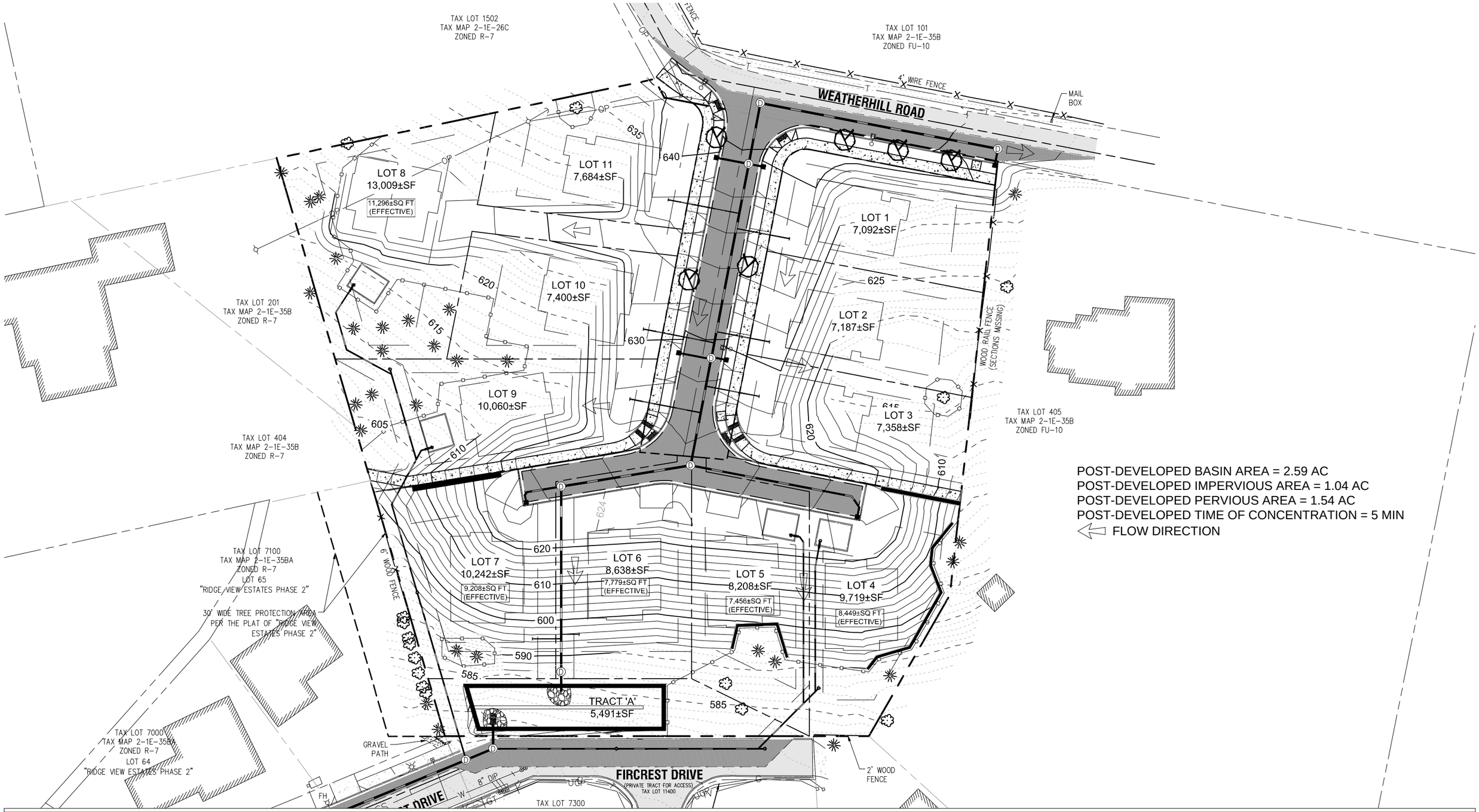
CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING

EXISTING SITE CONDITIONS
WEATHER HILL SUBDIVISION

Storm Report

Exhibit 1

Date: 07/30/13 By:BCH



POST-DEVELOPED BASIN AREA = 2.59 AC
POST-DEVELOPED IMPERVIOUS AREA = 1.04 AC
POST-DEVELOPED PERVIOUS AREA = 1.54 AC
POST-DEVELOPED TIME OF CONCENTRATION = 5 MIN
⇦ FLOW DIRECTION

3J CONSULTING, INC
CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING

POST-DEVELOPED SITE CONDITIONS
WEATHER HILL SUBDIVISION

Storm Report

Exhibit 2

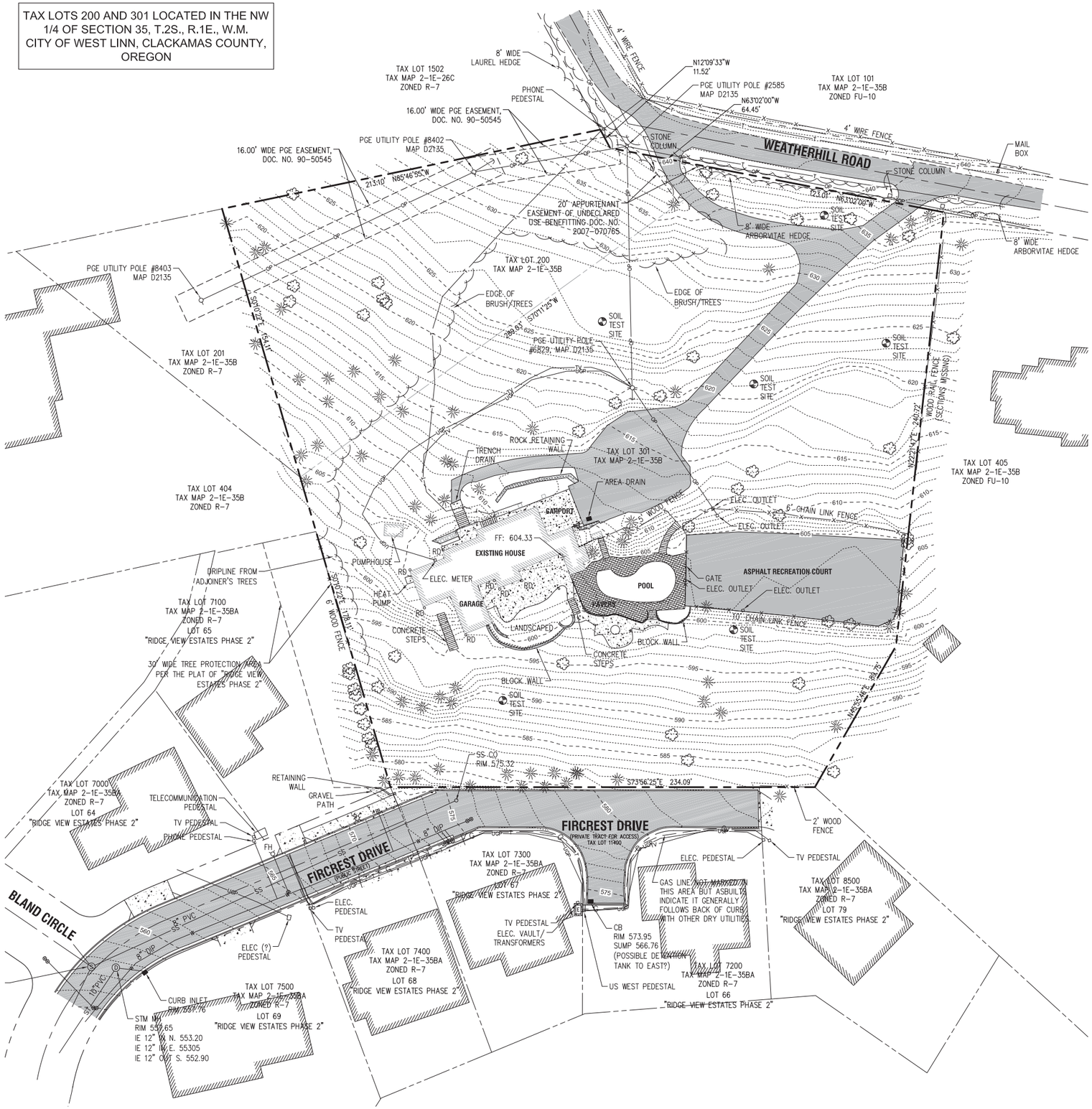
Date: 07/30/13 By:BCH

DRAWINGS

TAX LOTS 200 AND 301 LOCATED IN THE NW 1/4 OF SECTION 35, T.2S., R.1E., W.M.
CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON

EXISTING CONDITIONS PLAN

THIS PLAN IS INTENDED FOR USE AS AN EXISTING CONDITIONS PLAN SHOWING THE CONDITIONS OF THE SITE PRIOR TO CONSTRUCTION. INFORMATION SHOWN ON THIS PLAN WAS DEVELOPED FROM THE TOPOGRAPHIC SURVEY, AERIAL PHOTOS, AND SITE OBSERVATIONS BY THE ENGINEER. NOT ALL SURFACE FEATURES OR UTILITIES MAY BE SHOWN. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION TO DETERMINE WORK SPECIFIC DETAILS. TOPOGRAPHIC INFORMATION PROVIDED BY COMPASS ENGINEERING DATED APRIL, 2013.



LEGEND

BOUNDARY LINE	CURB
RIGHT-OF-WAY	ASPHALT
CENTERLINE	CONCRETE
LOT LINE	GRAVEL
BUILDING	EXISTING TREES
1 FT CONTOUR	LIGHT POLE
5 FT CONTOUR	WATER VALVE
SANITARY SEWER	WATER METER
STORM SEWER	FIRE HYDRANT
WATER LINE	
GAS LINE	
UNDERGROUND POWER	
UNDERGROUND PHONE LINE	
OVERHEAD POWER	

NOTES

1. UTILITY INFORMATION SHOWN ON THIS MAP IS BASED UPON OBSERVED FEATURES, RECORD DATA AND TONE MARKS PROVIDED BY PUBLIC UTILITY LOCATION SERVICES. NO WARRANTIES ARE MADE REGARDING THE ACCURACY OR COMPLETENESS OF THE UTILITY INFORMATION SHOWN. ADDITIONAL UTILITIES MAY EXIST. INTERESTED PARTIES ARE HEREBY ADVISED THAT UTILITY LOCATIONS SHOULD BE VERIFIED PRIOR TO DESIGN OR CONSTRUCTION OF ANY CRITICAL ITEMS.
2. VERTICAL DATUM: NAVD '88 UTILIZING GPS POSITIONING TIED TO THE ORGN WITH REAL TIME CORRECTORS REFERENCED TO NAD 83(2011).
3. TOPOGRAPHIC FEATURES SHOWN ON THIS MAP WERE LOCATED USING STANDARD PRECISION TOPOGRAPHIC MAPPING PROCEDURES. THIRD PARTY USERS OF DATA FROM THIS MAP PROVIDED VIA AUTOCAD DRAWING FILES OR DATA EXCHANGE FILES SHOULD NOT RELY ON ANY AUTOCAD GENERATED INFORMATION WHICH IS BEYOND THE LIMITS OF PRECISION OF THIS MAP. THIRD PARTIES USING DATA FROM THIS MAP IN AN AUTOCAD FORMAT SHOULD VERIFY ANY ELEMENTS REQUIRING PRECISE LOCATIONS PRIOR TO COMMENCEMENT OF ANY CRITICAL DESIGN OR CONSTRUCTION. CONTACT COMPASS ENGINEERING FOR FURTHER INFORMATION. FURTHERMORE, COMPASS ENGINEERING WILL NOT BE RESPONSIBLE NOR HELD LIABLE FOR ANY DESIGN OR CONSTRUCTION RELATED PROBLEMS THAT ARISE OUT OF THIRD PARTY USAGE OF THIS MAP (IN AUTOCAD OR OTHER FORMAT) FOR ANY PURPOSE OTHER THAN SPECIFICALLY STATED HEREIN. THIS STATEMENT IS AN OFFICIAL PART OF THIS MAP.

CHECK SET

#	REVISION SUMMARY	BY	DATE
			07/26/13

EXISTING CONDITIONS
WEATHERHILL SUBDIVISION
WEST LINN, OR
J.T. SMITH COMPANIES

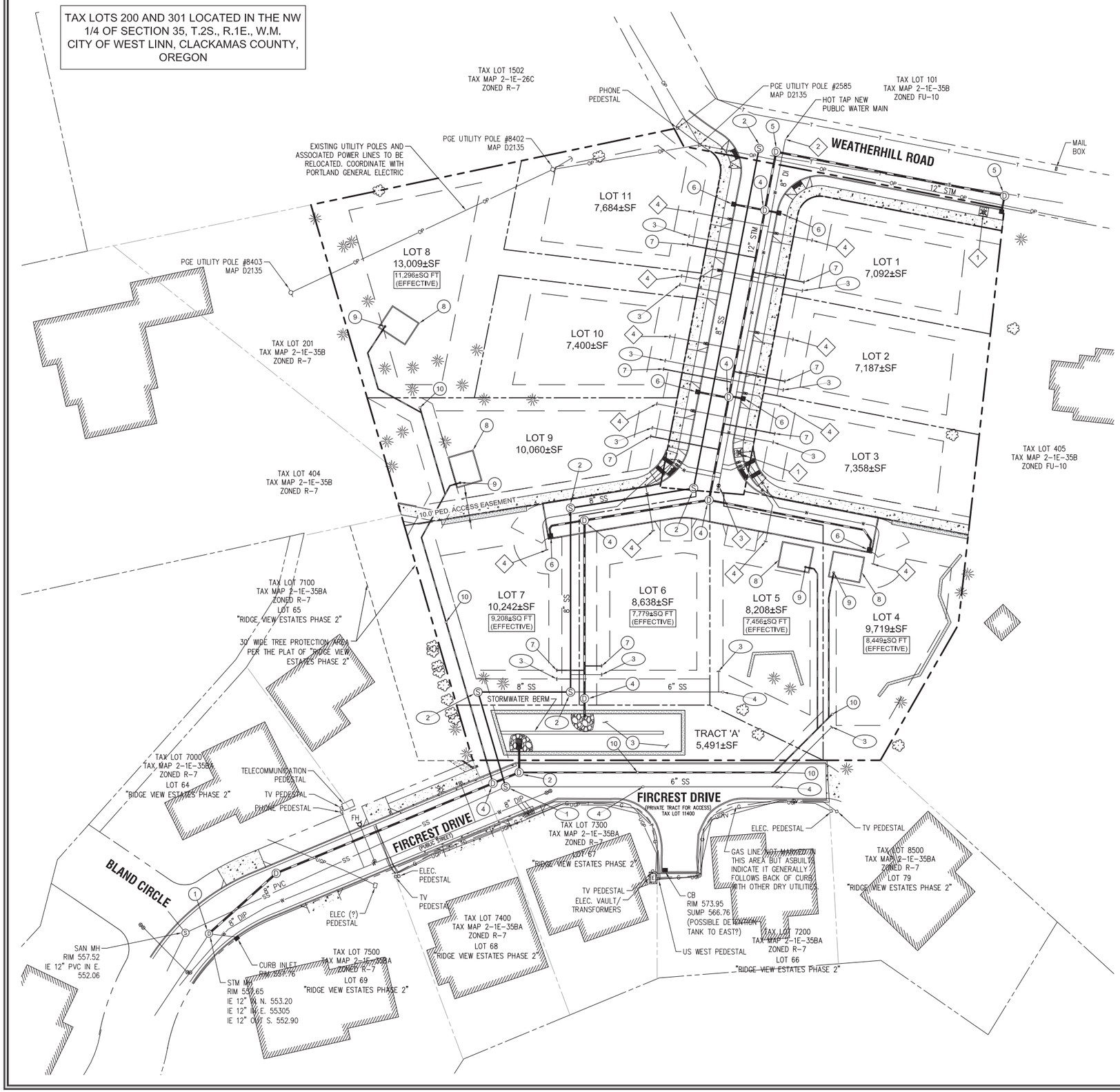
3J CONSULTING, INC
CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING
10445 SW CANYON ROAD SUITE 245, BEAVERTON, OR 97005
PHONE & FAX: (503) 946-0365

3J JOB ID #	13118
LAND USE #	____
TAX LOT #'S	2S1E35B 200, 301
DESIGNED BY	CLF
CHECKED BY	BKF

SHEET TITLE
EXISTING COND.'S

SHEET NUMBER
C1.0

TAX LOTS 200 AND 301 LOCATED IN THE NW 1/4 OF SECTION 35, T.2S., R.1E., W.M.
CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON



Scale: 1 inch = 30 feet
30 15 0 15 30

LEGEND

- BOUNDARY LINE
- EXISITNG RIGHT-OF-WAY
- EXISTING CENTERLINE
- EXISTING LOT LINE
- EXISTING CURB
- EXISTING ASPHALT
- EXISTING SIDEWALK
- EXISTING LIGHT POLE
- PROPOSED RIGHT-OF-WAY
- PROPOSED LOT LINE
- PROPOSED CURB
- PROPOSED SIDEWALK
- PROPOSED SETBACK LINE
- SANITARY SEWER LINE AND MANHOLE
- STORM DRAIN LINE AND MANHOLE
- DOMESTIC WATER SERVICE & METER
- STORM SEWER LATERAL AS NOTED
- SANITARY SEWER LATERAL AS NOTED
- STORM SEWER CURB INLET
- PROPOSED STREET LIGHT
- PROPOSED RETAINING WALL

STORM SEWER CONSTRUCTION NOTES

1	CONNECT PROPOSED 12" STORM LINE TO EXISTING MANHOLE.
2	CONSTRUCT FLOW CONTROL STRUCTURE FOR POND OUTLET.
3	CONSTRUCT WET DETENTION POND (PER APPENDIX D; CCSD #1 STANDARD SURFACE WATER SPECIFICATIONS). MAX POND STAGE: XXX.XX; POND BOTTOM: XXX.XX'.
4	CONSTRUCT STANDARD 48" STORM SEWER MANHOLE.
5	CONSTRUCT SHALLOW 48" STORM SEWER MANHOLE.
6	CONSTRUCT CURB INLET WITH 10" STORM LINE.
7	PROVIDE 6" PRIVATE STORM DRAIN LATERAL CONNECTION FOR INDIVIDUAL LOT SERVICE. EXTEND SERVICE LATERAL 3' BEYOND PUE.
8	STORMWATER INFILTRATION PLANTER FOR MANAGEMENT OF FUTURE PROPERTY IMPROVEMENTS.
9	ROUTE WATER QUALITY PLANTER OVERFLOWS TO ULTIMATE STORWATER OUTLET.
10	INSTALL 6" OR 8" CLEAN OUT AS SPECIFIED.

SANITARY SEWER CONSTRUCTION NOTES

1	CONNECT PROPOSED 8" SEWER LINE TO NEW MANHOLE OVER EXISTING SEWER LINE.
2	CONSTRUCT STANDARD 48" SANITARY SEWER MANHOLE.
3	PROVIDE NEW 4" SANITARY SEWER LATERAL FOR INDIVIDUAL LOT SERVICE. EXTEND SERVICE LATERAL 3' BEYOND PUE.
4	INSTALL 4" CLEAN OUT.

WATER CONSTRUCTION NOTES

1	INSTALL FIRE HYDRANT.
2	HOT TAP EXISTING WATER MAIN. COORDINATE WITH CITY OF WEST LINN PUBLIC WORKS.
3	INSTALL STANDARD BLOW-OFF.
4	INSTALL SINGLE WATER METER FOR INDIVIDUAL LOT SERVICE. EXTEND 1" SERVICE LATERAL 3' BEYOND PUE.

Know what's below. Call before you dig.

CHECK SET

#	REVISION SUMMARY	BY	DATE
			07/26/13

COMPOSITE UTILITY PLAN
WEATHERHILL SUBDIVISION
WEST LINN, OR
J.T. SMITH COMPANIES

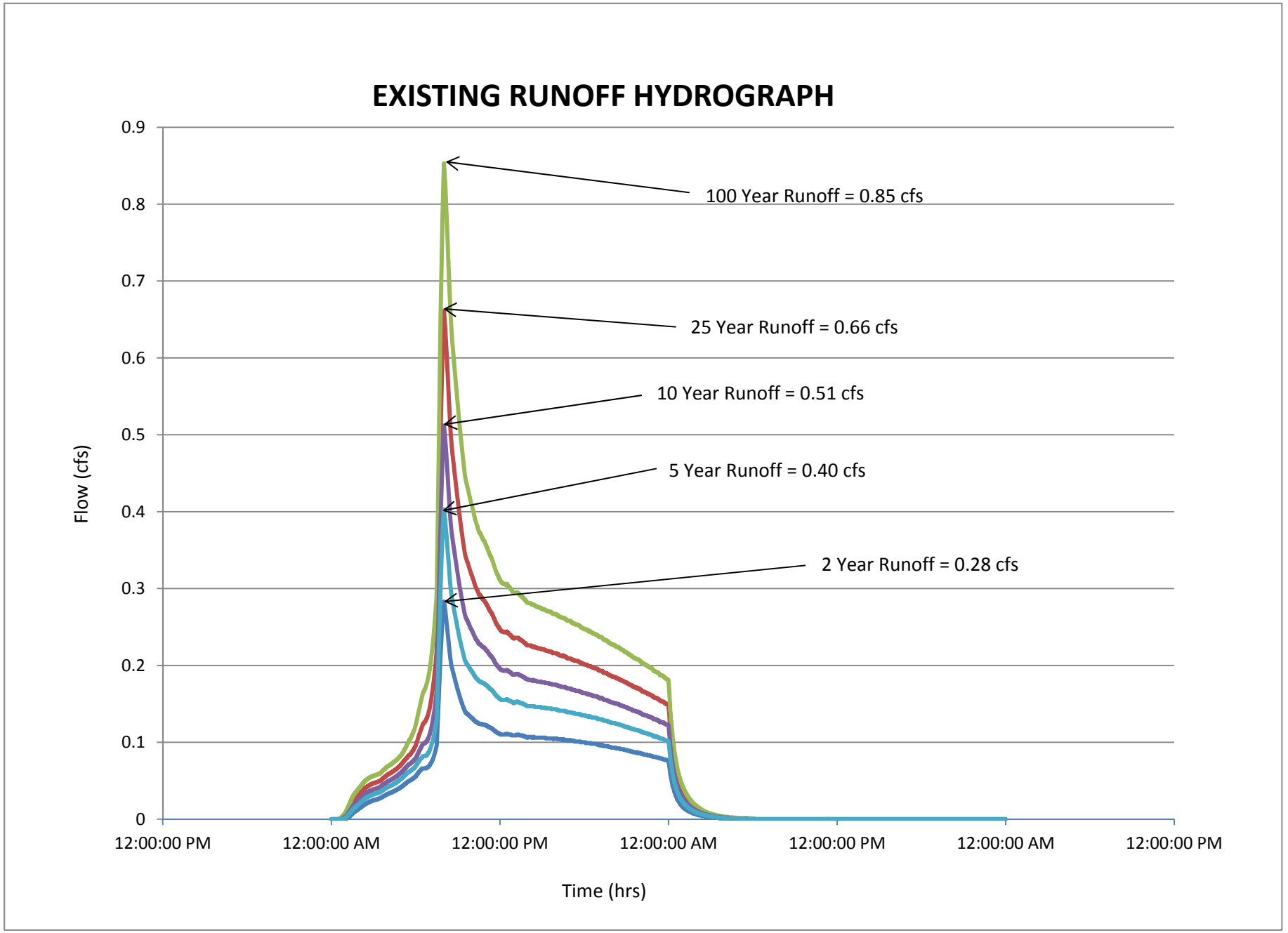
3J CONSULTING, INC
CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING
10445 SW CANYON ROAD SUITE 245, BEAVERTON, OR 97005
PHONE & FAX: (503) 946-0365

