CITY OF KIRKLAND
Planning and Community Development Department
123 Fifth Avenue, Kirkland, WA 98033
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ADVISORY REPORT
FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

To: Kirkland Hearing Examiner

From:

Tony Leavitt, Project Planner

Jeremy McMahan, Planning Manager

Date: December 24, 2015

File: SUB15-01332, SAR15-01336; FIRWOOD LANE PRELIMINARY SUBDIVISION, LOW IMPACT DEVELOPMENT, AND STREAM BUFFER MODIFICATION PERMITS

Hearing Date and Place: January 6, 2016; 7pm
City Hall Council Chamber
123 Fifth Avenue, Kirkland

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I. INTRODUCTION

A. APPLICATION

1. Applicant: Moira Haughian of The Blueline Group representing the property owner, Firwood Land LP.

2. Site Location: 12342 93rd Lane NE (see Attachment 1)

3. Request: Proposal to subdivide one 3.49 acre parcel into 19 separate lots in a RSX 7.2 and RSX 8.5 zones. Access to the lots will be provided via a new public access road off of NE 100th Street. The project includes a request for stream buffer modification through enhancement of the buffer. The subdivision application includes utilization of the Low Impact Development Zoning Code provisions to reduce the minimum lot size and increase the allowed density by 1 lot in exchange for increased open space on the site (see Attachment 2).

4. Review Process: Process IIA, Hearing Examiner conducts public hearing and makes final decision for the preliminary subdivision, stream buffer modification, and low impact development permits. Pursuant to KZC Section 114.25, the low impact development application will be reviewed through the same for process as the preliminary subdivision.

5. Summary of Key Issues:

   a. Compliance with Preliminary Plat Approval Criteria (see Section II.D.1)

   b. Compliance with Stream Buffer Modification Approval Criteria (See Section II.D.2)

   c. Compliance with Low Impact Development Regulations (II.E.1)

B. RECOMMENDATIONS

Based on Statements of Fact and Conclusions (Section II), and Attachments in this report, we recommend approval of this application subject to the following conditions:

1. This application is subject to the applicable requirements contained in the Kirkland Municipal Code, Zoning Code, and Building and Fire Code. It is the responsibility of the applicant to ensure compliance with the various provisions contained in these ordinances. Attachment 3, Development Standards, is provided in this report to familiarize the applicant with some of the additional development regulations. This attachment does not include all of the additional regulations. When a condition of approval conflicts with a development regulation in Attachment 3, the condition of approval shall be followed (see Conclusion II.G.2).

2. Trees shall not be removed or altered following the plat approval except as approved by the Planning Department. Attachment 3, Development Standards, contains specific information concerning tree retention requirements. Additionally, the applicant is proposing an Integrated Development Plan (IDP) pursuant to KZC 95.30.4 and 95.30.5. The trees that are shown to be saved on the IDP shall be protected and retained (see Attachment 9). The trees not shown as being protected may be removed with an approved grading permit (see Conclusion II.E.9).

3. As part of the land surface modification permit application, the applicant shall:

   a. Submit development plans that incorporate the approved stream buffer enhancement, monitoring and maintenance plans (see Conclusion II.D.2).

b. Submit a financial security device to cover the cost of completing the stream buffer enhancement improvements. The security shall be consistent with the standards outlined in Zoning Code section 90.145 (see Conclusion II.E.5).

c. Submit Erosion control plans, which depict the location of a six-foot high construction phase fence along the boundary of the entire stream buffer with silt screen fabric installed per City standard. The fencing shall be installed prior to issuance of any permits. The fence shall remain upright in the approved location for the duration of development activities (see Conclusion II.E.8).

d. Submit documentation showing compliance with the requirement to show that Low Impact Development techniques have been employed to control 50% of stormwater from all hard surfaces (see II.E.1).

4. Prior to issuance of a land surface modification permit or a building permit, whichever is issued first, the applicant shall enter into an agreement with the City that runs with the property, in a form acceptable to the City Attorney, indemnifying the City from any claims, actions, liability and damages to sensitive areas arising out of development activity on the subject property (see Conclusion II.E.6).

5. Prior to final inspection of the land surface modification permit, the applicant shall:

a. Complete installation of the stream buffer enhancement plan, subject to inspection by the City's consultant at the applicant's expense (see Conclusion II.D.2).

b. Install a permanent 3 to 4 foot tall split rail fence between the boundary of the stream buffer and the developed portion of the site (see Conclusion II.E.8).

c. Provide proof of a written contract with a qualified professional who will perform the monitoring program, together with a completed contract and fees to fund review of the monitoring and maintenance activities, (i.e. inspection of plant materials, annual monitoring reports or revegetation activities) by the City's consultant. Alternatively, the applicant shall provide a copy of a completed contract and fees to fund completion of the monitoring program by the City's consultant (see Conclusion II.D.2).

d. Provide proof of a written contract to cover maintenance activities outlined in the stream buffer modification report (see Conclusion II.D.2).

e. Submit to the Planning Department a financial security device to cover all monitoring and maintenance activities that will need to be done including stream consultant site visits, reports to the Planning Department, and any vegetation that needs to be replaced. The security shall be consistent with the standards outlined in Zoning Code section 90.145 (see Conclusion II.E.5).

6. As part of the final plat recording, the applicant shall:

   a. Dedicate a natural greenbelt protection easement encompassing the stream and associated buffer on the site. The boundaries of the Natural Greenbelt Protection Easement shall be established by survey. All surveys shall be located on KCAS or plat bearing system and tied to known monuments (see Conclusion II.E.7).

   b. Include a note in the mylars that the gross floor area for each lot shall not exceed 50% of the minimum lot size for each zone (see Conclusion II.E.1).

   c. Dedicate an open space easement encompassing the required Low Impact Development Open Space (see Conclusion II.E.1).

7. As part of the application for a Building Permit the applicant shall submit:

   a. A site plan for each building permit that shows compliance with the low impact development standards (parking, required yards, front porches, garage setbacks, lot coverage) in KZC Section 114.15 (see Conclusion II.E.1).

   b. Floor plans for each building permit that show that the gross floor area for each dwelling unit