3J JOB ID #	13118
LAND USE #	____
TAX LOT #'S	2S1E35B 200, 301
DESIGNED BY	CLF
CHECKED BY	BKF

SHEET TITLE
UTILTIY PLAN

SHEET NUMBER
C3.0

HYDROGRAPHS


EXISTING RUNOFF HYDROGRAPH
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Flow (cfs)
100 Year Runoff = 0.85 cfs
25 Year Runoff = 0.66 cfs
10 Year Runoff = 0.51 cfs
5 Year Runoff = 0.40 cfs
2 Year Runoff = 0.28 cfs
12:00:00 PM
12:00:00 AM
12:00:00 PM
12:00:00 AM
12:00:00 PM
12:00:00 AM
12:00:00 PM
Time (hrs)

Presumptive Approach Calculator ver. 1.2

Catchment Data

Catchment ID:	**LOTS**
Date:	**07/31/13**
Permit Number:	**0**
Run Time	7/31/2013 11:38:28 AM

Project Name:	**Weather Hill**
Project Address:	**22882 Weatherhill Road**
	West Linn, OR
Designer:	**BCH**
Company:	**3J Consulting**

Drainage Catchment Information

Catchment ID	LOTS	
	Catchment Area	
Impervious Area	2,640	SF
Impervious Area	0.06	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}):	0.0001	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	

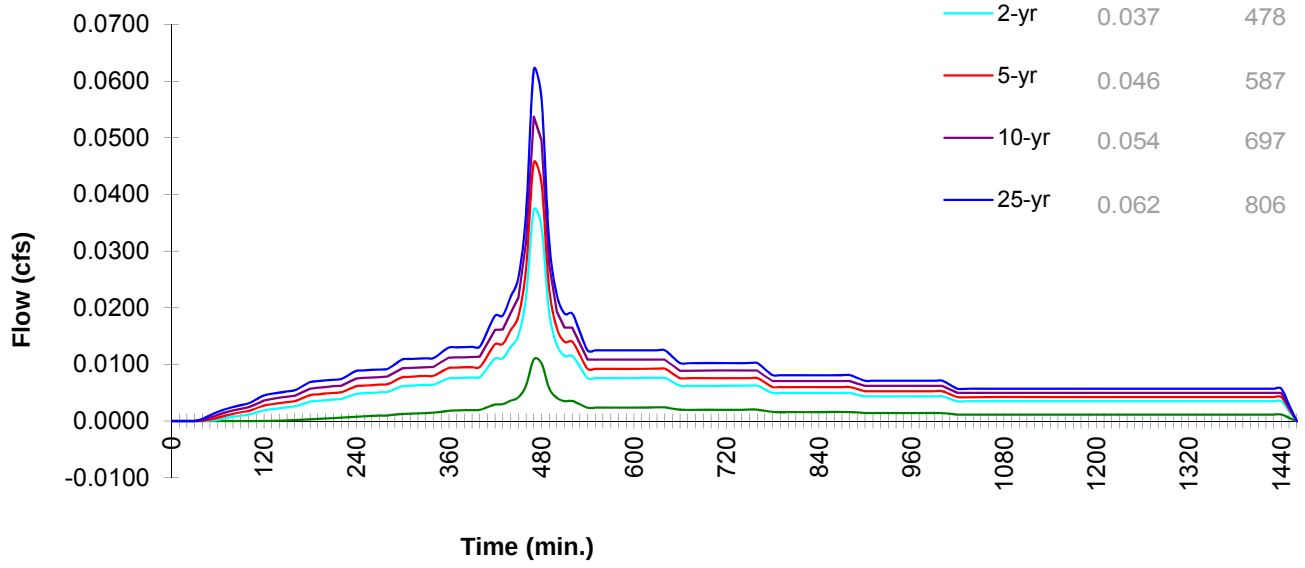
Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.00	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	0.011	138
2-yr	0.037	478
5-yr	0.046	587
10-yr	0.054	697
25-yr	0.062	806



Printed: 7/31/2013 11:38 AM

Presumptive Approach Calculator ver. 1.2

Catchment Data

Project Name:	**Weather Hill**
Project Address:	**22882 Weatherhill Road**
	West Linn, OR
Designer:	**BCH**
Company:	**3J Consulting**

Catchment ID:	**SITE**
Date:	**07/31/13**
Permit Number:	**0**
Run Time	7/31/2013 11:40:35 AM

Drainage Catchment Information

Catchment ID	SITE	
	Catchment Area	
Impervious Area	34,145	SF
Impervious Area	0.78	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}):	0.0001	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	

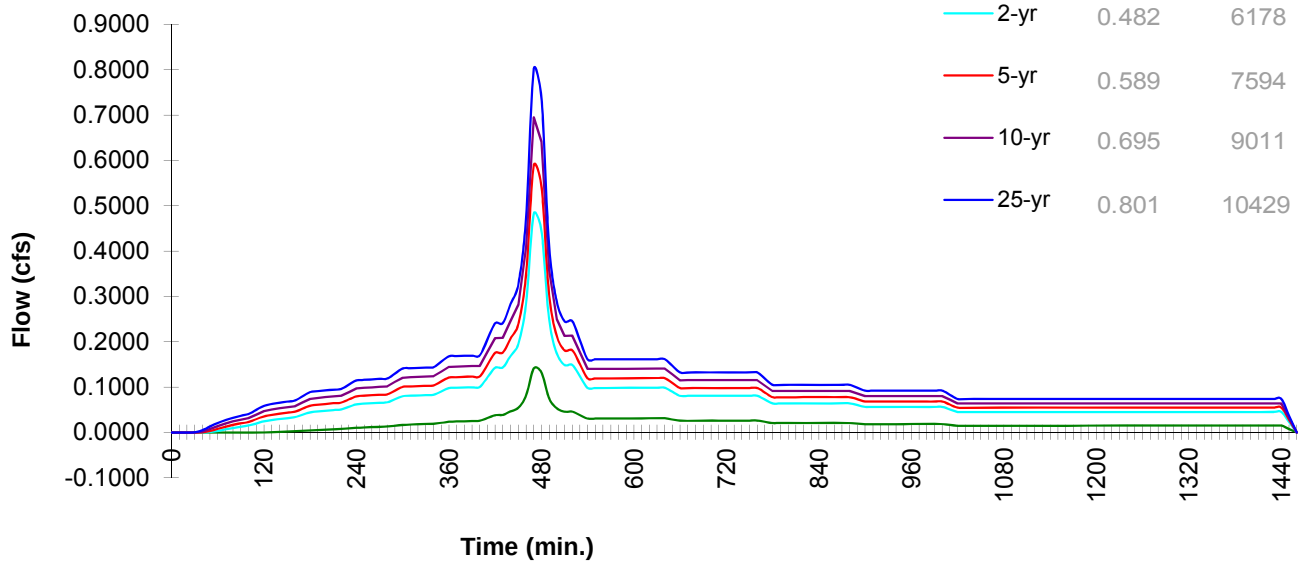
Design Infiltration Rates

I_{dsgn} for Native (I_{test} / CF_{test}):	0.00	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	0.141	1784
2-yr	0.482	6178
5-yr	0.589	7594
10-yr	0.695	9011
25-yr	0.801	10429



Printed: 7/31/2013 11:40 AM

CALCULATIONS

Time of Concentration

PROJECT NO.	13118 Weatherhill	BY	KEF	DATE	7/24/2013

	Existing		
SHEET FLOW			
INPUT	**VALUE**	**VALUE**	**VALUE**
Surface Description	**Type 6 Grass (dense)**	**Type 4 Cultivated (residue > 20%)**	**Type 5 Grass (short prairie)**
Manning's "n"	**0.24**	**0.17**	**0.15**
Flow Length, L (<300 ft)	**300** ft	**0** ft	**0** ft
2-Yr 24 Hour Rainfall, P_2	**2.5** in	**2.5** in	**2.5** in
Land Slope, s	**0.1216** ft/ft	**0.005** ft/ft	**0.0025** ft/ft
OUTPUT			
Travel Time	0.31 hr	0.00 hr	0.00 hr
SHALLOW CONCENTRATED FLOW			
INPUT	**VALUE**	**VALUE**	**VALUE**
Surface Description	**Unpaved**	**Unpaved**	**Unpaved**
Flow Length, L	**125** ft	**0** ft	**0** ft
Watercourse Slope*, s	**0.2268** ft/ft	**0.01** ft/ft	**0.027** ft/ft
OUTPUT			
Average Velocity, V	7.68 ft/s	1.61 ft/s	2.65 ft/s
Travel Time	0.005 hr	0.000 hr	0.000 hr
CHANNEL FLOW			
INPUT	**VALUE**	**VALUE**	**VALUE**
Cross Sectional Flow Area, a	**7.5** ft^2	**7.5** ft^2	**15.05** ft^2
Wetted Perimeter, P_w	**11.28** ft	**11.28** ft	**7.69** ft
Channel Slope, s	**0.003** ft/ft	**0.003** ft/ft	**0.00** ft/ft
Manning's "n"	**0.24**	**0.24**	**0.24**
Flow Length, L	**0** ft	**0** ft	**0** ft
OUTPUT			
Average Velocity	0.26 ft/s	0.26 ft/s	0.53 ft/s
Hydraulic Radius, r = a / P_w	0.66 ft	0.66 ft	1.96 ft
Travel Time	0.00 hr	0.00 hr	0.00 hr
Watershed or Subarea T_c =	**0.32 hr**	**0.00 hr**	**0.00 hr**
Watershed or Subarea T_c =	**19 minutes**	**0 minutes**	**0 minutes**

Presumptive Approach Calculator ver. 1.2

Catchment ID: LOTS

Run Time 7/31/2013 8:56:20 AM

Project Name: Weather Hill **Catchment ID:** LOTS **Date:** 7/31/2013

imported file PAC LOTS data.xls - 7/31/2013 8:56:22 AM

Instructions:

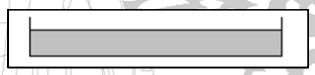
1. Identify which Stormwater Hierarchy Category the facility.
2. Select Facility Type.
3. Identify facility shape of surface facility to more accurately estimate surface volume, except for Swales and sloped planters that use the PAC Sloped Facility Worksheet to enter data.
4. Select type of facility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

Catchment facility will meet Hierarchy Category: **3**

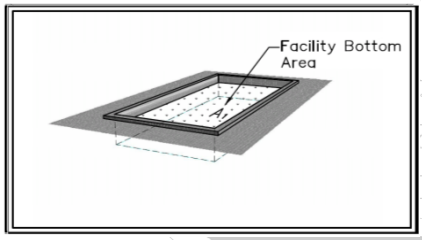
Goal Summary:

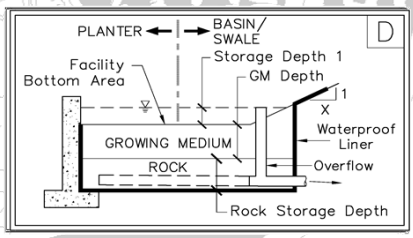
Hierarchy Category	SWMM Requirement	RESULTS box below needs to display…	
		Pollution Reduction as a	10-yr (aka disposal) as a
3	Off-site flow to drainageway, river, or storm-only pipe system.	PASS	N/A

Facility Type = Planter (Flat)



Facility Shape: Rectangle/Square **Facility Configuration:** D





Calculation Guide
Max. Rock Stor. Bottom Area
245 SF

DATA FOR ABOVE GRADE STORAGE COMPONENT **BELOW GRADE STORAGE**

Facility Bottom Area =	245	sf
Bottom Width =	14.0	ft
Facility Side Slope =	0	to 1
Storage Depth 1 =	18	in
Growing Medium Depth =	18	in
Freeboard Depth =	N/A	in

Surface Capacity at Depth 1 =	368	cf
GM Design Infiltration Rate =	2.00	in/hr
Infiltration Capacity =	0.011	cfs

Rock Storage Capacity =		cf
Native Design Infiltration Rate =		in/hr
Infiltration Capacity =		cfs

RESULTS

Pollution Reduction: **PASS** | Overflow Volume: 0 CF | **0%** Surf. Cap. Used | Run PAC

Output File

	2-yr	5-yr	10-yr	25-yr
Peak cfs	0.011	0.011	0.011	0.011

Current data has been imported:

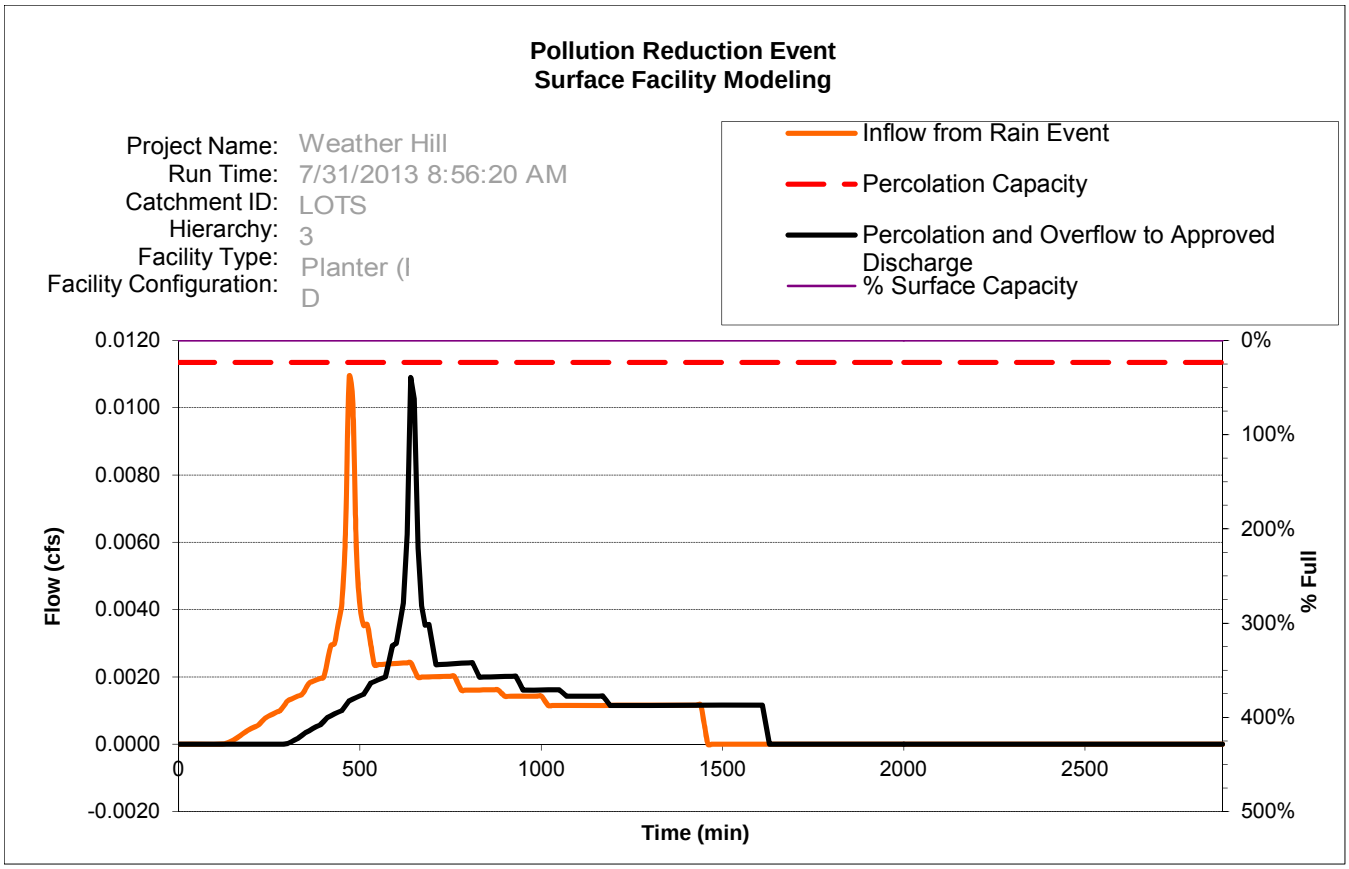
PAC LOTS data.xls 7/31/2013 8:56:22 AM

FACILITY FACTS

Total Facility Area Including Freeboard =	245 SF
Sizing Ratio (Total Facility Area / Catchment Area) =	0.093

BES - Presumptive Approach Calculator - Ver 1.2

PR Con-D



Presumptive Approach Calculator ver. 1.2

Catchment ID: SITE

Run Time 7/31/2013 8:59:34 AM

Project Name: Weather Hill **Catchment ID:** SITE **Date:** 7/31/2013

imported file PAC SITE data.xls - 7/31/2013 8:59:36 AM

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.

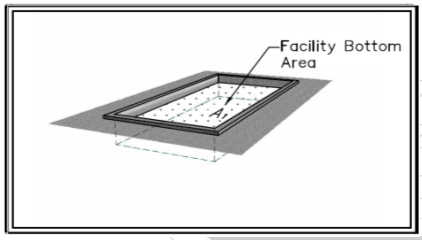
Catchment facility will meet Hierarchy Category: **3**

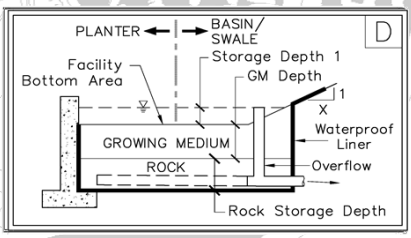
Goal Summary:

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:** D





Calculation Guide
Max. Rock Stor. Bottom Area
2,248 SF

DATA FOR ABOVE GRADE STORAGE COMPONENT

Facility Bottom Area =	2,248	sf
Bottom Width =	21.5	ft
Facility Side Slope =	0	to 1
Storage Depth 1 =	18	in
Growing Medium Depth =	18	in
Freeboard Depth =	N/A	in

BELOW GRADE STORAGE

Rock Storage Capacity =		cf
Native Design Infiltration Rate =		in/hr
Infiltration Capacity =		cfs

Surface Capacity at Depth 1 =	3,372	cf
GM Design Infiltration Rate =	2.00	in/hr
Infiltration Capacity =	0.104	cfs

RESULTS

		Overflow Volume		
Pollution Reduction	PASS	0 CF	1%	Surf. Cap. Used

Run PAC

Output File

	2-yr	5-yr	10-yr	25-yr
Peak cfs	0.104	0.104	0.104	0.104

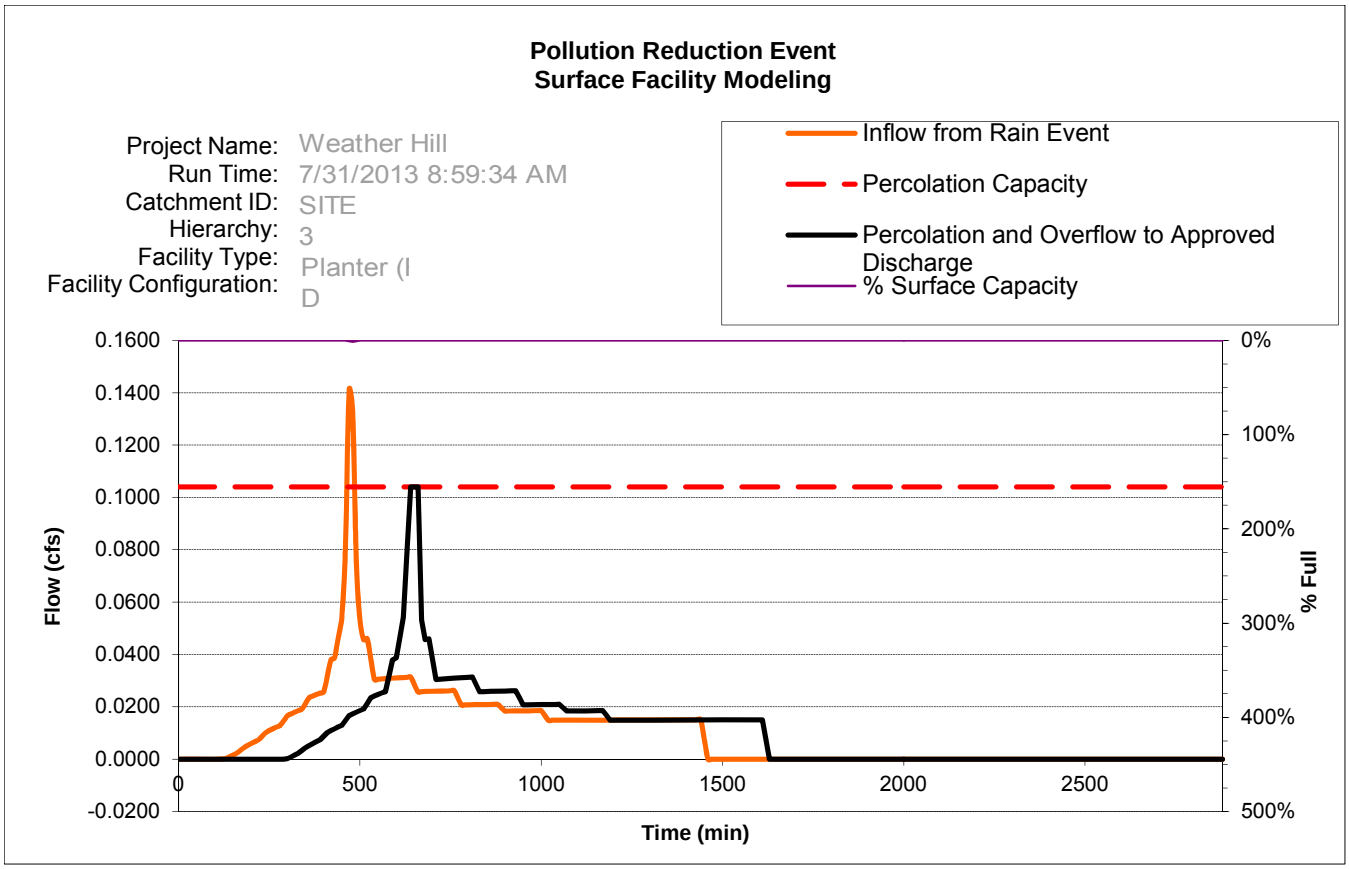
Current data has been imported:

PAC SITE data.xls 7/31/2013 8:59:36 AM

FACILITY FACTS

Total Facility Area Including Freeboard =	2,248 SF
Sizing Ratio (Total Facility Area / Catchment Area) =	0.066

BES - Presumptive Approach Calculator - Ver 1.2



GEOTECHNICAL REPORTS

GeoPacific Engineering, Inc.

Real-World Geotechnical Solutions
Investigation • Design • Construction Support

April 30, 2013
GeoPacific Project No. 13-2969

John Wyland
J.T. Smith Companies
5282 Meadows Road, Suite 171
Lake Oswego, Oregon 97035

Copy: Brian Feeney (brian.feeney@3j-consulting.com)

Via e-mail with hard copies mailed

Subject: **GEOTECHNICAL ENGINEERING REPORT**
WEATHERHILL PROPERTIES
22882 WEATHERHILL ROAD
WEST LINN, OREGON

This report presents the results of a geotechnical engineering study conducted by GeoPacific Engineering, Inc. (GeoPacific) for the above referenced project. The purpose of this study was to evaluate subsurface conditions at the site and to provide geotechnical recommendations for site development. This geotechnical study was performed in accordance with GeoPacific proposal No. P-4459, dated April 3, 2013, and your subsequent authorization of our agreement and *General Conditions for Geotechnical Services.*

SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The site is located on the south side of Weatherhill Road in West Linn, Oregon (Figure 1). The area of the planned development totals approximately 2.0 acres. A single family residence is present in the center of the site. There are signs of previous grading activity across the site, creating several level areas. The topography on the site is sloping down to the south at an average grade of approximately 15 to 20 percent. Small portions of the site, between the level areas, have been steepened to grades of approximately 50 percent. Vegetation on the site consists primarily of grass, brush, and small to large trees.

It is our understanding that the proposed development includes grading the site to support lots for new single-family homes, approximately 350 feet of new private streets, and associated underground utilities. The current site plan (Figure 2) shows a total of 11 lots and two tracts. The existing residence is to be demolished and removed from the site. We anticipate that the maximum depth of cut and height of fill will be about 5 feet or less.

REGIONAL GEOLOGIC SETTING

Regionally, the subject site lies within the Willamette Valley/Puget Sound lowland, a broad structural depression situated between the Coast Range on the west and the Cascade Range on the east. A series of discontinuous faults subdivide the Willamette Valley into a mosaic of fault-bounded, structural blocks (Yeats et al., 1996). Uplifted structural blocks form bedrock highlands, while down-warped structural blocks form sedimentary basins.

The site is underlain by the Columbia River Basalt Formation (Beeson el al., 1989). The Miocene aged (about 14.5 to 16.5 million years ago) Columbia River Basalts are a thick sequence of lava flows. The basalts are composed of dense, finely crystalline rock that is commonly fractured along blocky and columnar vertical joints. Individual basalt flow units typically range from 25 to 125 feet thick and interflow zones are typically vesicular, scoriaceous, brecciated, and sometimes include sedimentary rocks.

Underlying the Columbia River Basalt Formation is the Skamania Volcanics Formation. The Oligocene aged (about 37 to 26 million years ago) Skamania Volcanics extend to depth of several thousand feet and form the crystalline basement of the basin (Schlicker 1963).

At least three major source zones capable of generating damaging earthquakes are thought to exist in the vicinity of the subject site. These include the Gales Creek-Newberg-Mt. Angel Structural Zone, the Portland Hills Fault Zone, and the Cascadia Subduction Zone.

Gales Creek-Newberg-Mt. Angel Structural Zone

The Gales Creek-Newberg-Mt. Angel Structural Zone is a 50-mile-long zone of discontinuous, NW-trending faults that lies about 17.3 miles southwest of the subject site. These faults are recognized in the subsurface by vertical separation of the Columbia River Basalt and offset seismic reflectors in the overlying basin sediment (Yeats et al., 1996; Werner et al., 1992). A recent geologic reconnaissance and photogeologic analysis study conducted for the Scoggins Dam site in the Tualatin Basin revealed no evidence of deformed geomorphic surfaces along the structural zone (Unruh et al., 1994). No seismicity has been recorded on the Gales Creek or Newberg Faults (the faults closest to the subject site); however, these faults are considered to be potentially active because they may connect with the seismically active Mount Angel Fault and the rupture plane of the 1993 M5.6 Scotts Mills earthquake (Werner et al. 1992; Geomatrix Consultants, 1995).

Portland Hills Fault Zone

The Portland Hills Fault Zone is a series of NW-trending faults that include the central Portland Hills Fault, the western Oatfield Fault, and the eastern East Bank Fault. These faults occur in a northwest-trending zone that varies in width between 3.5 and 5.0 miles. The combined three faults vertically displace the Columbia River Basalt by 1,130 feet and appear to control thickness changes in late Pleistocene (approx. 780,000 years) sediment (Madin, 1990). The Portland Hills Fault occurs along the Willamette River at the base of the Portland Hills, and is about 3.6 miles northeast of the site. The Oatfield Fault occurs along the western side of the Portland Hills, and is about 2.4 miles northeast of the site. The accuracy of the fault mapping is stated to be within 500 meters (Wong, et al., 2000). No historical seismicity is correlated with the mapped portion of the Portland Hills Fault Zone, but in 1991 a M3.5 earthquake occurred on a NW-trending shear plane located 1.3 miles east of the fault (Yelin, 1992). Although there is no definitive evidence of recent activity, the Portland Hills Fault Zone is assumed to be potentially active (Geomatrix Consultants, 1995).

Cascadia Subduction Zone

The Cascadia Subduction Zone is a 680-mile-long zone of active tectonic convergence where oceanic crust of the Juan de Fuca Plate is subducting beneath the North American continent at a rate of 4 cm per year (Goldfinger et al., 1996). A growing body of geologic evidence suggests that prehistoric subduction zone earthquakes have occurred (Atwater, 1992; Carver, 1992; Peterson et al., 1993; Geomatrix Consultants, 1995). This evidence includes: (1) buried tidal marshes recording episodic, sudden subsidence along the coast of northern California, Oregon, and Washington, (2) burial of subsided tidal marshes by tsunami wave deposits, (3) paleoliquefaction features, and (4) geodetic uplift patterns on the Oregon coast. Radiocarbon dates on buried tidal marshes indicate a recurrence interval for major subduction zone earthquakes of 250 to 650 years with the last event occurring 300 years ago (Atwater, 1992; Carver, 1992; Peterson et al., 1993;

Geomatrix Consultants, 1995). The inferred seismogenic portion of the plate interface lies roughly along the Oregon Coast at depths of 20 and 40 kilometers below the ocean surface.

FIELD EXPLORATION

Subsurface conditions were explored on April 13, 2013 by excavating 6 test pits to depths of 3 to 10 feet below the ground surface, using a John Deer 310E backhoe with a 2-foot-wide toothed bucket. The approximate test pit locations are shown on the attached site plan (Figure 2). It should be noted that exploration locations were determined in the field by pacing or taping distances from apparent property corners and other site features shown on the plans provided. As such, the locations of the explorations should be considered approximate.

During excavation of the test pits, a GeoPacific engineer observed and recorded soil information such as color, stratigraphy, strength, and soil moisture. Soils were classified in general accordance with the Unified Soil Classification System (USCS). Rock hardness was classified in accordance with Table 1, modified from the ODOT Rock Hardness Classification Chart.

Table 1. Rock Hardness Classification Chart

ODOT Rock Hardness Rating	Field Criteria	Unconfined Compressive Strength	Typical Equipment Needed For Excavation
Extremely Soft (R0)	Indented by thumbnail	<100 psi	Small excavator
Very Soft (R1)	Scratched by thumbnail, crumbled by rock hammer	100-1,000 psi	Small excavator
Soft (R2)	Not scratched by thumbnail, indented by rock hammer	1,000-4,000 psi	Medium excavator (slow digging with small excavator)
Medium Hard (R3)	Scratched or fractured by rock hammer	4,000-8,000 psi	Medium to large excavator (slow to very slow digging), typically requires chipping with hydraulic hammer or mass excavation)
Hard (R4)	Scratched or fractured w/ difficulty	8,000-16,000 psi	Slow chipping with hydraulic hammer and/or blasting
Very Hard (R5)	Not scratched or fractured after many blows, hammer rebounds	>16,000 psi	Blasting

At the completion of each test pit, the excavation was backfilled using the excavated soils, and tamped with the excavator bucket. This backfill should not be expected to behave as engineered fill and some settling and/or erosion of the ground surface may occur.

SUBSURFACE CONDITIONS

Soil and Rock

The following report sections summarize subsurface conditions anticipated at the site, based on our exploration program. On-site soils consist of topsoil, undocumented fill, residual soil, and Columbia River Basalt materials, as described below.

Topsoil: In all test pits, the ground surface was directly underlain by topsoil consisting of dark brown, moderately organic SILT (OL-ML) with fine roots throughout. Topsoil thickness in test pits ranged from about 3 to 4 inches. There is the potential for some tree roots or thicker topsoil zones in forested areas on site.

Undocumented Fill: Underlying the topsoil, test pits TP-1, TP-2, TP-4, TP-5, and TP-6 encountered undocumented fill material. The fill generally consisted of medium stiff SILT (ML) with varying amounts of gravel. Table 2 summarizes the depths of undocumented fill encountered in our explorations.

Table 2. Depth of Undocumented Fill

Location	Depth of Undocumented Fill (feet)
TP-1	3
TP-2	1.5
TP-4	1.5
TP-5	5
TP-6	1

Residual Soil: Underlying the undocumented fill material in test pit TP-1 and TP-4 and the topsoil in test pit TP-2, the test pits encountered stiff clayey silt residual soil derived from the in-place weathering of the underlying Columbia River Basalt Formation. The residual soil transitioned to less weathered basalt bedrock as discussed below. Where encountered, the residual soil ranged from approximately 2 to 4 feet in thickness.

Columbia River Basalt: Underlying the residual soil, test pits encountered weathered basalt bedrock materials belonging to the Columbia River Basalt Formation. The basalt encountered was typically highly weathered and ranged from extremely soft (R0) to medium hard (R3). The hardness generally increased with depth. The explorations resulted in practical refusal on medium hard (R3) basalt in all test pits except test pit TP-6 at depths of 3 to 7 feet, using a John Deer 310E backhoe with 2-foot-wide toothed bucket. Very soft (R1) basalt extended beyond the maximum depth of exploration in test pit TP-6.

Groundwater

On April 13, 2013, groundwater seepage was not encountered in the test pits. The groundwater conditions reported are for the specific date and locations indicated, and therefore may not necessarily be indicative of other times and/or locations. It is anticipated that groundwater conditions will vary depending on the time of year, rainfall, local subsurface conditions, changes in site utilization, and other factors. During periods of heavy and prolonged precipitation, shallow perched groundwater conditions often occur over fine-grained native deposits such as those beneath the site, particularly during the wet season.

INFILTRATION TESTING

On April 13, 2013, GeoPacific performed one pushed-pipe falling head infiltration tests at the approximate location shown on Figure 2. The test was conducted in a 6-inch diameter pipe pushed into the native soil at an approximate depth of 3 feet below the ground surface. The infiltration test was performed at or near the location of test pit TP-4. The soil encountered at the depth of the infiltration test consisted of reddish brown clayey SILT (ML) residual soil.

The test hole was pre-saturated for 4 hours prior to performing the test. During the test, the water level was measured over 30 minute intervals with approximate head pressures ranging between 4 and 8 inches until three successive measurements showing a consistent infiltration rate were achieved. Approximate test locations are shown in Figure 2. Table 3 presents a summary of our infiltration test measurement results.

Table 3. Results of Infiltration Testing

Location	Depth	Infiltration Rate
TP-4	3 feet	0.1 in/hr

The test results indicate very low infiltration rates. The measured rates reflect vertical flow pathways only.

CONCLUSIONS AND RECOMMENDATIONS

Results of this study indicate that the proposed development is geotechnically feasible, provided that the recommendations of this report are incorporated into the design and construction phases of the project. In our opinion, the greatest geotechnical constraints for project development are the presence of medium hard rock underlying much of the site. The proposed structures may be supported on shallow foundations bearing on competent undisturbed native soils, or engineered fill, designed and constructed as recommended in this report.

Recommendations are presented below for site preparation and undocumented fill removal, engineered fill, wet weather earthwork, seismic design, structural foundations, footing drains, storm water systems, permeable pavement systems, excavation conditions and utility trench backfill, erosion control considerations, and asphalt pavement sections. The recommendations of this report assume the single-family structures will have raised floors and crawlspaces.

Site Preparation and Undocumented Fill Removal

Within the areas to receive fill, proposed building footprints, or other settlement-sensitive areas, undocumented fill, vegetation, and debris should be completely removed and replaced with engineered fill. Debris from clearing should be removed from the site. Undocumented fill was encountered in test pits TP-1, TP-2, TP-4, TP-5, and TP-6 to depths ranging from 1 to 5 feet. The depths of undocumented fill are summarized in Table 2.

Organic-rich topsoil should be stripped to the relatively inorganic native soils. We anticipate that the depth of stripping will be an average of roughly 6 to 8 inches over most of the site. Deeper stripping will be needed in areas that have been tilled in the past, areas of localized fill deposits, etc. The final depth of stripping removal may vary depending on local subsurface conditions and the contractor's methods, and should be determined on the basis of a site inspection after the initial stripping has been performed.

Stripped organic soil should be stockpiled only in designated areas or removed from the site and stripping operations should be observed and documented by GeoPacific. Any existing subsurface structures (tile drains, old utility lines, septic leach fields, etc.) beneath structures and pavements should be removed and the excavations backfilled with engineered fill.

In construction areas, once stripping is approved, the area should be ripped or tilled to a depth of 12 inches, moisture conditioned, and compacted in-place prior to the placement of engineered fill or crushed aggregate base for pavement (dry weather conditions). Exposed subgrade soils should be evaluated by GeoPacific. For large areas, this evaluation is normally performed by proof-rolling the exposed subgrade with a fully loaded

scraper or dump truck. For smaller areas where access is restricted, and during wet weather, the subgrade should be evaluated by probing the soil with a steel probe.

Soft/loose soils identified during subgrade preparation should be compacted to a firm and unyielding condition or over-excavated and replaced with engineered fill, as described below. The depth of overexcavation, if required, should be evaluated by GeoPacific at the time of construction.

Engineered Fill

In general, we anticipate that soils from planned cuts and utility trench excavations will be suitable for use as engineered fill during dry weather conditions, provided they are adequately moisture conditioned prior to compacting and are free of highly organic material and debris. Imported fill material should be reviewed by GeoPacific prior to being imported to the site. Oversize material greater than 6 inches in size should not be used within 3 feet of foundation footings, and material greater than 12 inches in diameter should not be used in engineered fill.

Engineered fill should be compacted in horizontal lifts not exceeding 8 inches using conventional compaction equipment. We recommend that engineered fill be compacted to at least 90 percent of the maximum dry density determined by ASTM D1557 (Modified Proctor) or equivalent. On-site soils may be wet or dry of optimum; therefore, we anticipate that moisture conditioning of native soil will be necessary for compaction operations.

Proper test frequency and earthwork documentation usually requires daily observation and testing during stripping, rough grading, and placement of engineered fill. Field density testing should generally conform to ASTM D2922 and D3017, or D1556. Engineered fill should be periodically observed and tested by the project geotechnical engineer or his representative. Typically, one density test is performed for at least every 2 vertical feet of fill placed or every 500 cubic yards, whichever requires more testing. Because testing is performed on an on-call basis, we recommend that the earthwork contractor be held contractually responsible for test scheduling and frequency.

Wet Weather Earthwork

The on-site soils are moisture sensitive and may be difficult to handle or traverse with construction equipment during periods of wet weather. Earthwork is typically most economical when performed under dry weather conditions. Earthwork performed during the wet-weather season will probably require expensive measures such as cement treatment or imported granular material to compact fill to the recommended engineering specifications. If earthwork is to be performed or fill is to be placed in wet weather or under wet conditions when soil moisture content is difficult to control, the following recommendations should be incorporated into the contract specifications.

- Earthwork should be performed in small areas to minimize exposure to wet weather. Excavation or the removal of unsuitable soils should be followed promptly by the placement and compaction of clean engineered fill. The size and type of construction equipment used may have to be limited to prevent soil disturbance. Under some circumstances, it may be necessary to excavate soils with a backhoe to minimize subgrade disturbance caused by equipment traffic;
- The ground surface within the construction area should be graded to promote run-off of surface water and to prevent the ponding of water;
- Material used as engineered fill should consist of clean, granular soil containing less than 5 percent fines. The fines should be non-plastic. Alternatively, cement treatment of on-site soils may be performed to facilitate wet weather placement;

- The ground surface within the construction area should be sealed by a smooth drum vibratory roller, or equivalent, and under no circumstances should be left uncompacted and exposed to moisture. Soils which become too wet for compaction should be removed and replaced with clean granular materials;
- Excavation and placement of fill should be observed by the geotechnical engineer to verify that all unsuitable materials are removed and suitable compaction and site drainage is achieved; and
- Bales of straw and/or geotextile silt fences should be strategically located to control erosion.

If cement or lime treatment is used to facilitate wet weather construction, GeoPacific should be contacted to provide additional recommendations and field monitoring.

Seismic Design

Structures should be designed to resist earthquake loading in accordance with the methodology described in the 2009 International Building Code (IBC) with applicable 2010 Oregon Structural Specialty Code (OSSC) revisions. We recommend Site Class D be used for design per the OSSC, Table 1613.5.2. Design values determined for the site using the USGS (United States Geological Survey) *Earthquake Ground Motion Parameters* utility are summarized below.

Table 4. Recommended Earthquake Ground Motion Parameters (2009 IBC / 2010 OSSC)

Parameter	Value
Location (Lat, Long), degrees	45.360, -122.652
Mapped Spectral Acceleration Values (MCE, Site Class D):	
Short Period, S_s	0.915 g
1.0 Sec Period, S_1	0.327 g
Soil Factors for Site Class D:	
F_a	1.134
F_v	1.746
$SD_s = 2/3 \times F_a \times S_s$	0.692 g
$SD_1 = 2/3 \times F_v \times S_1$	0.381 g

Soil liquefaction is a phenomenon wherein saturated soil deposits temporarily lose strength and behave as a liquid in response to earthquake shaking. Soil liquefaction is generally limited to loose, granular soils located below the water table. Following development, on-site soils will consist predominantly of medium stiff to very stiff silt and engineered fill, which are not considered susceptible to liquefaction. Therefore, it is our opinion that special design or construction measures are not required to mitigate the effects of liquefaction.

Structural Foundations

Based on our understanding of the proposed project and the results of our exploration program, and assuming our recommendations for site preparation are followed, medium stiff to stiff native soil or engineered fill soils should be encountered at or near the foundation level of the proposed structures.

Shallow, conventional isolated or continuous spread footings may be used to support the proposed structures, provided they are founded on competent native soils. We recommend a maximum allowable bearing pressure of 2,000 pounds per square foot (psf) for designing footings on native soil near existing grade. The recommended maximum allowable bearing pressure may be increased by a factor of 1.33 for short term

transient conditions such as wind and seismic loading. Exterior footings should be founded at least 18 inches below the lowest adjacent finished grade. Minimum footing widths should be determined by the project engineer/architect in accordance with applicable design codes.

Assuming construction is accomplished as recommended herein, and for the foundation loads anticipated, we estimate total settlement of spread foundations of less than about 1 inch and differential settlement between two adjacent load-bearing components supported on competent soil of less than about ½ inch. We anticipate that the majority of the estimated settlement will occur during construction, as loads are applied.

Wind, earthquakes, and unbalanced earth loads will subject the proposed structure to lateral forces. Lateral forces on a structure will be resisted by a combination of sliding resistance of its base or footing on the underlying soil and passive earth pressure against the buried portions of the structure. For use in design, a coefficient of friction of 0.5 may be assumed along the interface between the base of the footing and subgrade soils. Passive earth pressure for buried portions of structures may be calculated using an equivalent fluid weight of 390 pounds per cubic foot (pcf), assuming footings are cast against dense, natural soils or engineered fill. The recommended coefficient of friction and passive earth pressure values do not include a safety factor. The upper 12 inches of soil should be neglected in passive pressure computations unless it is protected by pavement or slabs on grade.

Footing excavations should be trimmed neat and the bottom of the excavation should be carefully prepared. Loose, wet or otherwise softened soil should be removed from the footing excavation prior to placing reinforcing steel bars. GeoPacific should observe foundation excavations prior to placing formwork and reinforcing steel, to verify that adequate bearing soils have been reached.

The above foundation recommendations are for dry weather conditions. Due to the high moisture sensitivity of on-site soils, construction during wet weather may require overexcavation of footings and backfill with compacted, crushed aggregate.

Footing and Roof Drains

To minimize the fluctuation of soil moisture content near structural foundations, we recommend that the structures be constructed with perimeter footing drains. Footing drains should consist of 4-inch minimum diameter perforated plastic pipe embedded in a minimum of 1 ft^3 per lineal foot of clean, crushed drain rock or 1"- ¼" rounded drain rock. The drain pipe and surrounding drain rock should be wrapped in non-woven geotextile (Mirafi 140N, or approved equivalent) to minimize the potential for clogging and/or ground loss due to piping. Water collected from the footing drains should be directed into the local storm drain system or other suitable outlet. A minimum 0.5 percent fall should be maintained throughout the drain and non-perforated pipe outlet. The footing drains should include clean-outs to allow periodic maintenance and inspection.

Down spouts and roof drains should collect roof water in a system separate from the footing drains in order to reduce the potential for clogging. Roof drain water should be directed to an appropriate discharge point well away from structural foundations. Grades should be sloped downward and away from buildings to reduce the potential for ponded water near structures.

Storm Water Management

We understand that on-site storm water systems may include pervious pavement, shallow infiltration facilities, and/or deep infiltration facilities. Infiltration test results indicate that infiltration rates in the near surface residual soils are on the order of 0.1 inches per hour at a depth of 3 feet. The designer should select an appropriate infiltration value based on our test results and the location of the proposed infiltration facility. The infiltration rates do not incorporate a factor of safety. For the design infiltration rate, the system

designer should incorporate an appropriate factor of safety against slowing of the rate over time due to biological and sediment clogging.

Infiltration test methods and procedures attempt to simulate the as-built conditions of the planned 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. Evaluating environmental implications of stormwater disposal at this site are beyond the scope of this study.

Permeable Pavement Design Recommendations

We understand that permeable pavements may be incorporated in project design. We recommend pervious Portland cement concrete (PCC), or manufactured permeable paver blocks such as Anchor Holland Permeable with integrated spacer gaps (or similar). Pervious asphalt pavement is not recommended due to its tendency for raveling and insufficient durability. A typical detail for permeable pavement sections is attached to this report.

For use in sizing calculations, we recommend an ultimate infiltration rate of 0.1 inch per hour be used for the near surface silt soils. For the design infiltration rate, the system designer/builder should incorporate an appropriate factor of safety against slowing of the rate over time due to biological and sediment clogging. Stormwater exceeding soil infiltration and/or soil storage capacities will need to be directed to a suitable discharge location. We suggest the pervious pavement designer assume a void ratio of 30 percent for the crushed rock / reservoir course. The crushed rock / reservoir course material should consist of Open-Graded Aggregate per ODOT Standard Specifications Section 02630.11. Care should be taken to avoid overcompaction of the subgrade soils and reservoir course, which could limit the void ratio of these materials and reduce the functionality as a pervious pavement.

We do not recommend a density specification for the crushed rock / reservoir course material beneath pervious pavements, due to concerns about overcompaction as discussed above. During placement of the base rock / reservoir course material, visual observations should be made to verify the material has been compacted to a relatively firm and unyielding condition.

We assume that the private driveway will accommodate primarily passenger vehicles and light trucks. Consequently, our design was formulated using design methods prescribed by AASHTO for light-duty roads.

Table 5 presents our recommended minimum section for construction of a permeable paver private driveway section in dry-weather conditions. The driveway should be constructed on firm, unyielding subgrade soil. The edges of permeable pavement sections should be retained by concrete curbs extending to subgrade below the base of the section, or as specified by the project civil engineer.

Table 5. Recommended Permeable Paver Section for Dry-Weather Construction

Material Layer	Minimum Thickness (in.)
Pervious PCC / Manufactured Paver Blocks	4 inches / 3.125 inches
Open Graded Crushed Aggregate (washed) 1"- 1/10" ODOT Table 02630-2	1 inch
Open Graded Crushed Aggregate (washed) (2" – ¾ " diameter)	11 inches (see Note)
Non-woven Geotextile Filter Fabric (Mirafi 160N or Equivalent)	-
Unyielding Native Subgrade Soil	-

Note: Thickness of reservoir section may need to be increased by the storm water system designer, due to storm water detention or other requirements.

Subgrade strength be verified visually by GeoPacific prior to section placement; soft areas may need to be stabilized or overexcavated prior to pavement section construction. Overexcavations should be backfilled using additional crushed drain rock.

If pavement areas are to be constructed during wet weather, GeoPacific should review the subgrade and proposed construction methods immediately prior to the placement of base course so that specific recommendations can be provided. Wet-weather construction is likely to require additional crushed aggregate base course thickness.

Excavating Conditions and Utility Trench Backfill

Subsurface test pit exploration indicates that soft (R2) to medium hard (R3) basalt underlies the site at shallow depths. We expect utility trenches less than about 3 feet below existing grade can be excavated in the soft basalt using conventional large trackhoe equipment. Practical refusal on medium hard (R3) basalt bedrock was reached in all test pits except for test pit TP-6 at the depths summarized in Table 6, with the medium-sized backhoe used in our exploration.

Table 6. Depth of Practical Refusal on Weathered Bedrock

Location	Depth of Practical Refusal (feet)
TP-1	7
TP-2	3
TP-3	5.5
TP-4	6.5
TP-5	6.5

Medium hard Columbia River Basalt typically contains clay seams and fractures, and can be excavated employing a rock bucket and ripper tooth. Some use of pneumatic rock breaker attachments may be necessary, particularly in deeper utility trench excavations.

Maintenance of safe working conditions, including temporary excavation stability, is the responsibility of the contractor. Actual slope inclinations at the time of construction should be determined based on safety

requirements and actual soil and groundwater conditions. All temporary cuts in excess of 4 feet in height should be sloped in accordance with U.S. Occupational Safety and Heath Administration (OSHA) regulations (29 CFR Part 1926), or be shored. The existing native soils classify as Type B Soil and temporary excavation side slope inclinations as steep as 1H:1V may be assumed for planning purposes. This cut slope inclination is applicable to excavations above the water table only.

Shallow, perched groundwater should be anticipated in excavations and utility trenches. The depth of groundwater will likely be less during the wet weather season and greater during the dry weather season. Vibrations created by traffic and construction equipment may cause some caving and raveling of excavation walls. In such an event, lateral support for the excavation walls should be provided by the contractor to prevent loss of ground support and possible distress to existing or previously constructed structural improvements.

PVC pipe should be installed in accordance with the procedures specified in ASTM D2321. We recommend that structural trench backfill be compacted to at least 90% of the maximum dry density obtained by Modified Proctor (ASTM D1557) or equivalent. Initial backfill lift thicknesses for a ¾"-0 crushed aggregate base may need to be as great as 4 feet to reduce the risk of flattening underlying flexible pipe. Subsequent lift thickness should not exceed 1 foot. If imported granular fill material is used, then the lifts for large vibrating plate-compaction equipment (e.g. hoe compactor attachments) may be up to 2 feet, provided that proper compaction is being achieved and each lift is tested. Use of large vibrating compaction equipment should be carefully monitored near existing structures and improvements due to the potential for vibration-induced damage.

Adequate density testing should be performed during construction to verify that the recommended relative compaction is achieved. Typically, at least one density test is taken for every 4 vertical feet of backfill on each 200-lineal-foot section of trench.

Asphalt Pavement Sections

Table 7 presents recommended minimum pavement sections for on-site public streets that are to be completed as part of the project, under dry weather construction conditions. For on-site streets, a subgrade soil R-value of 15 was assumed for design purposes. The recommended pavement sections were formulated using the Crushed Base Equivalent method and assuming a Traffic Index of 4 for on-site streets. The Traffic Index is generally appropriate for minor residential streets and cul-de-sacs. The project engineer or architect should review the assumed traffic indices to evaluate their suitability for this project. Changes in anticipated traffic levels will affect the corresponding pavement section.

Table 7. Recommended Minimum Dry Weather Pavement Section

Material Layer	Minimum Thickness (inches)	Compaction Standard
Asphaltic Concrete (AC)	3	92% of Rice Density (top lift) 91% of Rice Density (lower lifts) AASHTO T-209
Crushed Aggregate Base ¾"-0 (leveling course)	2	95% of Modified Proctor ASTM D1557
Crushed Aggregate Base 1½"-0	8	95% of Modified Proctor ASTM D1557
Recommended Subgrade	12	90% of Modified Proctor or approved native

In new pavement areas, native soil subgrade in pavement areas should be ripped or tilled to a minimum depth of 12 inches, moisture conditioned, and recompacted in-place to at least 90 percent of ASTM D1557 (Modified Proctor) or equivalent. In order to verify subgrade strength, we recommend proof-rolling directly on subgrade with a loaded dump truck during dry weather and on top of base course in wet weather. Soft areas that pump, rut, or weave should be stabilized prior to paving. If pavement areas are to be constructed during wet weather, GeoPacific should review subgrade at the time of construction so that condition specific recommendations can be provided. Wet weather pavement construction is likely to require soil amendment or geotextile fabric and an increase in base course thickness.

During placement of pavement section materials, density testing should be performed to verify compliance with project specifications. Generally, one subgrade, one base course, and one AC compaction test is performed for every 100 to 200 linear feet of paving.

Erosion Control Considerations

During our field exploration program, we did not observe soil types that would be considered highly susceptible to erosion. In our opinion, the primary concern regarding erosion potential will occur during construction, in areas that have been stripped of vegetation. Erosion at the site during construction can be minimized by implementing the project erosion control plan, which should include judicious use of straw bales and silt fences. If used, these erosion control devices should be in place and remain in place throughout site preparation and construction.

Erosion and sedimentation of exposed soils can also be minimized by quickly re-vegetating exposed areas of soil, and by staging construction such that large areas of the project site are not denuded and exposed at the same time. Areas of exposed soil requiring immediate and/or temporary protection against exposure should be covered with either mulch or erosion control netting/blankets. Areas of exposed soil requiring permanent stabilization should be seeded with an approved grass seed mixture, or hydroseeded with an approved seed-mulch-fertilizer mixture.

UNCERTAINTIES AND LIMITATIONS

We have prepared this report for the owner and their consultants for use in design of this project only. This report should be provided in its entirety to prospective contractors for bidding and estimating purposes; however, the conclusions and interpretations presented in this report should not be construed as a warranty of the subsurface conditions. Experience has shown that soil and groundwater conditions can vary significantly over small distances. Inconsistent conditions can occur between explorations that may not be detected by a geotechnical study. If, during future site operations, subsurface conditions are encountered which vary appreciably from those described herein, GeoPacific should be notified for review of the recommendations of this report, and revision of such if necessary.

Sufficient geotechnical monitoring, testing and consultation should be provided during construction to confirm that the conditions encountered are consistent with those indicated by explorations. Recommendations for design changes will be provided should conditions revealed during construction differ from those anticipated, and to verify that the geotechnical aspects of construction comply with the contract plans and specifications.

Within the limitations of scope, schedule and budget, GeoPacific executed these services in accordance with generally accepted professional principles and practices in the field of geotechnical engineering at the time the report was prepared. No warranty, expressed or implied, is made. The scope of our work did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous or toxic substances in the soil, surface water, or groundwater at this site.

We appreciate this opportunity to be of service.

Sincerely,

GEOPACIFIC ENGINEERING, INC.

REGISTERED PROFESSIONAL ENGINEER
64,422PE
OREGON
SEPTEMBER 26, 2008
SCOTT L. HARDMAN

4-30-13

EXPIRES: 06-30-2013

-For-

Benjamin G. Anderson
Staff Engineer

Scott L. Hardman, G.E., P.E.
Principal Geotechnical Engineer

Attachments: References
Figure 1 – Vicinity Map
Figure 2 – Site and Exploration Plan
Pervious Pavement (SW-110) Typical Detail
Test Pit Logs (TP-1 through TP-6)

REFERENCES

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Yeats, R.S., Graven, E.P., Werner, K.S., Goldfinger, C., and Popowski, T., 1996, Tectonics of the Willamette Valley, Oregon: in Assessing earthquake hazards and reducing risk in the Pacific Northwest, Vol. 1: U.S. Geological Survey Professional Paper 1560, P. 183-222, 5 plates, scale 1:100,000.

Yelin, T.S., 1992, An earthquake swarm in the north Portland Hills (Oregon): More speculations on the seismotectonics of the Portland Basin: Geological Society of America, Programs with Abstracts, v. 24, no. 5, p. 92.

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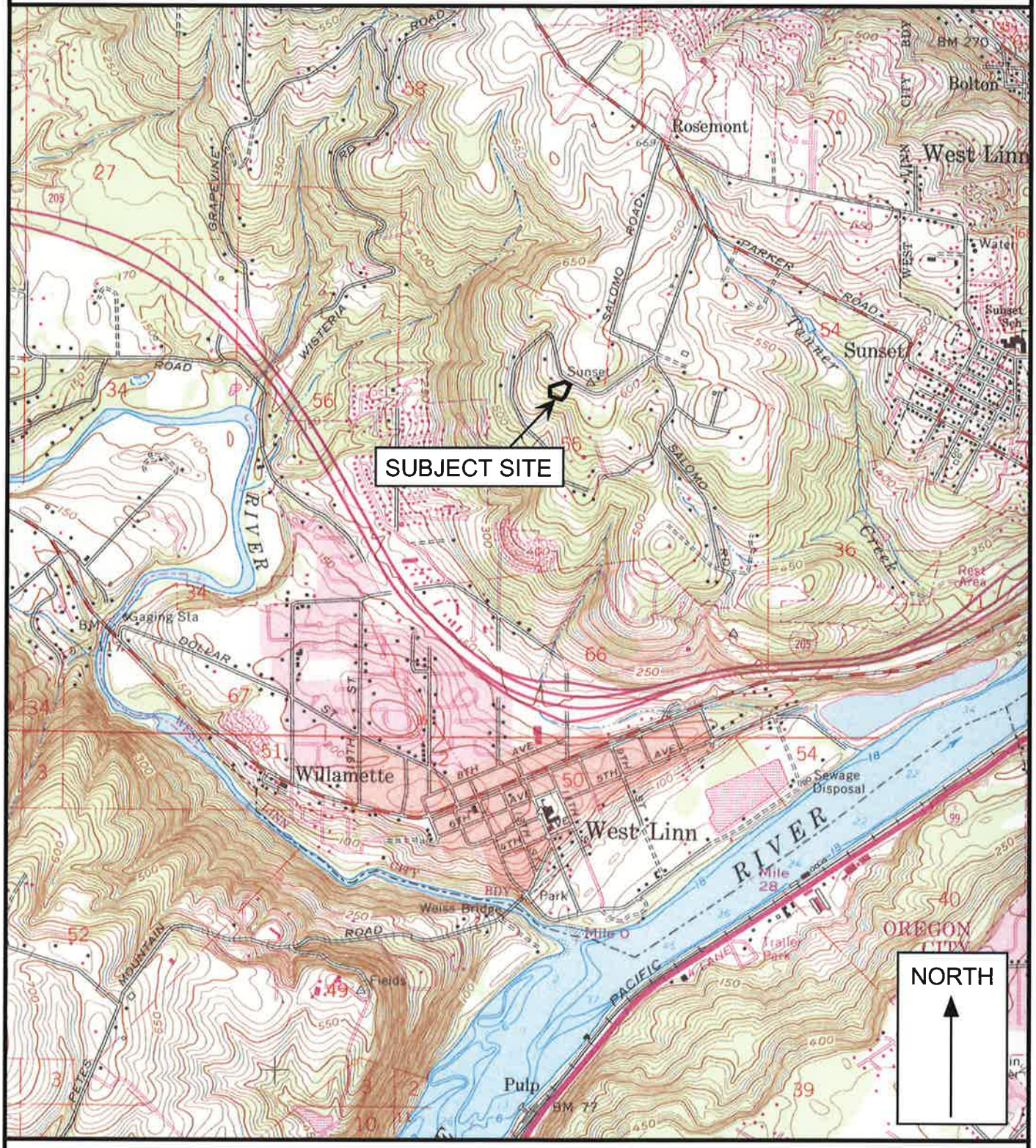
VICINITY MAP



Legend

Approximate Scale 1 in = 2,000 ft

Date: 04/24/13
Drawn by: BGA

Base map: U.S. Geological Survey 7.5 minute Topographic Map Series, Canby, Oregon Quadrangle, 1961 (Photorevised 1985).

Project: Weatherhill Properties West Linn, Oregon	Project No. 13-2969	FIGURE 1

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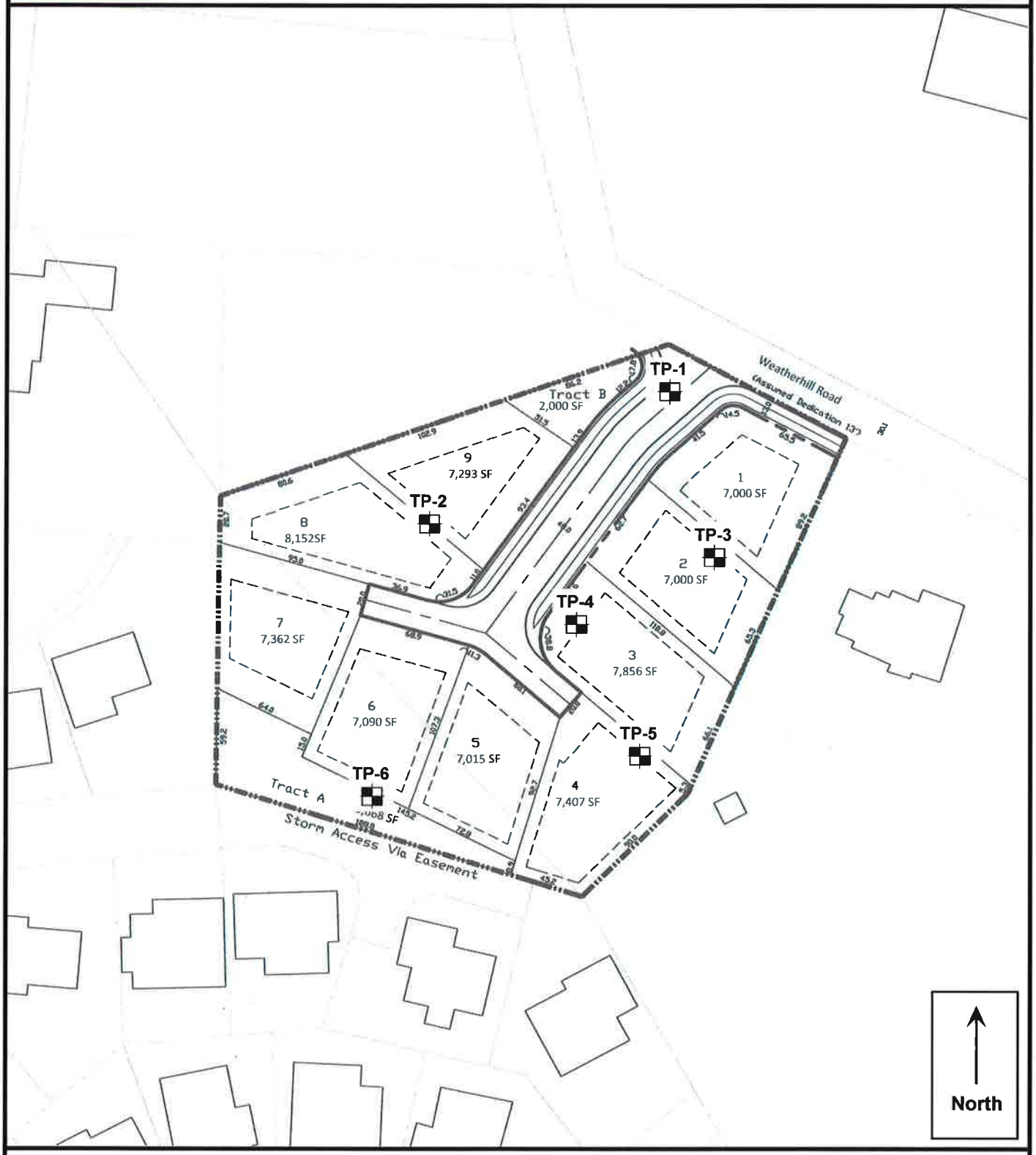
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

SITE PLAN AND EXPLORATION LOCATIONS



Legend

TP-1
Test Pit Designation and Approximate Location

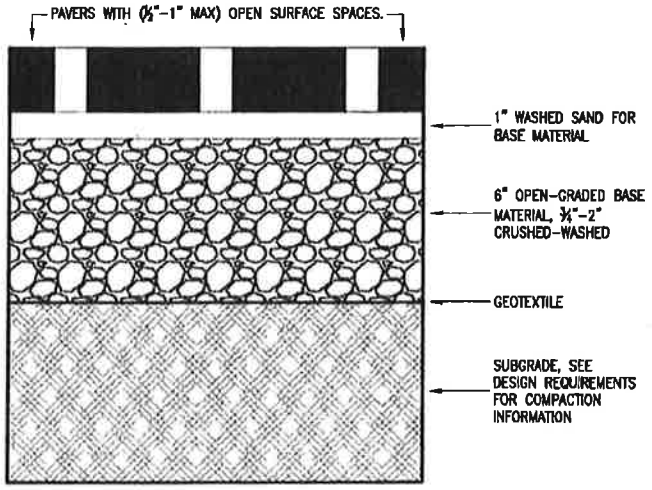
0 80'
APPROXIMATE SCALE 1"=80'

Date: 04/24/13
Drawn by: BGA

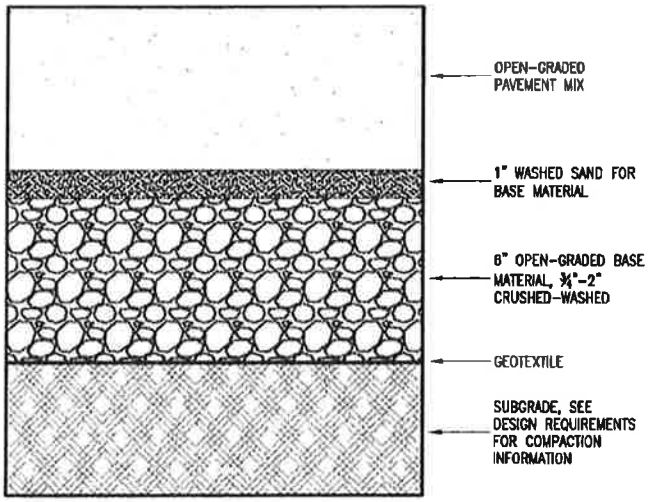
Project: Weatherhill Properties West Linn, Oregon	Project No. 13-2969	FIGURE 2

	RESIDENTIAL DRIVEWAY OR PEDESTRIAN ONLY	PRIVATE STREET, PARKING LOT, OR FIRE LANE	PUBLIC STREET
CONCRETE	4"	4"	7"
~~ASPHALT~~	~~2 ½"~~	~~3"~~	~~6"~~
PAVERS	2 ⅜"	3 ⅛"	3 ⅛"
ENGINEERING REQ'D	NO	YES	YES
COMPACTION REQ'D	NO	YES	95%

EXHIBIT 2-8
PERVIOUS PAVEMENT REQUIREMENTS FOR TOP LIFT DEPTH, ENGINEERING, AND COMPACTION.



PERMEABLE CONCRETE BLOCK OR "PAVER" SYSTEMS



PERVIOUS (OPEN GRADED) CONCRETE AND ~~ASPHALT~~ SYSTEMS

- DRAWING NOT TO SCALE -

STORMWATER MANAGEMENT MANUAL TYPICAL DETAILS

- Simplified / Presumptive / Performance Design Approach -

Pervious Pavement

Bureau of Environmental Services

NUMBER

SW-110

GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

TEST PIT LOG

Project: Weatherhill Properties
West Linn, Oregon

Project No. 13-2969

Test Pit No. **TP- 1**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1	2.0					3" moderately organic SILT (OL-ML), brown, fine roots throughout, soft, moist (Topsoil)
2	2.5					Medium stiff, clayey SILT (ML), brown, with occasional gravel and cobbles, moist (Undocumented Fill)
3	3.0					
4	3.0					Stiff, clayey SILT (ML), reddish brown, moist (Residual Soil)
5	3.0					
6						Very soft to soft (R1-R2), highly weathered BASALT, gray, moist (Columbia River Basalt)
7						
8						Test pit terminated at 7 feet due to practical refusal on medium hard to hard (R3-R4), moderately weathered BASALT, vesicular, gray and reddish brown, black staining, moist (Columbia River Basalt)
9						
10						Note: No seepage or groundwater encountered.
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample | Bucket Sample | Shelby Tube Sample | Seepage | Water Bearing Zone | Water Level at Abandonment

Date Excavated: 04/13/13
Logged By: BGA
Surface Elevation:

GeoPacific Engineering, Inc.
14835 SW 72nd Avenue
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Tel: (503) 598-8445 Fax: (503) 941-9281

TEST PIT LOG

Project: Weatherhill Properties
West Linn, Oregon

Project No. 13-2969

Test Pit No. **TP-2**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						4" moderately organic SILT (OL-ML), dark brown, fine roots throughout, soft, moist (Topsoil)
						Medium stiff, gravelly SILT (ML), brown, moist (Undocumented Fill)
2						Extremely soft to very soft (R0-R1), highly weathered BASALT, gray, moist (Columbia River Basalt)
3						Grades to soft
4						Test pit terminated at 3 feet due to practical refusal on medium hard to hard (R3-R4), moderately weathered BASALT, vesicular, gray and reddish brown, black staining, moist (Columbia River Basalt)
5						Note: No seepage or groundwater encountered.
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 04/13/13
Logged By: BGA
Surface Elevation:

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TEST PIT LOG

Project: Weatherhill Properties
West Linn, Oregon

Project No. 13-2969

Test Pit No. **TP-3**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						4" moderately organic SILT (OL-ML), dark brown, fine roots throughout, soft, moist (Topsoil)
2						Medium stiff, clayey SILT (ML), reddish brown, with occasional gravel size basalt clasts (Residual Soil)
3						
4						
5						Extremely soft to very soft (R0-R1), highly weathered BASALT, gray, moist (Columbia River Basalt)
6						Test pit terminated at 5.5 feet due to practical refusal on medium hard to hard (R3-R4), moderately weathered BASALT, vesicular, gray and reddish brown, black staining, moist (Columbia River Basalt)
7						
8						Note: No seepage or groundwater encountered.
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 04/13/13
Logged By: BGA
Surface Elevation:

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Portland, Oregon 97224
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TEST PIT LOG

Project: Weatherhill Properties
West Linn, Oregon

Project No. 13-2969

Test Pit No. **TP-4**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						4" moderately organic SILT (OL-ML), dark brown, fine roots throughout, soft, moist (Topsoil)
						Medium stiff, SILT (ML), brown (Undocumented Fill)
2	2.5					Stiff, clayey SILT (ML), reddish brown, with occasional gravel size basalt clasts (Residual Soil)
	2.0					
3	2.0					
	>4.5					
4						Extremely soft to very soft (R0-R1), highly weathered BASALT, gray, moist (Columbia River Basalt)
5						Grades to soft (R2)
6						[very hard digging below 6 feet]
7						Test pit terminated at 6.5 feet due to practical refusal on medium hard to hard (R3-R4), moderately weathered BASALT, vesicular, gray and reddish brown, black staining, moist (Columbia River Basalt)
8						Note: No seepage or groundwater encountered.
9						
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 04/13/13
Logged By: BGA
Surface Elevation:

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Portland, Oregon 97224
Tel: (503) 598-8445 Fax: (503) 941-9281

TEST PIT LOG

Project: Weatherhill Properties West Linn, Oregon	Project No. 13-2969	Test Pit No. **TP-5**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						3" moderately organic SILT (OL-ML), brown, fine roots throughout, soft, moist (Topsoil)
2						Soft to medium stiff , gravelly SILT (ML), brown, moist (Undocumented Fill)
3						
4						[Drain rock and perforated 3" diameter pipe encountered from 3 to 4 feet]
5						
6						Very soft to soft (R1-R2), highly weathered BASALT, gray, moist (Columbia River Basalt)
7						Test pit terminated at 6.5 feet due to practical refusal on medium hard to hard (R3-R4), moderately weathered BASALT, vesicular, gray and reddish brown, black staining, moist (Columbia River Basalt)
8						
9						Note: No seepage or groundwater encountered. Termination depth is 6.5 feet from the top of the fill embankment and 4.5 feet from the bottom of the fill embankment
10						
11						
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 04/13/13
Logged By: BGA
Surface Elevation:

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Portland, Oregon 97224
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TEST PIT LOG

Project: Weatherhill Properties
West Linn, Oregon

Project No. 13-2969

Test Pit No. **TP-6**

Depth (ft)	Pocket Penetrometer (tons/ft²)	Sample Type	In-Situ Dry Density (lb/ft³)	Moisture Content (%)	Water Bearing Zone	Material Description
1						4" moderately organic SILT (OL-ML), dark brown, fine roots throughout, soft, moist (Topsoil)
						Soft, gravelly SILT (ML), brown, moist (Undocumented Fill)
2						Extremely soft to very soft (R0-R1), highly weathered BASALT, gray, moist (Columbia River Basalt)
3						Grades to soft (R2)
4						
5						Grades to very soft (R1)
6						
7						
8						
9						
10						Test pit terminated at 10 feet.
11						Note: No seepage or groundwater encountered.
12						
13						
14						
15						
16						
17						

LEGEND

Bag Sample

Bucket Sample


Shelby Tube Sample


Seepage


Water Bearing Zone


Water Level at Abandonment

Date Excavated: 04/13/13
Logged By: BGA
Surface Elevation:

July 31, 2013

7/31/13

REGISTERED PROFESSIONAL ENGINEER
54983PE
OREGON
JULY 10, 2002
MICHAEL T. ARD
EXPIRES: 12/31/13

LANCASTER ENGINEERING

321 SW 4th Ave., Suite 400
Portland, OR 97204
phone: 503.248.0313
fax: 503.248.9251
lancasterengineering.com

LF 7, LLC
c/o John Wyland
5285 Meadows Road
Lake Oswego, OR 97045

RE: Weatherhill Road Subdivision
Transportation Analysis Letter

Dear Mr. Wyland,

We have completed our transportation analysis for the proposed Weatherhill Road subdivision in West Linn, Oregon. Based on comments from the city, a Transportation Analysis Letter (TAL) addressing the trip generation and the proposed access configuration is required for this project.

LOCATION AND PROJECT DESCRIPTION

The subject property is located on the south side of the roadway at 22882 Weatherhill Road in West Linn, Oregon. The proposed eleven-lot subdivision will take access from a private drive near a bend on Weatherhill Road and will serve access to all eleven lots.

Weatherhill Road is under the jurisdiction of the City of West Linn and is classified as a Local Street. It is a two-lane roadway with a statutory residential speed limit of 25 mph. No roadway improvements such as curbs or sidewalks are provided along the facility. On-street parking would be difficult due to the narrow roadway but is not explicitly prohibited.

Presently, one single-family dwelling exists on the southern edge of the subject property. This home takes access from Weatherhill Road via two driveways. The eastern access will be removed and the private street will intersect Weatherhill Road at the western access location.

Figure 1 shows the vicinity of the site, and a copy of the project site plan is included in the Technical Appendix of this report. Several figures that follow show various views from the project site.

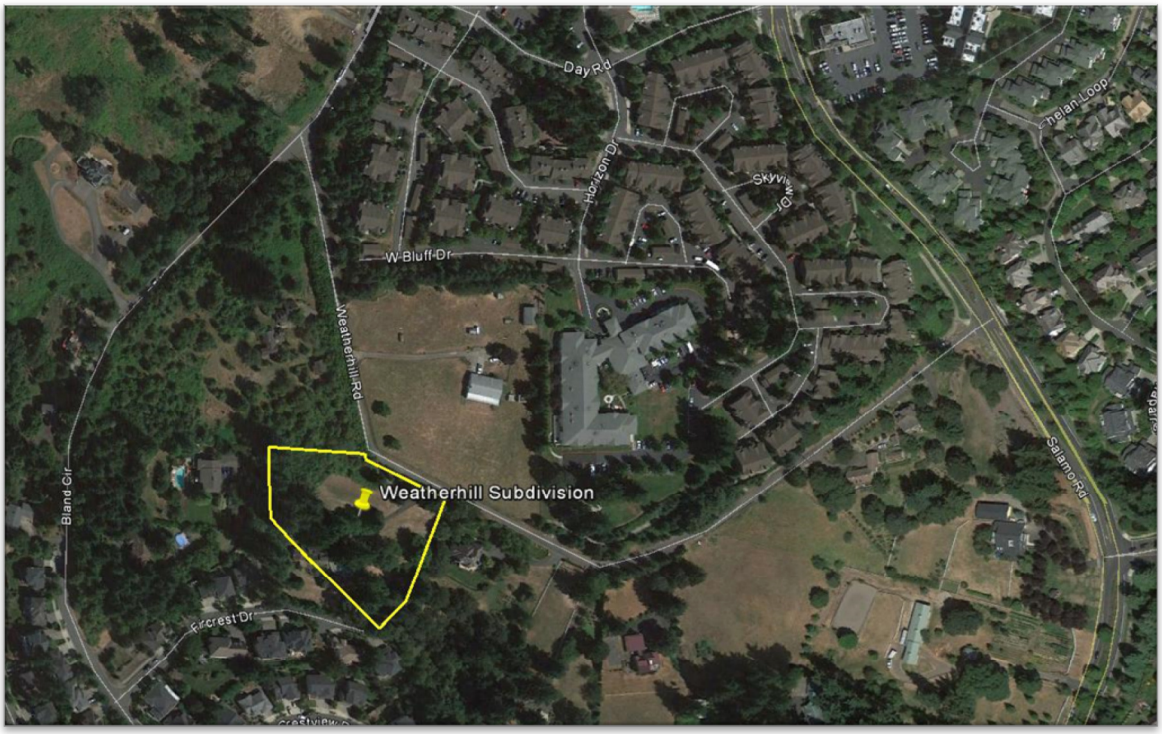


Figure 1: Aerial view of the site and nearby vicinity (Image from Google Earth).

TRIP GENERATION & DISTRIBUTION

To estimate the trips generated by the construction of ten additional single family homes associated with the proposed subdivision, trip rates from the manual *TRIP GENERATION*, Ninth Edition, published by the Institute of Transportation Engineers (ITE) were used. The land-use code utilized was #210, *Single-Family Detached Housing*, with trip rates based on the number of dwelling units.

The trip generation calculations show that the proposed subdivision with ten additional single-family homes will generate a total of eight additional trips during the morning peak hour with two trips entering the site and six trips exiting the site. During the evening peak hour a total of ten additional trips are to be expected with six trips entering the site and four exiting. A weekday total of 96 trips are expected with half entering and half exiting the site. The following table offers a summary of the trip generation calculations and detailed trip generation calculations are included in the technical appendix of this report.

TRIP GENERATION

Morning Peak Hour			Evening Peak Hour			Weekday
Entering	Exiting	Total	Entering	Exiting	Total	Total
2	6	8	6	4	10	96

It is expected that the majority of the new trips will travel to and from the east along Weatherhill Road to where it intersects with Salamo Road. With the minimal number of trips associated with the proposed project, none of the surrounding transportation facilities are expected to see a significant increase in traffic or change in operation.

Figure 2: View looking northwest from the proposed access on Weatherhill Road, with the northern frontage of the site on the left side of the road.

SIGHT DISTANCE

Intersection sight distance requirements were taken from *A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS*, published in 2011 by the American Association of State Highway and Transportation Officials (AASHTO). Sight distance requirements are based on the speed of traffic on the major street and the sight distance measurements are based on an eye height of 3.5 feet and an approaching driver's eye height of 3.5 feet above the road, with the driver's eye 15 feet behind the edge of the near-side travel lane[1].

Based on a statutory speed limit at the subject property, the required intersection sight distance for traffic is 280 feet[2]. Due to vegetation along the roadway on the frontage of the property, sight distance could only be measured seven feet from the edge of the pavement. Sight distance from this location is 250 feet to the northwest before being obstructed by the fence of the property across the street. If the vegetation is cleared and the measurement is made at 15 feet back from the edge of the roadway, sight distance would improve with a better angle looking around the obstruction.

Viewing east, line of sight is currently obstructed by the vegetation on the frontage of the property. If the vegetation was to be removed, sight distance would be at least 302 feet, instead obstructed by vegetation on the neighboring property. This measurement accounts for the driver's eye being 15 feet behind the edge of the pavement.

Since the available sight distance northwest of the proposed access is less than the minimum intersection sight distance for uninterrupted flow along the roadway, a more detailed analysis was conducted to determine what impacts could be expected if the driveway were to operate with the available sight distance.

As stated within AASHTO's *A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS:*

> *"Intersection sight distance criteria for stop-controlled intersections are longer than stopping sight distance to allow the intersection to operate smoothly. Minor-road vehicle operators can wait until they can proceed safely without forcing a major-road vehicle to stop."* [3]
>
> *"If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, a major-road vehicle may need to stop or slow to accommodate the maneuver by a minor-road vehicle. To enhance traffic operations, intersection sight distances that exceed stopping sight distance are desirable along the major road."* [4]

---

[1] (American Association of State Highway and Transportation Officials (AASHTO) Page 3-14 - 3-15)
[2] (AASHTO Table 9-6 Page 9-38)
[3] (AASHTO Page 9-36)
[4] (AASHTO Page 9-29)

The available stopping sight distance for vehicles approaching from the northwest is adequate for speeds up to 34 mph. The statutory residential speed limit of the roadway is 25 mph. The available stopping sight distance is adequate for vehicles traveling up to 9 mph faster than the speed limit. Accordingly, the available sight distance is adequate for safe operation of the proposed intersection; however, occasional interruptions to the flow of through traffic may be expected as minor street drivers enter the roadway.

Figure 3: Northern frontage of the site, looking east on Weatherhill Road.

ACCESS SPACING

Access spacing was observed at the subject property and compared to the minimum requirements found in West Linn's Transportation System Plan (TSP). According to Table 8-3 in the TSP, private driveways along a local residential street should be spaced 50 feet apart and 100 feet from public intersections. The subject property's proposed driveway location has spacing in excess of these requirements in both directions.

TRAFFIC SIGNAL WARRANTS

The intersection of Salamo Road at Weatherhill Road was observed in multiple site visits to the subject property. Due to the low volumes on both the major and minor street approaches, signal warrants are not projected to be met with the build-out of the proposed subdivision.

CONCLUSIONS

The impact to the existing infrastructure created by the trips generated as a result of the proposed subdivision and eventual construction of ten additional single family residences will be minimal and is not expected to significantly alter the operation of the existing facilities.

No significant safety issues arise due to the development of the subdivision. With the clearing of the vegetation along the property frontage, sufficient stopping sight distance can be made available for eastbound and westbound traffic allowing the proposed driveway to operate safely. No other mitigations are recommended as part of the proposed preliminary subdivision plan.

If you have any questions regarding this report or if you need any further assistance, please don't hesitate to contact us.

With Best Regards,

William Farley, EI
Transportation Analyst

TRIP GENERATION CALCULATIONS

Land Use: Single-Family Detached Housing
Land Use Code: 210
Variable: Dwelling Units
Variable Value: 10

AM PEAK HOUR

Trip Rate: 0.75

	Enter	Exit	Total
Directional Distribution	25%	75%	
Trip Ends	**2**	**6**	**8**

PM PEAK HOUR

Trip Rate: 1

	Enter	Exit	Total
Directional Distribution	63%	37%	
Trip Ends	**6**	**4**	**10**

WEEKDAY

Trip Rate: 9.52

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**48**	**48**	**96**

SATURDAY

Trip Rate: 9.91

	Enter	Exit	Total
Directional Distribution	50%	50%	
Trip Ends	**50**	**50**	**100**

Source: TRIP GENERATION, Ninth Edition

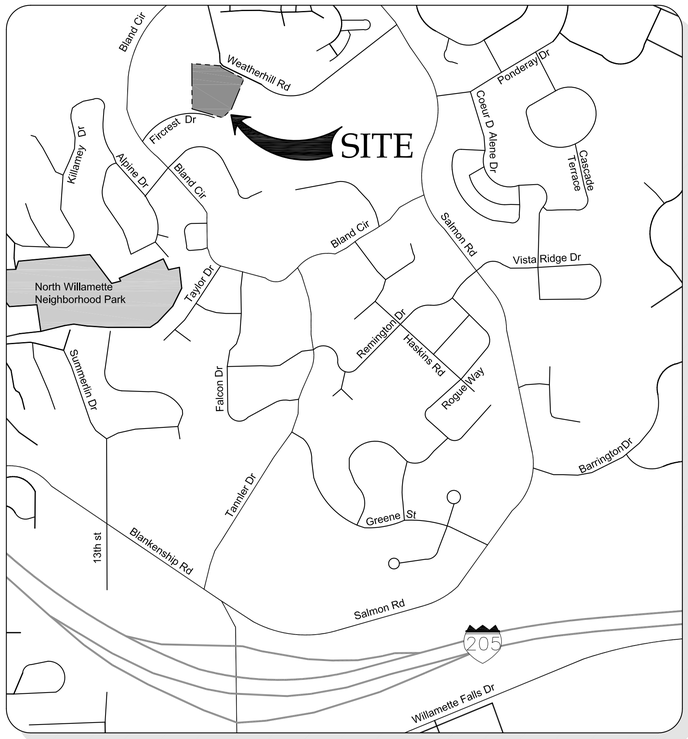
LAND USE DOCUMENTS

FOR

WEATHERHILL SUBDIVISION

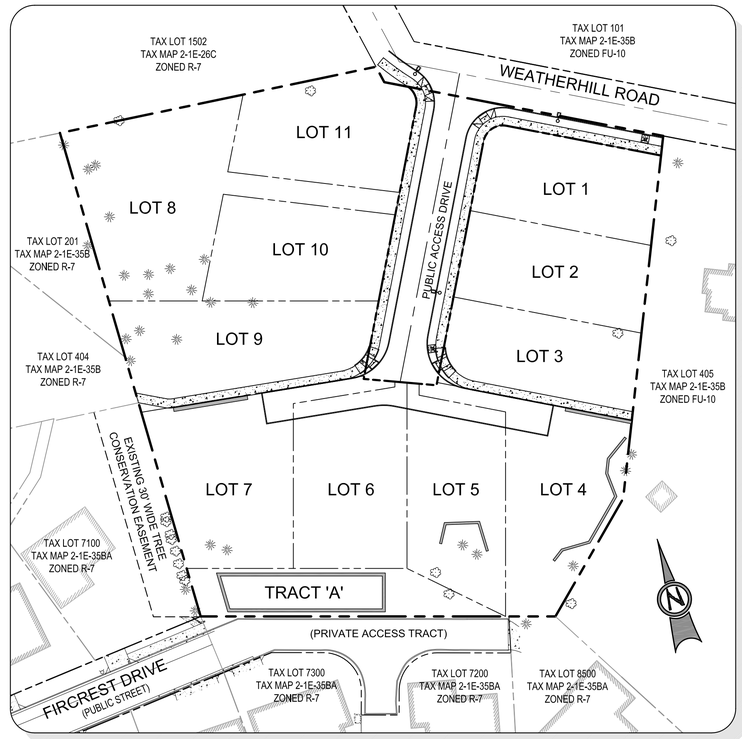
PREPARED FOR

LF 7, LLC



VICINITY MAP

NOT TO SCALE



SITE MAP

Scale: 1 inch = 50 feet

50 25 0 25 50

TAX LOTS 200, 301, AND 402 LOCATED IN THE
NW 1/4 OF SECTION 35, T.2S., R.1E., W.M.
CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON

PROJECT TEAM

OWNER/APPLICANT
LF 7, LLC
C/O: J.T. SMITH COMPANIES
5285 MEADOWS ROAD, SUITE #171
LAKE OSWEGO, OR 97035
CONTACT: JOHN WYLAND
jwyland@jtsmithco.com

CIVIL ENGINEER
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10445 SW CANYON ROAD, SUITE 245
BEAVERTON, OR 97005
CONTACT: BRIAN FEENEY
PHONE: (503) 946-9365
brian.feeney@3j-consulting.com

PLANNING CONSULTANT
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10445 SW CANYON ROAD, SUITE 245
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CONTACT: ANDREW TULL
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GEOTECHNICAL CONSULTANT
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14835 SW 72ND AVENUE
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CONTACT: SCOTT HARDMAN
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LAND SURVEYOR
COMPASS SURVEYING
4107 SE INTERNATIONAL WAY, SUITE 705
MILWAUKIE, OR 97222
CONTACT: DON DEVLAEMINCK, PLS
PHONE: 503-653-9093
dond@compass-engineering.com

SITE INFORMATION

SITE ADDRESS
22882 WEATHERHILL ROAD
WEST LINN, OR 97068

TAX LOT(S)
2S1E35B 200, 301, 402

FLOOD HAZARD
MAP NUMBER: 41005C0257D ZONE X (UNSHADED)

JURISDICTION
CITY OF WEST LINN

ZONING
FU-10

UTILITIES & SERVICES

WATER, STORM, SEWER
CITY OF WEST LINN

POWER
PGE

GAS
NORTHWEST NATURAL

CABLE
COMCAST

FIRE
TUALATIN VALLEY FIRE & RESCUE

POLICE, SCHOOLS, ROADS, PARKS
CITY OF WEST LINN

SHEET INDEX

LAND USE

#	REVISION SUMMARY	BY	DATE
			08/01/13

COVER SHEET
WEATHERHILL SUBDIVISION
WEST LINN, OR
LF 7, LLC

J.T. SMITH companies

3J CONSULTING, INC
CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING
10445 SW CANYON ROAD SUITE 245, BEAVERTON, OR 97005
PHONE & FAX: (503) 946-9365

3J JOB ID #	13118
LAND USE #	____
TAX LOT #'S	2S1E35B 200, 301, 402
DESIGNED BY	CLF
CHECKED BY	BKF

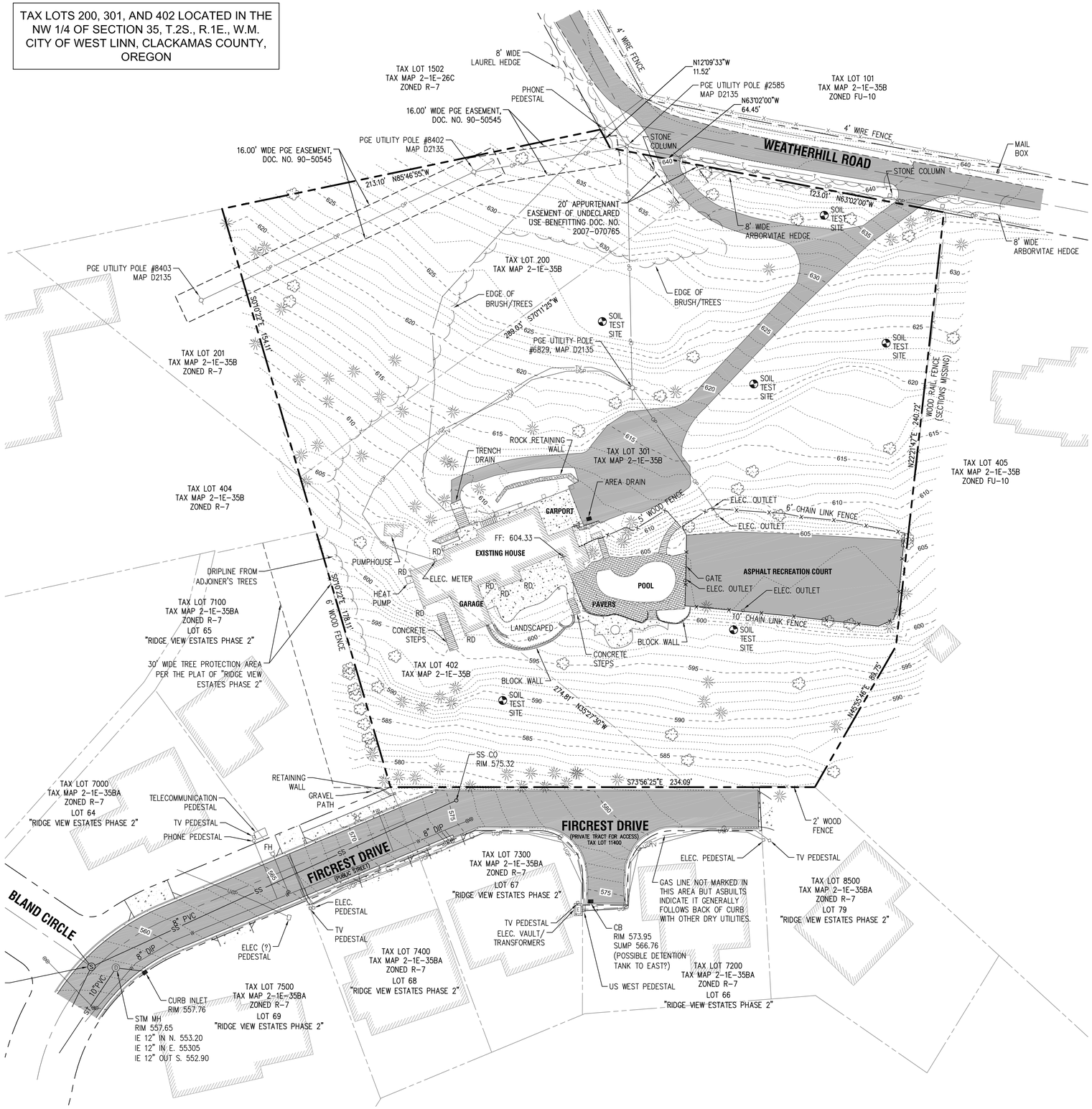
SHEET TITLE
COVER SHEET

SHEET NUMBER
C0.0

TAX LOTS 200, 301, AND 402 LOCATED IN THE NW 1/4 OF SECTION 35, T.2S., R.1E., W.M. CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON

EXISTING CONDITIONS PLAN

THIS PLAN IS INTENDED FOR USE AS AN EXISTING CONDITIONS PLAN SHOWING THE CONDITIONS OF THE SITE PRIOR TO CONSTRUCTION. INFORMATION SHOWN ON THIS PLAN WAS DEVELOPED FROM THE TOPOGRAPHIC SURVEY, AERIAL PHOTOS, AND SITE OBSERVATIONS BY THE ENGINEER. NOT ALL SURFACE FEATURES OR UTILITIES MAY BE SHOWN. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION TO DETERMINE WORK SPECIFIC DETAILS. TOPOGRAPHIC INFORMATION PROVIDED BY COMPASS ENGINEERING DATED APRIL, 2013.



Scale: 1 inch = 30 feet

30 15 0 15 30

LEGEND

BOUNDARY LINE	CURB
RIGHT-OF-WAY	ASPHALT
CENTERLINE	CONCRETE
LOT LINE	GRAVEL
BUILDING	EXISTING TREES
1 FT CONTOUR	LIGHT POLE
5 FT CONTOUR	WATER VALVE
SANITARY SEWER	WATER METER
STORM SEWER	FIRE HYDRANT
WATER LINE	
GAS LINE	
UNDERGROUND POWER	
UNDERGROUND PHONE LINE	
OVERHEAD POWER	

NOTES

1. UTILITY INFORMATION SHOWN ON THIS MAP IS BASED UPON OBSERVED FEATURES, RECORD DATA AND TONE MARKS PROVIDED BY PUBLIC UTILITY LOCATION SERVICES. NO WARRANTIES ARE MADE REGARDING THE ACCURACY OR COMPLETENESS OF THE UTILITY INFORMATION SHOWN. ADDITIONAL UTILITIES MAY EXIST. INTERESTED PARTIES ARE HEREBY ADVISED THAT UTILITY LOCATIONS SHOULD BE VERIFIED PRIOR TO DESIGN OR CONSTRUCTION OF ANY CRITICAL ITEMS.
2. VERTICAL DATUM: NAVD '88 UTILIZING GPS POSITIONING TIED TO THE ORGN WITH REAL TIME CORRECTORS REFERENCED TO NAD 83(2011).
3. TOPOGRAPHIC FEATURES SHOWN ON THIS MAP WERE LOCATED USING STANDARD PRECISION TOPOGRAPHIC MAPPING PROCEDURES. THIRD PARTY USERS OF DATA FROM THIS MAP PROVIDED VIA AUTOCAD DRAWING FILES OR DATA EXCHANGE FILES SHOULD NOT RELY ON ANY AUTOCAD GENERATED INFORMATION WHICH IS BEYOND THE LIMITS OF PRECISION OF THIS MAP. THIRD PARTIES USING DATA FROM THIS MAP IN AN AUTOCAD FORMAT SHOULD VERIFY ANY ELEMENTS REQUIRING PRECISE LOCATIONS PRIOR TO COMMENCEMENT OF ANY CRITICAL DESIGN OR CONSTRUCTION. CONTACT COMPASS ENGINEERING FOR FURTHER INFORMATION. FURTHERMORE, COMPASS ENGINEERING WILL NOT BE RESPONSIBLE NOR HELD LIABLE FOR ANY DESIGN OR CONSTRUCTION RELATED PROBLEMS THAT ARISE OUT OF THIRD PARTY USAGE OF THIS MAP (IN AUTOCAD OR OTHER FORMAT) FOR ANY PURPOSE OTHER THAN SPECIFICALLY STATED HEREIN. THIS STATEMENT IS AN OFFICIAL PART OF THIS MAP.

#	REVISION SUMMARY	BY	DATE
	LAND USE		08/01/13

EXISTING CONDITIONS
WEATHERHILL SUBDIVISION
WEST LINN, OR
LF 7, LLC

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WATER RESOURCES
LAND USE PLANNING
10445 SW CANYON ROAD SUITE 245, BEAVERTON, OR 97005
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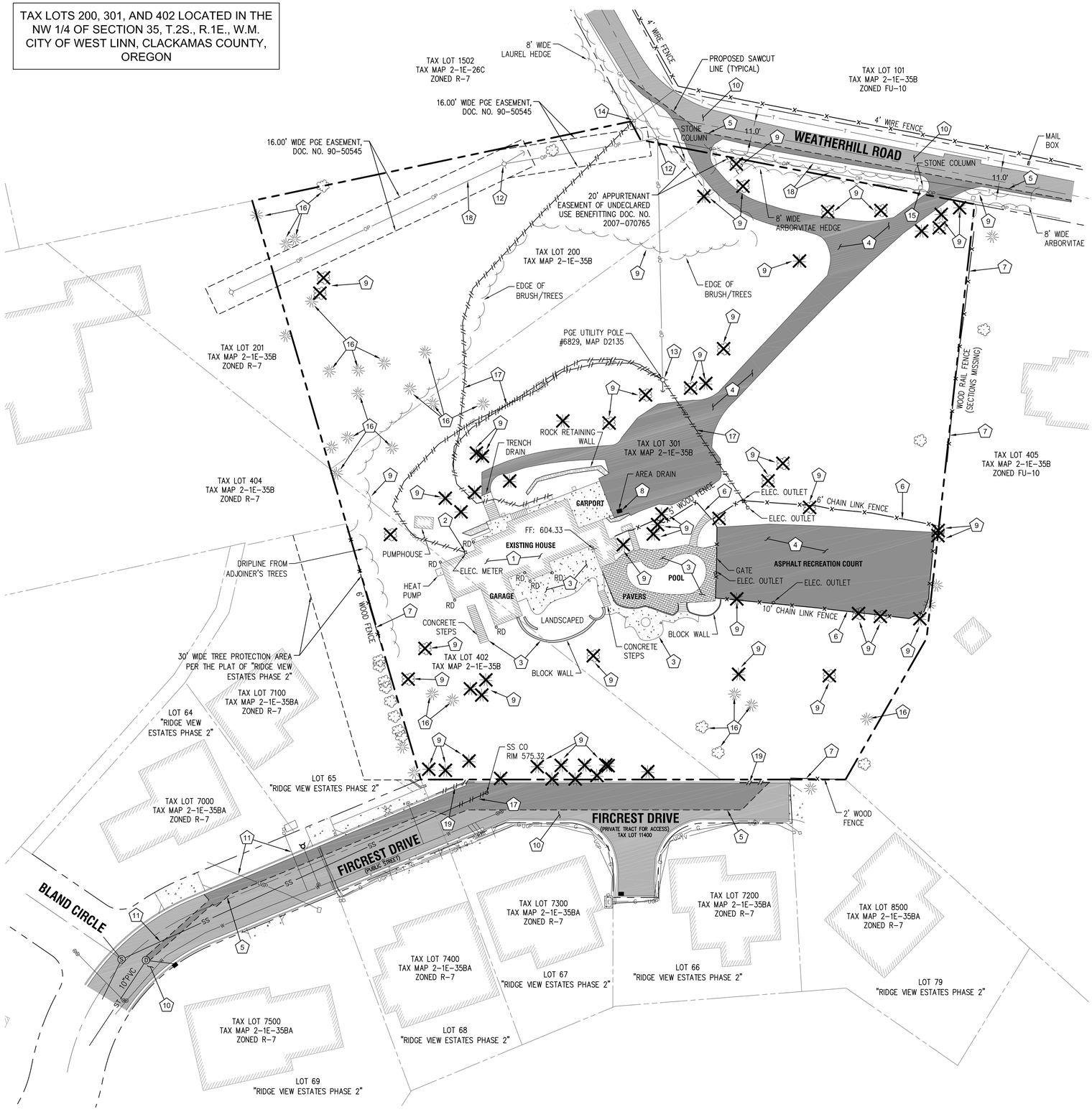
3J JOB ID #	13118
LAND USE #	
TAX LOT #'S	2S1E35B 200, 301, 402
DESIGNED BY	CLF
CHECKED BY	BKF

SHEET TITLE
EXISTING COND.'S

SHEET NUMBER
C1.0

TAX LOTS 200, 301, AND 402 LOCATED IN THE NW 1/4 OF SECTION 35, T.2S., R.1E., W.M. CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON



Scale: 1 inch = 30 feet
30 15 0 15 30

LEGEND

	BOUNDARY LINE		SAWCUT LINE
	RIGHT-OF-WAY		ASPHALT
	CENTERLINE		SIDEWALK/CONCRETE
	LOT LINE		GRAVEL
	BUILDING		EXISTING TREES
	CURB		LIGHT POLE
SS	SANITARY SEWER		TRAFFIC SIGN
ST	STORM SEWER		WATER VALVE
W	WATER LINE		WATER METER
G	GAS LINE		SPRINKLER VALVE
UGP	UNDERGROUND POWER		FIRE HYDRANT
TEL	UNDERGROUND PHONE LINE		
OP	OVERHEAD POWER		

DEMOLITION KEY

1	EXISTING BUILDING AND FOUNDATION TO BE DEMOLISHED. DEBRIS AND REFUSE TO BE DISPOSED OFF-SITE AT AN APPROVED LOCATION
2	EXISTING POWER METER TO BE DISCONNECTED AND RETURNED TO POWER COMPANY. CAP SERVICE LINES AND REMOVE ALL CONDUITS AND WIRING WITHIN PROPERTY.
3	REMOVE EXISTING CONCRETE AND BASE ROCK. DISPOSE OF RUBBLE AND REFUSE OFF-SITE.
4	REMOVE EXISTING ASPHALT AND BASE ROCK. DISPOSE OF RUBBLE AND REFUSE OFF-SITE.
5	SAWCUT EXISTING ASPHALT PAVEMENT AS SHOWN.
6	REMOVE EXISTING FENCING AND DISPOSE OF OFF-SITE.
7	PROTECT EXISTING FENCING TO REMAIN.
8	REMOVE EXISTING STORM AND SEWER LINES AND STRUCTURES AND DISPOSE OF OFF-SITE (TYPICAL FOR ALL).
9	REMOVE EXISTING TREE/LANDSCAPING NECESSARY TO INSTALL IMPROVEMENTS, SEE SHEET C2.0.
10	PROTECT EXISTING PAVEMENT TO REMAIN, SEE SHEET C2.0.
11	PROTECT EXISTING UTILITIES TO REMAIN.
12	PGE TO RELOCATE EXISTING POWER POLE AND REALIGN ADJACENT PROPERTY'S OVERHEAD POWER LINE. CONTRACTOR TO COORDINATE WITH PORTLAND GENERAL ELECTRIC.
13	PGE TO REMOVE EXISTING POWER POLE AND SERVICE DROP. CONTRACTOR TO COORDINATE WITH PORTLAND GENERAL ELECTRIC.
14	QUEST TO REMOVE EXISTING TELEPHONE PEDESTAL. CONTRACTOR TO COORDINATE WITH QUEST.
15	REMOVE EXISTING STONE COLUMNS AND DISPOSE OF REFUSE OFF-SITE (TYPICAL).
16	PROTECT EXISTING TREE TO REMAIN (TYPICAL), SEE SHEET C1.2.
17	REMOVE EXISTING UTILITY AND DISPOSE OF OFF-SITE.
18	EXISTING UTILITIES TO BE INSTALLED UNDERGROUND. CONTRACTOR TO COORDINATE WITH PURVEYORS.
19	REMOVE EXISTING CONCRETE CURB/GUTTER. DISPOSE OF RUBBLE AND REFUSE OFF-SITE.

GENERAL DEMOLITION NOTES

1. DEMOLITION NOTES ARE FOR CLARIFICATION ONLY AND ARE SHOWN FOR THE CONTRACTOR'S BENEFIT. THESE NOTES ARE NOT INTENDED TO BE COMPREHENSIVE. THE CONTRACTOR SHALL REMOVE OR RELOCATE ALL EXISTING ON-SITE IMPROVEMENTS NECESSARY TO ACCOMMODATE THE PROPOSED CONSTRUCTION.
2. ALL EXISTING PROPERTY UTILITY SERVICES TO BE TERMINATED AND CAPPED AT THE RIGHT OF WAY PRIOR TO DEMOLISHING ANY EXISTING BUILDINGS.
3. CONTRACTOR IS TO REMOVE ALL EXISTING SURFACE IMPROVEMENTS AND DEBRIS WITHIN THE LIMITS OF WORK UNLESS OTHERWISE NOTED. ALL DEBRIS FOUND ON SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE STATE CODES.
4. CONTRACTOR TO PROTECT EXISTING FEATURES WHICH ARE TO REMAIN.
5. CONTRACTOR SHALL ADJUST ALL EXISTING MANHOLE RIMS, DRAINAGE STRUCTURES, VALVE BOXES, VAULT LIDS AND UTILITY ACCESS STRUCTURES TO FINISH GRADE WITHIN AREAS AFFECTED BY PROPOSED CONSTRUCTION.
6. CONSTRUCTION AND DEMOLITION ACTIVITIES SHALL BE PHASED IN SUCH A MANNER AS TO ENSURE THAT PUBLIC ACCESS ROADS ARE NOT BLOCKED AND REMAIN OPERATIONAL.
7. SEE TREE PROTECTION AND REMOVAL PLAN (SHEET C1.2) FOR ALL TREE REMOVAL INFORMATION.

Know what's **below.** **Call** before you dig.

LAND USE	REVISION SUMMARY	BY	DATE
#			08/01/13

DEMOLITION PLAN
WEATHERHILL SUBDIVISION
WEST LINN, OR
LF 7, LLC

J.T. SMITH companies

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LAND USE PLANNING
10445 SW CANYON ROAD SUITE 245, BEAVERTON, OR 97005
PHONE & FAX: (503) 946-8365

3J JOB ID #	13118
LAND USE #	____
TAX LOT #'S	2S1E35B 200, 301, 402
DESIGNED BY	CLF
CHECKED BY	BKF

SHEET TITLE
DEMOLITION

SHEET NUMBER
C1.1

TAX LOTS 200, 301, AND 402 LOCATED IN THE NW 1/4 OF SECTION 35, T.2S., R.1E., W.M. CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON

Scale: 1 inch = 30 feet

30 15 0 15 30

LEGEND

- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- 2718 16"CHERRY 12' DL — TREE POINT, TYPE, CALIPER AND DRIPLINE
- SIGNIFICANT TREE CANOPY TO REMAIN (DRIPLINE + 10 FT)
- SIGNIFICANT TREE CANOPY TO BE REMOVED (DRIPLINE + 10 FT)
- TREE TO BE REMOVED
- TREE PROTECTION FENCING
- TREE PRESERVATION EASEMENT

GENERAL TREE INVENTORY STATISTICS

TOTAL PROPERTY AREA:	112,898 Sq. Ft. = 2.59 Ac.
TOTAL TREE INVENTORY (PROJECT BOUNDARY):	87 ea
TOTAL TREES RETAINED:	27 ea
TOTAL TREES REMOVED:	60 ea
TOTAL TREE CALIPER INCHES:	1,867 inches
TOTAL CALIPER INCHES RETAINED:	757 inches
TOTAL CALIPER INCHES REMOVED:	1,110 Inches

SIGNIFICANT TREE STATISTICS

SIGNIFICANT TREE INVENTORY:	23 ea
SIGNIFICANT TREES RETAINED:	13 ea
SIGNIFICANT TREES REMOVED:	10 ea
SIGNIFICANT TREE CALIPER INCHES:	844 inches
SIGNIFICANT CALIPER INCHES RETAINED:	480 inches
SIGNIFICANT CALIPER INCHES REMOVED:	364 inches
SIGNIFICANT TREE CANOPY COVERAGE:	46,673 Sq. Ft.
SIGNIFICANT TREE CANOPY RETAINED:	24,152 Sq. Ft.
SIGNIFICANT TREE CANOPY REMOVED:	22,521 Sq. Ft.
SIGNIFICANT TREE CANOPY REMOVED DUE TO R.O.W. IMPROVEMENTS:	18,193 Sq. Ft.
TREE PRESERVATION EASEMENT AREA REQUIRED (*20% OF EXISTING CANOPY*):	9,335 Sq. Ft.
TREE PRESERVATION EASEMENT AREA REQUIRED (*29.1% OF EXISTING CANOPY*):	13,573 Sq. Ft.

#	REVISION SUMMARY	BY	DATE
	LAND USE		08/01/13

TREE PROTECTION AND REMOVAL PLAN

WEATHERHILL SUBDIVISION

WEST LINN, OR
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3J JOB ID #	13118
LAND USE #	____
TAX LOT #'S	2S1E35B 200, 301, 402
DESIGNED BY	CLF
CHECKED BY	BKF

SHEET TITLE
TREE PLAN

SHEET NUMBER
C1.2

TAX LOTS 200, 301, AND 402 LOCATED IN THE NW 1/4 OF SECTION 35, T.2S., R.1E., W.M. CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON

TREE INVENTORY

SURVEY POINT NUMBER	TREE SPECIES	NOMINAL CALIPER SIZE	PROPOSED ACTION	SIGNIFICANT DESIGNATION	REMOVE DUE TO CONDITION
2152	DOUGLAS-FIR	28"	REMOVE	SIGNIFICANT	R.O.W. IMPROVEMENTS
2153	NORWAY SPRUCE	18"	REMOVE	NO	R.O.W. IMPROVEMENTS
2154	MADRONE	18"	REMOVE	NO	R.O.W. IMPROVEMENTS
2155	LODGEPOLE PINE	8"	REMOVE	NO	R.O.W. IMPROVEMENTS
2156	ADJACENT	36"	N/A	N/A	N/A
2259	BIGLEAF MAPLE	15"	REMOVE	NO	R.O.W. IMPROVEMENTS
2260	BIGLEAF MAPLE	20"	REMOVE	NO	R.O.W. IMPROVEMENTS
2261	OREGON WHITE OAK	6"	REMOVE	NO	R.O.W. IMPROVEMENTS
2262	OREGON WHITE OAK	6"	REMOVE	NO	R.O.W. IMPROVEMENTS
2263	LODGEPOLE PINE	20"	REMOVE	NO	R.O.W. IMPROVEMENTS
2264	BLUE SPRUCE	18"	REMOVE	NO	CONSTRUCTION
2425	DOUGLAS-FIR	54"	REMOVE	SIGNIFICANT	R.O.W. IMPROVEMENTS
2426	MADRONE	14"	REMOVE	NO	CONSTRUCTION
2427	MADRONE	60"	REMOVE	NO	CONSTRUCTION
2428	SILVER MAPLE	26"	SAVE	NO	N/A
2429	NORWAY MAPLE	16"	REMOVE	NO	R.O.W. IMPROVEMENTS
2430	DOUGLAS-FIR	28"	REMOVE	NO	R.O.W. IMPROVEMENTS
2431	BIGLEAF MAPLE	20"	REMOVE	NO	R.O.W. IMPROVEMENTS
2432	BIGLEAF MAPLE	16"	REMOVE	NO	R.O.W. IMPROVEMENTS
2433	NORWAY MAPLE	16"	REMOVE	NO	R.O.W. IMPROVEMENTS
2434	DOUGLAS-FIR	42"	REMOVE	SIGNIFICANT	CONSTRUCTION
2435	DOUGLAS-FIR	40"	REMOVE	SIGNIFICANT	R.O.W. IMPROVEMENTS
2473	SCOTCH PINE	8"	SAVE	NO	N/A
2474	DOUGLAS-FIR	40"	SAVE	SIGNIFICANT	N/A
2475	DOUGLAS-FIR	40"	SAVE	NO	N/A
2476	SWEET CHERRY	24"	REMOVE	NO	R.O.W. IMPROVEMENTS
2477	DOUGLAS-FIR	24"	REMOVE	NO	R.O.W. IMPROVEMENTS
2478	DOUGLAS-FIR	36"	REMOVE	SIGNIFICANT	R.O.W. IMPROVEMENTS
2479	DOUGLAS-FIR	44"	REMOVE	SIGNIFICANT	R.O.W. IMPROVEMENTS
2480	DOUGLAS-FIR	29"	REMOVE	NO	CONSTRUCTION
2481	DOUGLAS-FIR	28"	REMOVE	NO	CONSTRUCTION
2482	DOUGLAS-FIR	42"	SAVE	SIGNIFICANT	N/A
2543	ADJACENT	32"	N/A	N/A	N/A
2544	ADJACENT	24"	N/A	N/A	N/A
2545	DOUGLAS-FIR	28"	SAVE	SIGNIFICANT	N/A
2546	OREGON WHITE OAK	36"	SAVE	SIGNIFICANT	N/A
2547	MADRONE	18"	SAVE	NO	N/A
2548	DOUGLAS-FIR	36"	SAVE	NO	N/A
2549	DOUGLAS-FIR	44"	SAVE	SIGNIFICANT	N/A
2550	DOUGLAS-FIR	34"	REMOVE	SIGNIFICANT	CONSTRUCTION
2551	LEYLAND CYPRESS	6"	REMOVE	NO	CONSTRUCTION
2552	INCENSE-CEDAR	8"	REMOVE	NO	CONSTRUCTION
2553	LEYLAND CYPRESS	10"	REMOVE	NO	CONSTRUCTION
2554	LEYLAND CYPRESS	6"	REMOVE	NO	CONSTRUCTION
2555	LEYLAND CYPRESS	6"	REMOVE	NO	CONSTRUCTION
2556	INCENSE-CEDAR	6"	REMOVE	NO	CONSTRUCTION
2714	WESTERN REDCEDAR	8"	REMOVE	NO	CONSTRUCTION
2715	LEYLAND CYPRESS	8"	REMOVE	NO	CONSTRUCTION
2716	ADJACENT	8"	N/A	N/A	N/A
2803	INCENSE-CEDAR	8"	REMOVE	NO	CONSTRUCTION
2804	LEYLAND CYPRESS	8"	REMOVE	NO	CONSTRUCTION
2805	WESTERN REDCEDAR	8"	REMOVE	NO	CONSTRUCTION
2806	WESTERN REDCEDAR	10"	REMOVE	NO	CONSTRUCTION
2807	WESTERN REDCEDAR	10"	REMOVE	NO	CONSTRUCTION
2808	OREGON WHITE OAK	12", 14"	REMOVE	SIGNIFICANT	CONSTRUCTION
2882	APPLE	12"	REMOVE	NO	CONSTRUCTION
2889	ADJACENT	20"	N/A	N/A	N/A
2952	DOUGLAS-FIR	42"	REMOVE	NO	CONSTRUCTION
2953	DOUGLAS-FIR	36"	REMOVE	SIGNIFICANT	R.O.W. IMPROVEMENTS
2954	DOUGLAS-FIR	18"	REMOVE	NO	R.O.W. IMPROVEMENTS
2955	DOUGLAS-FIR	44"	REMOVE	NO	CONSTRUCTION
2956	BIGLEAF MAPLE	12"	REMOVE	NO	R.O.W. IMPROVEMENTS
2957	BIGLEAF MAPLE	(3)-6"	REMOVE	NO	R.O.W. IMPROVEMENTS
2958	DOUGLAS-FIR	24"	REMOVE	SIGNIFICANT	CONSTRUCTION
2959	DOUGLAS-FIR	30"	SAVE	SIGNIFICANT	N/A
2960	ADJACENT	34"	N/A	N/A	N/A
2961	BIGLEAF MAPLE	16"	REMOVE	NO	CONSTRUCTION
2962	BIGLEAF MAPLE	8"	REMOVE	NO	CONSTRUCTION
2978	ADJACENT	6"	N/A	N/A	N/A
2979	ADJACENT	6"	N/A	N/A	N/A
2980	ADJACENT	6"	N/A	N/A	N/A
2981	ADJACENT	6"	N/A	N/A	N/A
2982	ADJACENT	6"	N/A	N/A	N/A
2983	ADJACENT	6"	N/A	N/A	N/A
2984	ADJACENT	6"	N/A	N/A	N/A
2985	ADJACENT	6"	N/A	N/A	N/A
2986	ADJACENT	6"	N/A	N/A	N/A
2990	MADRONE	12"	REMOVE	NO	CONSTRUCTION

TREE INVENTORY

SURVEY POINT NUMBER	TREE SPECIES	NOMINAL CALIPER SIZE	PROPOSED ACTION	SIGNIFICANT DESIGNATION	REMOVE DUE TO CONDITION
2991	AUSTRIAN PINE	6"	SAVE	NO	N/A
2992	AUSTRIAN PINE	6"	SAVE	NO	N/A
2993	APPLE	18"	REMOVE	NO	CONSTRUCTION
3023	LEYLAND CYPRESS	8"	REMOVE	NO	CONSTRUCTION
3024	LEYLAND CYPRESS	8"	REMOVE	NO	CONSTRUCTION
3025	LEYLAND CYPRESS	8"	REMOVE	NO	CONSTRUCTION
3071	DOUGLAS-FIR	40"	SAVE	SIGNIFICANT	N/A
3072	DOUGLAS-FIR	40"	SAVE	SIGNIFICANT	N/A
3073	DOUGLAS-FIR	36"	SAVE	SIGNIFICANT	N/A
3181	DOUGLAS-FIR	60"	SAVE	SIGNIFICANT	N/A
3182	DOUGLAS-FIR	30"	SAVE	NO	N/A
3183	DOUGLAS-FIR	6"	SAVE	NO	N/A
3184	ENGLISH HAWTHORN	7"	SAVE	NO	N/A
3195	DOUGLAS-FIR	24"	SAVE	SIGNIFICANT	N/A
3196	DOUGLAS-FIR	30"	SAVE	NO	N/A
3197	DOUGLAS-FIR	36"	SAVE	NO	N/A
3198	DOUGLAS-FIR	36"	SAVE	SIGNIFICANT	N/A
3199	DOUGLAS-FIR	24"	SAVE	SIGNIFICANT	N/A
3200	ADJACENT	42"	N/A	N/A	N/A
3201	DOUGLAS-FIR	20"	SAVE	NO	N/A
3202	SWEET CHERRY	6"	REMOVE	NO	CONSTRUCTION
3203	SWEET CHERRY	6"	REMOVE	NO	CONSTRUCTION
2958.1	BIGLEAF MAPLE	8"	REMOVE	NO	CONSTRUCTION
2958.2	BIGLEAF MAPLE	14"	REMOVE	NO	CONSTRUCTION
3180	OREGON WHITE OAK	8"	SAVE	NO	N/A

LAND USE

#	REVISION SUMMARY	BY	DATE
			08/01/13

TREE PROTECTION AND REMOVAL DETAILS

WEATHERHILL SUBDIVISION

WEST LINN, OR
LF 7, LLC

J.T. SMITH companies

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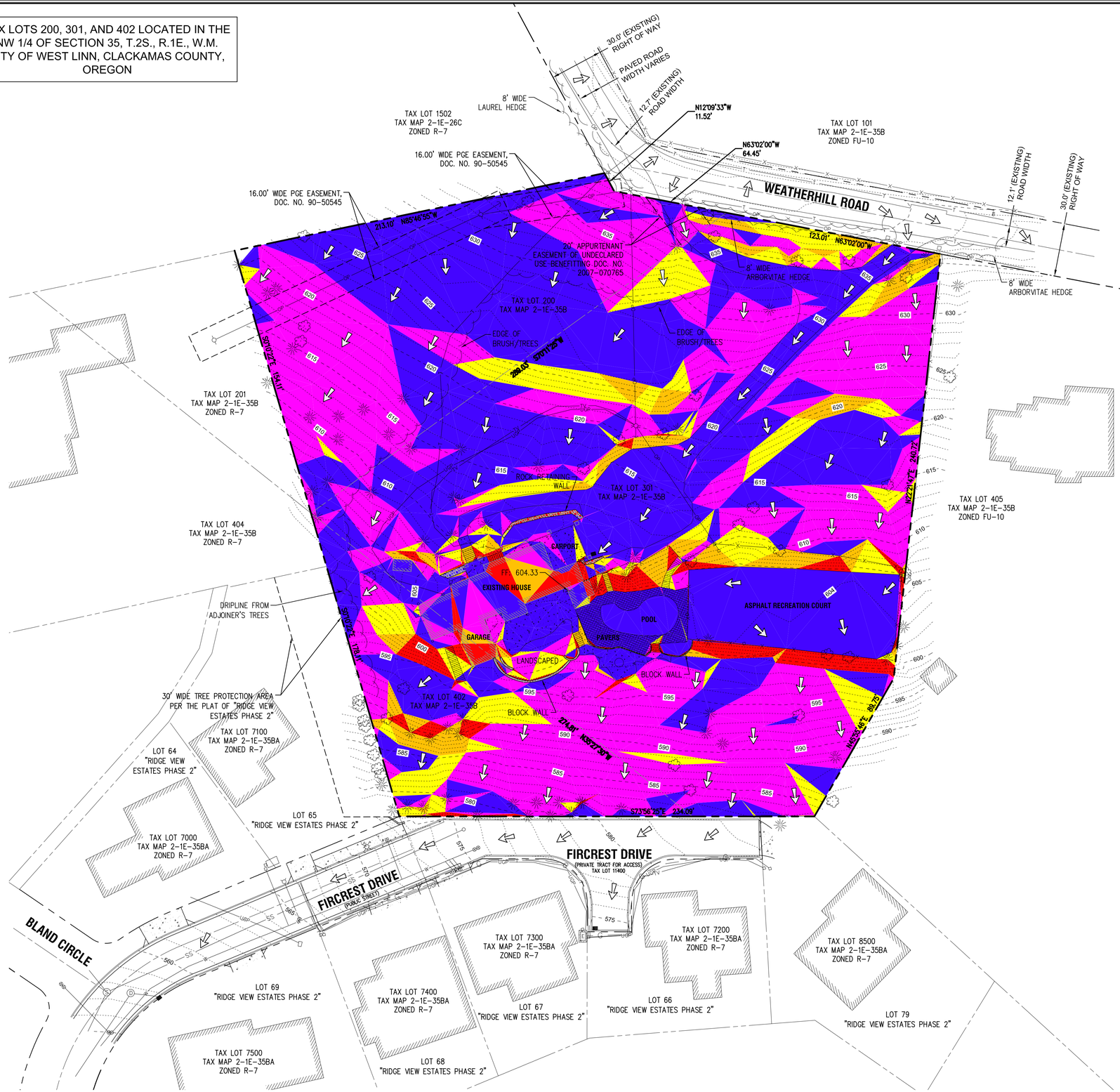
3J JOB ID # | 13118
LAND USE # | ____
TAX LOT #'S | 2S1E35B 200, 301, 402
DESIGNED BY | CLF
CHECKED BY | BKF

SHEET TITLE
TREE PLAN DETAIL

SHEET NUMBER
C1.3

TAX LOTS 200, 301, AND 402 LOCATED IN THE NW 1/4 OF SECTION 35, T.2S., R.1E., W.M. CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON



Scale: 1 inch = 30 feet

30 15 0 15 30

LEGEND

- BOUNDARY LINE
- 1 FOOT CONTOUR
- 200 5 FOOT CONTOUR
- EXISTING TREES
- RUNOFF FLOW DIRECTION

SITE SLOPE ANALYSIS TABLE

Minimum Slope	Maximum Slope	Area (sf)	Color
0%	15%	52,729	
16%	25%	42,210	
26%	35%	9,518	
36%	50%	4,664	
> 50%	--	3,731	

#	REVISION SUMMARY	BY	DATE
	LAND USE		08/01/13

SLOPE ANALYSIS PLAN
WEATHERHILL SUBDIVISION
WEST LINN, OR
LF 7, LLC

J.T. SMITH companies

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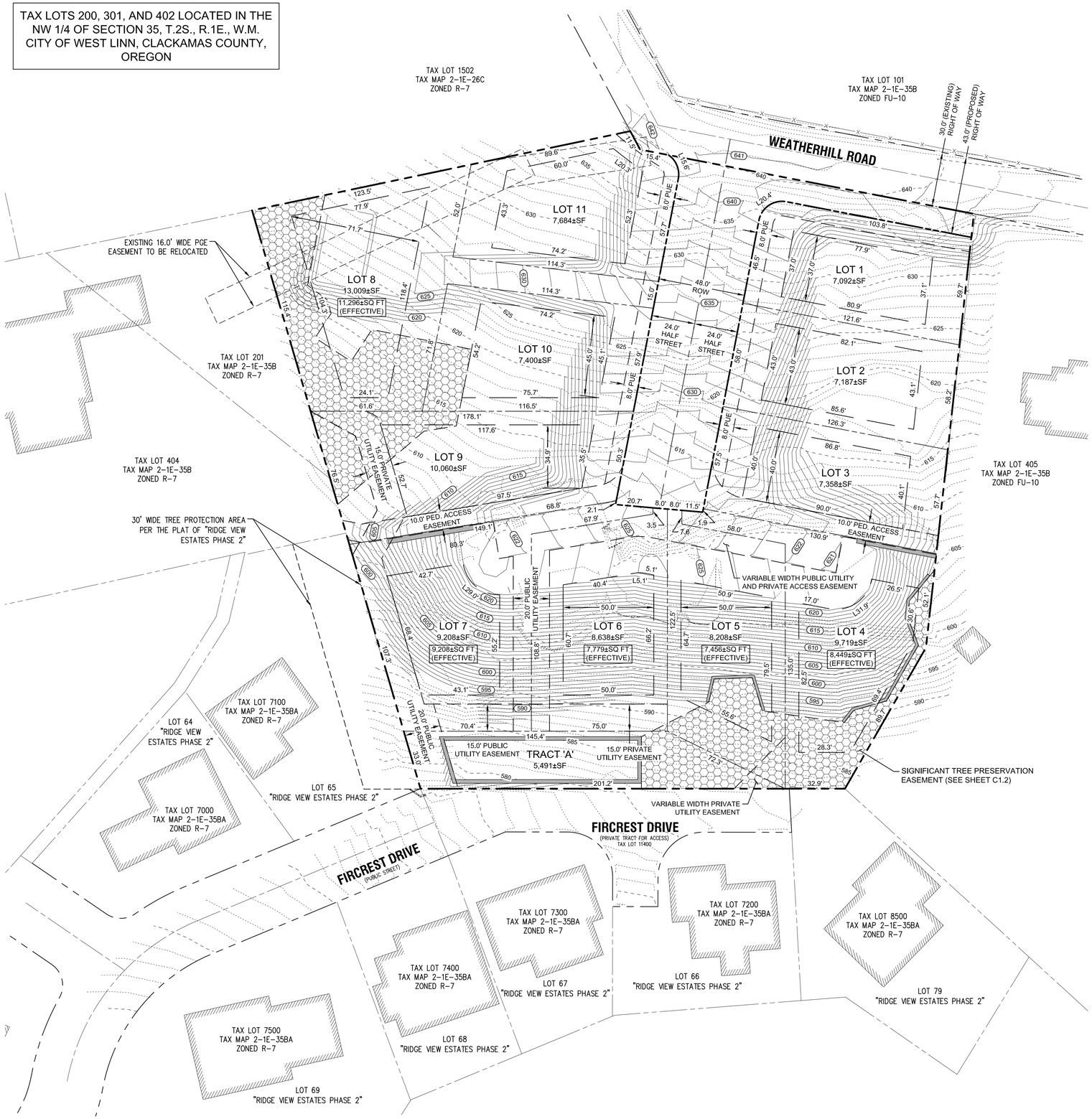
3J JOB ID #	13118
LAND USE #	____
TAX LOT #'S	2S1E35B 200, 301, 402
DESIGNED BY	CLF
CHECKED BY	BKF

SHEET TITLE
SLOPE ANALYSIS

SHEET NUMBER
C1.4

TAX LOTS 200, 301, AND 402 LOCATED IN THE NW 1/4 OF SECTION 35, T.2S., R.1E., W.M. CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON



Scale: 1 inch = 30 feet

30 15 0 15 30

LEGEND

- BOUNDARY LINE
- EXISITNG RIGHT-OF-WAY
- EXISTING CENTERLINE
- EXISTING LOT LINE
- PROPOSED RIGHT-OF-WAY
- PROPOSED LOT LINE
- PROPOSED CENTERLINE
- PROPOSED SETBACK LINE
- PROPOSED EASEMENT LINE
- PROPOSED TREE PRESERVATION EASEMENT

SITE STATISTICS	
SITE ADDRESS	22882 WEATHERHILL ROAD WEST LINN, OR 97068
TAXLOT	2S1E35B 200, 301, 402
JURISDICTION	CITY OF WEST LINN
GROSS SITE AREA	2.59 ACRES
PROPERTY ZONING	R-7
FLOOD HAZARD MAP NUMBER	41005C0257D ZONE X (UNSHADED)

SUBDIVISION STATISTICS	
RIGHT OF WAY DEDICATION	0.25 ACRES
MINIMUM ALLOWABLE EFFECTIVE LOT SIZE	7,000 SF
MINIMUM LOT DENSITY	9.8 UNITS
MAXIMUM LOT DENSITY	14 UNITS
PROPOSED LOT DENSITY	4.6 UNITS/ACRE
MINIMUM LOT DENSITY (PER R-7 ZONING)	4.3 UNITS/ACRE
MAXIMUM LOT DENSITY (PER R-7 ZONING)	6.2 UNITS/ACRE
SETBACKS:	
FRONT	20 FEET
SIDE	7.5 FEET
REAR	20 FEET
STREET SIDE	15 FEET
MAX. HEIGHT	35 FEET

PROJECT TEAM

OWNER/APPLICANT
LF 7, LLC
C/O: J.T. SMITH COMPANIES
5285 MEADOWS ROAD, SUITE #171
LAKE OSWEGO, OR 97035
CONTACT: JOHN WYLAND
jwyland@jtsmithco.com

CIVIL ENGINEER
3J CONSULTING, INC.
10445 SW CANYON ROAD, SUITE 245
BEAVERTON, OR 97005
CONTACT: BRIAN FEENEY
PHONE: (503) 946-9365
brian.feeney@3j-consulting.com

PLANNING CONSULTANT
3J CONSULTING, INC
10445 SW CANYON ROAD, SUITE 245
BEAVERTON, OR 97005
CONTACT: ANDREW TULL
PHONE: 503-946-9365
EMAIL: andrew.tull@3j-consulting.com

GEOTECHNICAL CONSULTANT
GEOPACIFIC ENGINEERING, INC.
14835 SW 72ND AVENUE
PORTLAND, OR 97224
CONTACT: SCOTT HARDMAN
PHONE: (503) 625-4455
shardman@geopacificeng.com

LAND SURVEYOR
COMPASS SURVEYING
4107 SE INTERNATIONAL WAY, SUITE 705
MILWAUKIE, OR 97222
CONTACT: DON DEVLAEMINCK, PLS
PHONE: 503-653-9093
dond@compass-engineering.com

#	REVISION SUMMARY	BY	DATE
	LAND USE		08/01/13

TENTATIVE SUBDIVISION PLAT
WEATHERHILL SUBDIVISION
WEST LINN, OR
LF 7, LLC

J.T. SMITH companies

REGISTERED PROFESSIONAL ENGINEER
OREGON
JULY 15, 2003
BRIAN K. FEENEY
EXPIRES: 12-31-13

PRELIMINARY

3J CONSULTING, INC
CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING
10445 SW CANYON ROAD SUITE 245, BEAVERTON, OR 97005
PHONE & FAX: (503) 946-9365

3J JOB ID #	13118
LAND USE #	____
TAX LOT #'S	2S1E35B 200, 301, 402
DESIGNED BY	CLF
CHECKED BY	BKF

SHEET TITLE
SUBDIVISION PLAT

SHEET NUMBER
C2.0

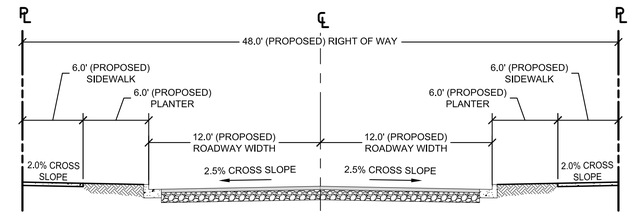
TAX LOTS 200, 301, AND 402 LOCATED IN THE NW 1/4 OF SECTION 35, T.2S., R.1E., W.M. CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON

LEGEND

- BOUNDARY LINE
- EXISTING RIGHT-OF-WAY
- EXISTING CENTERLINE
- EXISTING EASEMENT LINE
- EXISTING LOT LINE
- EXISTING CURB AND GUTTER
- EXISTING TREES TO REMAIN
- EXISTING ASPHALT
- EXISTING SIDEWALK
- EXISTING LIGHT POLE
- EXISTING FIRE HYDRANT
- STORM DRAIN LINE AND MANHOLE
- STORM SEWER CURB INLET
- PROPOSED LOT LINE
- PROPOSED CURB AND GUTTER
- PROPOSED CONCRETE
- PROPOSED ASPHALT
- PROPOSED RAIN GARDEN
- PROPOSED RETAINING WALL
- PROPOSED STREET FRONTAGE TREE
- PROPOSED EASEMENT
- PROPOSED RIGHT-OF-WAY
- PROPOSED STREET LIGHT

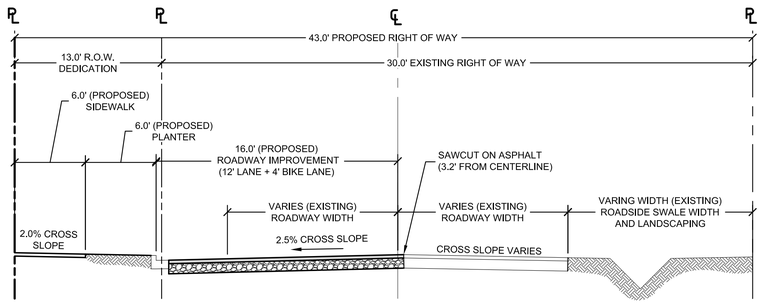
CONSTRUCTION KEY NOTES

1	PROPOSED LOT ACCESS LOCATION.
2	CONSTRUCT STANDARD CURB AND GUTTER PER CITY OF WEST LINN STANDARD DETAIL WL-501 (TYPICAL CURBS).
3	CONSTRUCT 6 FT WIDE CURB TIGHT SIDEWALK PER CITY OF WEST LINN STANDARD DETAIL WL-508 (CONCRETE SIDEWALK CROSS SECTION).
4	CONSTRUCT 6 FT WIDE DETACHED SIDEWALK PER CITY OF WEST LINN STANDARD DETAIL WL-508 (CONCRETE SIDEWALK CROSS SECTION).
5	CONSTRUCT 44 LF OF MODULAR BLOCK WALL FOR GRADE RETENTION. MAXIMUM 6 FT EXPOSED WALL HEIGHT (STRUCTURAL).
6	CONSTRUCT 106 LF OF MODULAR BLOCK WALL FOR GRADE RETENTION. MAXIMUM 7 FT EXPOSED WALL HEIGHT (STRUCTURAL). ALL WORK WITHIN THE DRIPLINE OF PROTECTED TREES SHALL BE PERFORMED UNDER THE SUPERVISION OF THE PROJECT ARBORIST.
7	CONSTRUCT 58 LF OF MODULAR BLOCK WALL FOR GRADE RETENTION. MAXIMUM 8 FT EXPOSED WALL HEIGHT (STRUCTURAL). ALL WORK WITHIN THE DRIPLINE OF PROTECTED TREES SHALL BE PERFORMED UNDER THE SUPERVISION OF THE PROJECT ARBORIST.
8	CONSTRUCT 268 LF OF MODULAR BLOCK WALL FOR GRADE RETENTION. MAXIMUM 13 FT EXPOSED WALL HEIGHT (STRUCTURAL).
9	CONSTRUCT 49 LF OF MODULAR BLOCK WALL FOR GRADE RETENTION. MAXIMUM 6 FT EXPOSED WALL HEIGHT (STRUCTURAL).
10	CONSTRUCT RAIN GARDEN FOR STORM WATER MANAGEMENT. SEE C3.0 FOR UTILITY CONNECTIONS. ALL WORK WITHIN THE DRIPLINE OF PROTECTED TREES SHALL BE PERFORMED UNDER THE SUPERVISION OF THE PROJECT ARBORIST.
11	CONSTRUCT CURB RAMP PER CITY OF WEST LINN STANDARD DETAIL WL-507A (SINGLE CURB RAMP).
12	INSTALL 3.5' HIGH GALVANIZED CHAIN LINK OR WOODEN FENCE.
13	PROPOSED ADA ACCESS CURB RAMP.
14	EXISTING POWER POLE AND OVERHEAD LINES TO BE REMOVED / RELOCATED.
15	INSTALL NEW PAVEMENT.
16	INSTALL STREET TREE AT LOCATION SHOWN (TYPICAL).



TYPICAL SECTION - PRINCE GEORGE COURT IMPROVEMENTS

SCALE: N.T.S



TYPICAL SECTION - WEATHERHILL RD IMPROVEMENTS

SCALE: N.T.S

Scale: 1 inch = 30 feet

30 15 0 15 30

811 Know what's **below.** **Call** before you dig.

#	REVISION SUMMARY	BY	DATE
	LAND USE		08/01/13

SITE PLAN
WEATHERHILL SUBDIVISION
WEST LINN, OR
LF 7, LLC

J.T. SMITH companies

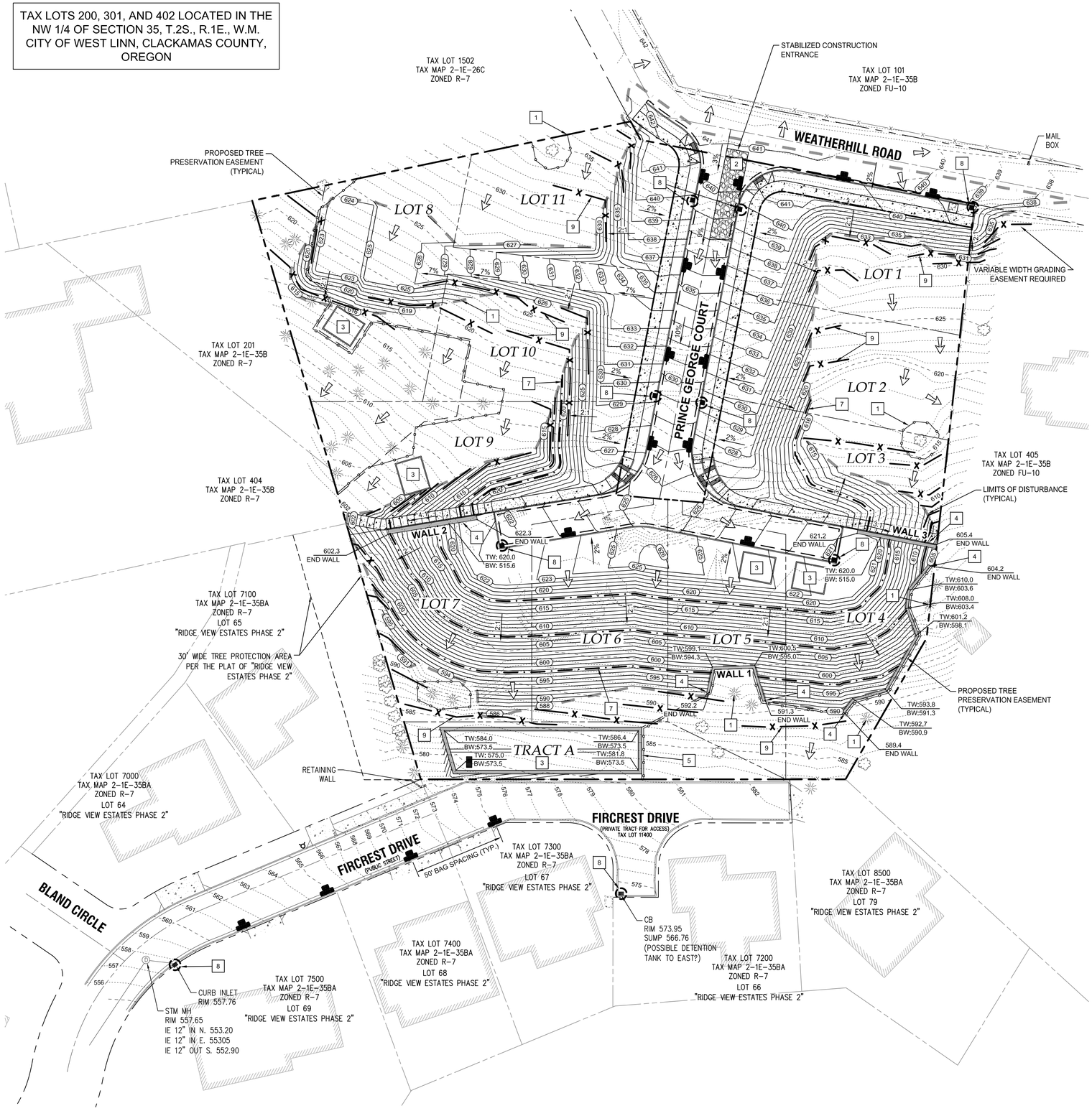
3J CONSULTING, INC
CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING
10445 SW CANYON ROAD SUITE 245, BEAVERTON, OR 97005
PHONE & FAX: (503) 946-8365

3J JOB ID #	13118
LAND USE #	____
TAX LOT #'S	2S1E35B 200, 301, 402
DESIGNED BY	CLF
CHECKED BY	BKF

SHEET TITLE
SITE PLAN

SHEET NUMBER
C2.1

TAX LOTS 200, 301, AND 402 LOCATED IN THE NW 1/4 OF SECTION 35, T.2S., R.1E., W.M. CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON



Scale: 1 inch = 30 feet

30 15 0 15 30

LEGEND

- BOUNDARY LINE
- RIGHT-OF-WAY
- EXISTING CENTERLINE
- EXISTING EASEMENT LINE
- EXISTING LOT LINE
- EXISTING CURB AND GUTTER
- EXISTING SIDEWALK
- EXISTING LIGHT POLE
- EXISTING FIRE HYDRANT
- EXISTING TREES TO REMAIN
- 207 EXISTING 1FT CONTOUR
- 208 EXISTING 5FT INDEX CONTOUR
- PROPOSED LOT LINE
- PROPOSED CURB AND GUTTER
- PROPOSED CONCRETE
- PROPOSED RAIN GARDEN
- PROPOSED RETAINING WALL
- 207 PROPOSED 1FT CONTOUR
- 208 PROPOSED 5FT INDEX CONTOUR
- EROSION CONTROL: SILT FENCING (BLACK)
- EROSION CONTROL: FESCUE STRAW WATTLE
- EROSION CONTROL: BIO BAG CHECK DAM
- EROSION CONTROL: CONSTRUCTION ENTRANCE
- LIMITS OF GRADING/DISTURBANCE
- SURFACE RUN-OFF FLOW ARROW
- EROSION CONTROL: INLET PROTECTION
- TREE PROTECTION FENCING

SITE GRADING INFORMATION

NEAT LINE CUT	755 CY
NEAT LINE FILL	19,910 CY
STRIPPINGS*	1,350 CY
MAXIMUM CUT DEPTH	12.9 FT
MAXIMUM FILL DEPTH	22.2 FT
MAXIMUM PROPOSED SLOPE	2:1 (H:V)
TOTAL AREA OF DISTURBANCE	0.35 ACRES

(ASSUMED REPLACEMENT / STOCKPILE ON SITE OUTSIDE BUILDING ENVELOPE)*

GRADING KEY NOTES

1	PLACE TREE PROTECTION FENCING AT LIMITS OF GRADING AND FOR CONSTRUCTION WHERE SHOWN
2	CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE AT LOCATION SHOWN
3	CONSTRUCT STORMWATER QUALITY AND QUANTITY PLANTER
4	CONSTRUCT MODULAR BLOCK RETAINING WALL, HEIGHT AS NOTED
5	CONSTRUCT STORMWATER FACILITY CAST IN PLACE CONCRETE RETAINING WALL, HEIGHT AS NOTED
6	PLACE BIO-BAG CHECK DAM FOR SEDIMENT CONTROL ADJACENT TO ALL NEW CONCRETE WORK WITHIN RIGHT OF WAY
7	INSTALL STRAW WATTLE
8	INSTALL INLET PROTECT
9	PLACE SILT FENCING AT LIMITS OF GRADING AND CONSTRUCTION WHERE SHOWN

GRADING GENERAL NOTES:

1. ALL GRADING ACTIVITIES SHALL CONFORM TO THE UNIFORM BUILDING CODE AND THE OREGON SPECIALTY CODE AMENDMENTS, INCLUDING APPENDIX J.

Know what's below. Call before you dig.

#	REVISION SUMMARY	BY	DATE
	LAND USE		08/01/13

GRADING AND EROSION CONTROL PLAN

WEATHERHILL SUBDIVISION

WEST LINN, OR
LF 7, LLC

J.T. SMITH companies

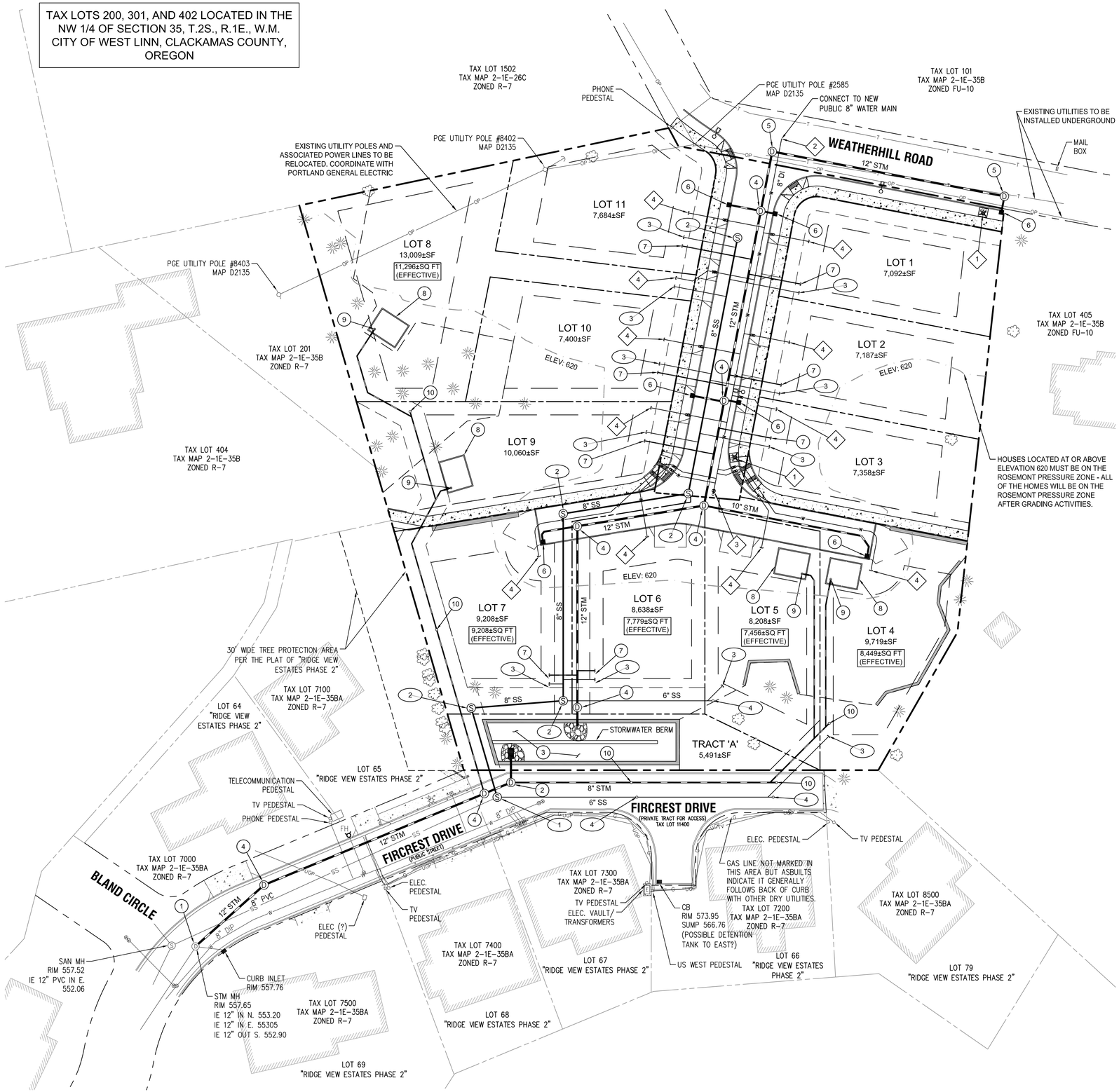
3J CONSULTING, INC
CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING
10445 SW CANYON ROAD SUITE 245, BEAVERTON, OR 97005
PHONE & FAX: (503) 946-9365

3J JOB ID #	13118
LAND USE #	
TAX LOT #'S	2S1E35B 200, 301, 402
DESIGNED BY	CLF
CHECKED BY	BKF

SHEET TITLE
GRADING / ESCP

SHEET NUMBER
C2.2

TAX LOTS 200, 301, AND 402 LOCATED IN THE NW 1/4 OF SECTION 35, T.2S., R.1E., W.M. CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON



Scale: 1 inch = 30 feet

30 15 0 15 30

LEGEND

- BOUNDARY LINE
- EXISITNG RIGHT-OF-WAY
- EXISTING CENTERLINE
- EXISTING LOT LINE
- EXISTING CURB
- EXISTING ASPHALT
- EXISTING SIDEWALK
- EXISTING LIGHT POLE
- PROPOSED RIGHT-OF-WAY
- PROPOSED LOT LINE
- PROPOSED CURB
- PROPOSED SIDEWALK
- PROPOSED SETBACK LINE
- SANITARY SEWER LINE AND MANHOLE
- STORM DRAIN LINE AND MANHOLE
- DOMESTIC WATER SERVICE & METER
- STORM SEWER LATERAL AS NOTED
- SANITARY SEWER LATERAL AS NOTED
- STORM SEWER CURB INLET
- PROPOSED STREET LIGHT
- PROPOSED RETAINING WALL
- ROSEMONT PRESSURE ZONE (ELEV: 620)
- UTILITY/ACCESS EASEMENT
- TREE PRESERVATION EASEMENT

STORM SEWER CONSTRUCTION NOTES

1	CONNECT PROPOSED 12" STORM LINE TO EXISTING MANHOLE.
2	CONSTRUCT FLOW CONTROL STRUCTURE FOR POND OUTLET.
3	CONSTRUCT WET DETENTION POND (PER APPENDIX D; CCSD #1 STANDARD SURFACE WATER SPECIFICATIONS).
4	CONSTRUCT STANDARD 48" STORM SEWER MANHOLE.
5	CONSTRUCT SHALLOW 48" STORM SEWER MANHOLE.
6	CONSTRUCT CURB INLET WITH 10" STORM LINE.
7	PROVIDE 6" PRIVATE STORM DRAIN LATERAL CONNECTION FOR INDIVIDUAL LOT SERVICE. EXTEND SERVICE LATERAL 3' BEYOND PUE.
8	STORMWATER INFILTRATION PLANTER FOR MANAGEMENT OF FUTURE PROPERTY IMPROVEMENTS.
9	ROUTE WATER QUALITY PLANTER OVERFLOWS TO ULTIMATE STORWATER OUTLET.
10	INSTALL 6" OR 8" CLEAN OUT AS SPECIFIED.

SANITARY SEWER CONSTRUCTION NOTES

1	CONNECT PROPOSED 8" SEWER LINE TO NEW MANHOLE OVER EXISTING SEWER LINE.
2	CONSTRUCT STANDARD 48" SANITARY SEWER MANHOLE.
3	PROVIDE NEW 4" SANITARY SEWER LATERAL FOR INDIVIDUAL LOT SERVICE. EXTEND SERVICE LATERAL 3' BEYOND PUE.
4	INSTALL 4" CLEAN OUT.

WATER CONSTRUCTION NOTES

1	INSTALL FIRE HYDRANT.
2	CONNECT TO CITY WATER MAIN. CONTRACTOR TO COORDINATE WITH CITY OF WEST LINN PUBLIC WORKS' WATER LINE IMPROVEMENT PROJECT.
3	INSTALL STANDARD BLOW-OFF.
4	INSTALL SINGLE WATER METER FOR INDIVIDUAL LOT SERVICE. EXTEND 1" SERVICE LATERAL 3' BEYOND PUE.

811 Know what's below. Call before you dig.

LAND USE	REVISION SUMMARY	BY	DATE
#			08/01/13

COMPOSITE UTILITY PLAN
WEATHERHILL SUBDIVISION
WEST LINN, OR
LF 7, LLC

J.T. SMITH companies

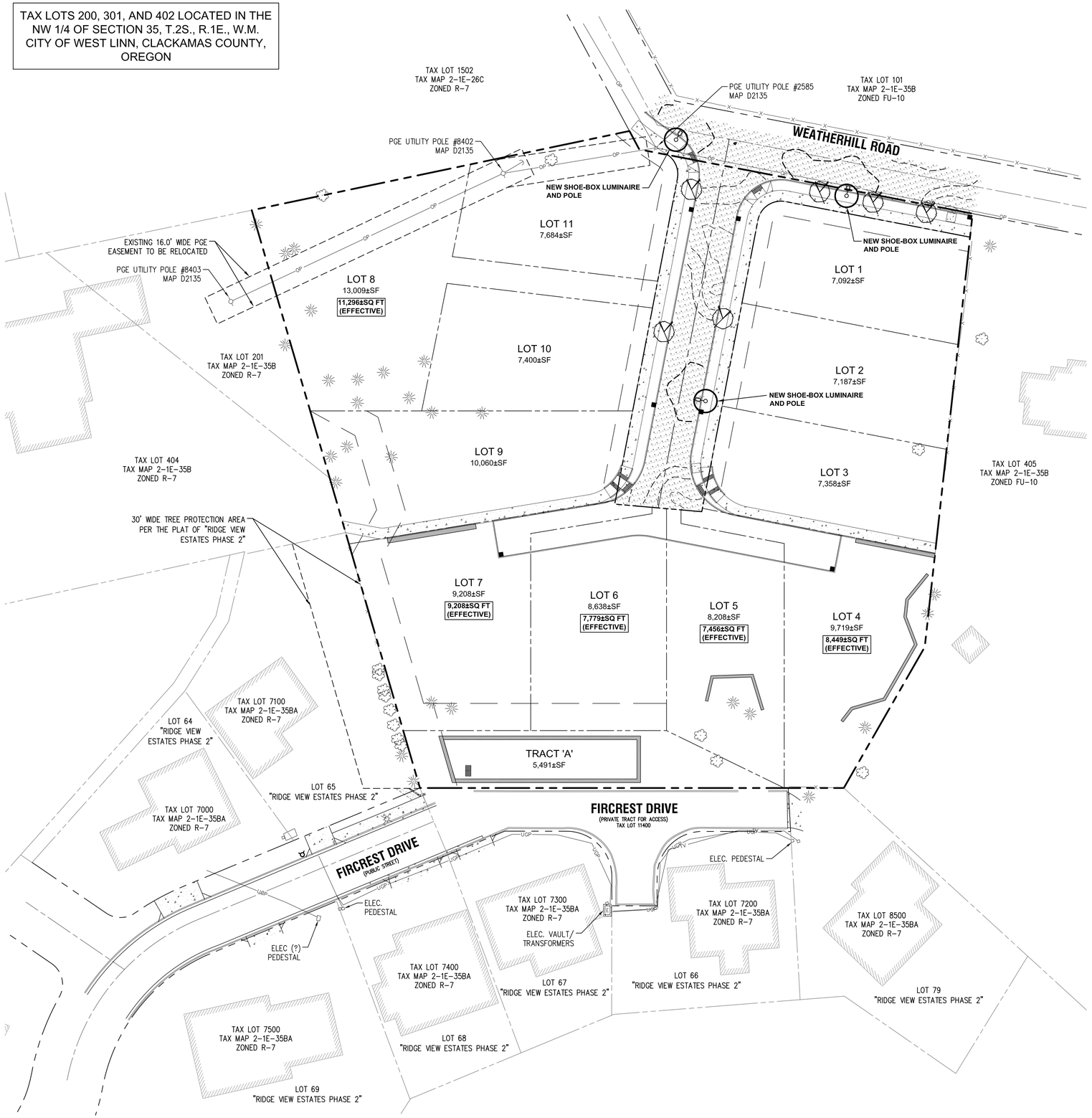
3J CONSULTING, INC
CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING
10445 SW CANYON ROAD SUITE 245, BEAVERTON, OR 97005
PHONE & FAX: (503) 946-8365

3J JOB ID #	13118
LAND USE #	____
TAX LOT #'S	2S1E35B 200, 301, 402
DESIGNED BY	CLF
CHECKED BY	BKF

SHEET TITLE
UTILTIY PLAN

SHEET NUMBER
C3.0

TAX LOTS 200, 301, AND 402 LOCATED IN THE NW 1/4 OF SECTION 35, T.2S., R.1E., W.M. CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON



Scale: 1 inch = 30 feet

30 15 0 15 30

LEGEND

- 2.5 FOOT CANDLE ISO-ILLUMINATION CONTOUR
- 1.0 FOOT CANDLE ISO-ILLUMINATION CONTOUR
- 0.5 FOOT CANDLE ISO-ILLUMINATION CONTOUR
- 0.1 FOOT CANDLE ISO-ILLUMINATION CONTOUR
- 0.7 - ILLUMINATION ANALYSIS POINT (FC)
- FC - FOOT CANDLE UNIT

ROADWAY SURFACE LIGHTING STATISTICS

EXISTING LIGHT(S) INCLUDED	0 EA
NEW LIGHTS PROPOSED	3 EA
MAX. ILLUMINATION	4.8 FC
MIN. ILLUMINATION	0.1 FC
AVERAGE ILLUMINATION	1.63 FC
UNIFORMITY (AVG/MIN)	16.30

Know what's **below.** **Call** before you dig.

#	REVISION SUMMARY	BY	DATE
	LAND USE		08/01/13

ROADWAY ILLUMINATION PLAN
WEATHERHILL SUBDIVISION
WEST LINN, OR
LF 7, LLC

J.T. SMITH companies

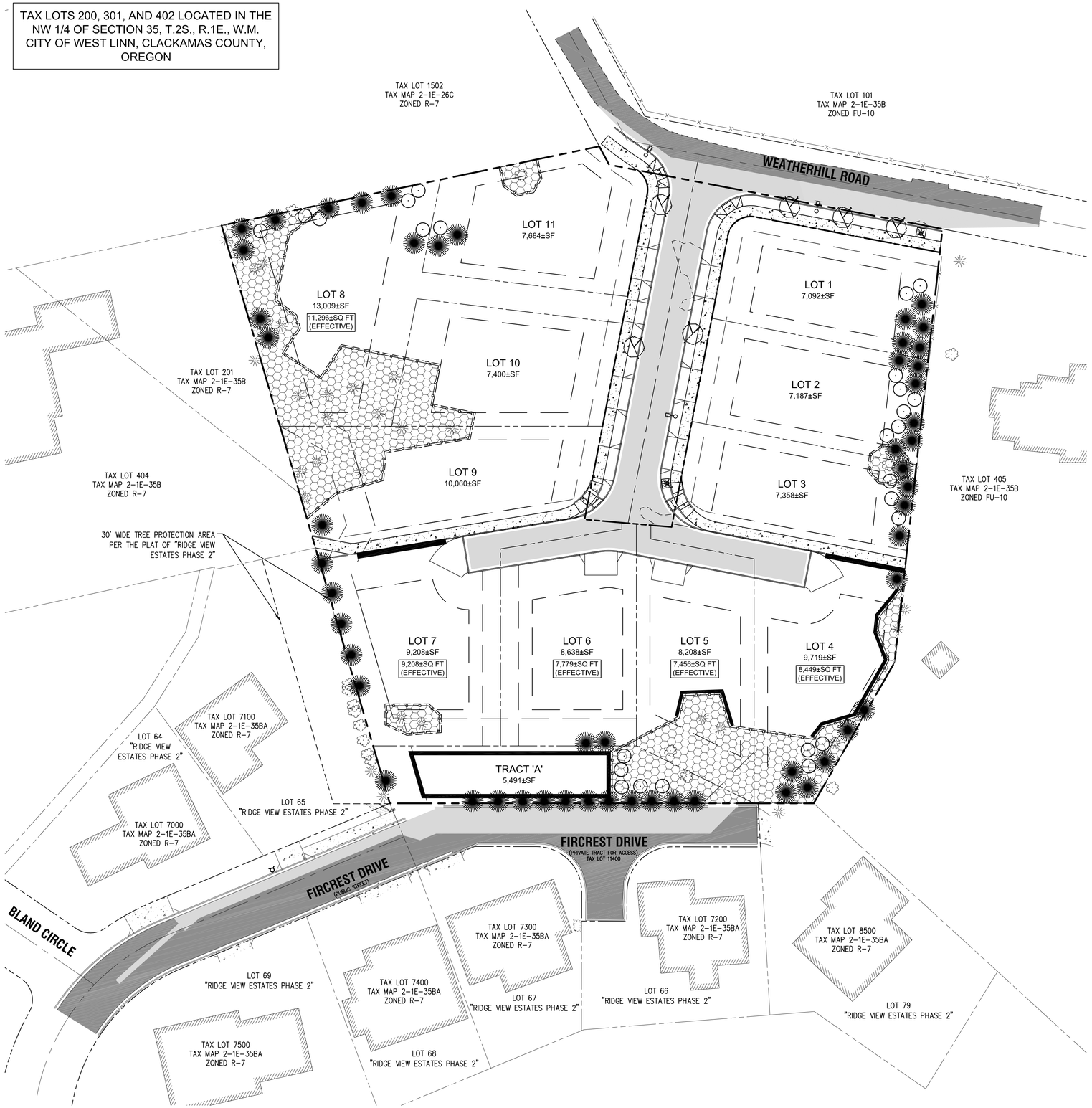
3J CONSULTING, INC
CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING
10445 SW CANYON ROAD SUITE 245, BEAVERTON, OR 97005
PHONE & FAX: (503) 946-9365

3J JOB ID #	13118
LAND USE #	
TAX LOT #'S	2S1E35B 200, 301, 402
DESIGNED BY	CLF
CHECKED BY	BKF

SHEET TITLE
LIGHTING PLAN

SHEET NUMBER
C3.1

TAX LOTS 200, 301, AND 402 LOCATED IN THE NW 1/4 OF SECTION 35, T.2S., R.1E., W.M. CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON



Scale: 1 inch = 30 feet

30 15 0 15 30

LEGEND

- SUBDIVISION BOUNDARY LINE
- EXISTING RIGHT OF WAY
- EXISTING PROPERTY LINE
- PROPOSED RIGHT OF WAY
- PROPOSED LOT LINE
- PROPOSED EASEMENT
- PROPOSED SETBACK LINE
- TREE PROTECTION FENCING
- PROPOSED ASPHALT PAVING
- PROPOSED CONCRETE PAVING
- PROPOSED TREE PRESERVATION EASEMENT

PLANT MATERIALS SCHEDULE

COMMON NAME	BOTANICAL NAME	SIZE	SPACING	QUANTITY
SCARLET OAK	QUERCUS COCCINIA	2" CAL.	22' MIN	6
VINE MAPLE	ACER CIRCINATUM	6' / 2" CAL.	10' MIN	26
WESTERN RED CEDAR	THUJA PLICATA	2" CAL.	12' MIN	53

TOTAL PROPOSED TREE COUNT: 85

TOTAL MITIGATION REQUIREMENT: 170" (CALIPER MEASUREMENT)

GENERAL LANDSCAPING NOTES

1. LANDSCAPE PLANTING SHALL CONFIRM TO THE STANDARDS ESTABLISHED UNDER THE WEST LINN STANDARDS FOR LANDSCAPE PLANTING
2. ALL PLANT BEDS SHALL HAVE A 3" DEPTH OF BARK MULCH
3. ALL PLANT MATERIAL DELIVERED TO THIS SITE SHALL MEET THE AMERICAN NURSERYMAN'S ASSOCIATION STANDARDS.
4. CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ALL PLANT MATERIAL SUBSTITUTIONS FROM THE CIVIL ENGINEER PRIOR TO INSTALLATION. PLANT SUBSTITUTIONS WITHOUT PRIOR WRITTEN APPROVAL THAT DO NOT COMPLY WITH THE DRAWINGS AND SPECIFICATIONS MAY BE REJECTED BY THE LANDSCAPE ARCHITECT AT NO COST TO THE OWNER. THESE ITEMS MAY BE REQUIRED TO BE REPLACED WITH PLANT MATERIALS THAT ARE IN COMPLIANCE WITH THESE DRAWINGS.

LAND USE

#	REVISION SUMMARY	BY	DATE
			08/01/13

MITIGATION PLANTING PLAN
WEATHERHILL SUBDIVISION
WEST LINN, OR
LF 7, LLC

J.T. SMITH companies

3J CONSULTING, INC
CIVIL ENGINEERING
WATER RESOURCES
LAND USE PLANNING
10445 SW CANYON ROAD SUITE 245, BEAVERTON, OR 97005
PHONE & FAX: (503) 946-9365

3J JOB ID #	13118
LAND USE #	____
TAX LOT #'S	2S1E35B 200, 301, 402
DESIGNED BY	CLF
CHECKED BY	BKF

SHEET TITLE
MITIGATION PLAN

SHEET NUMBER
L1.0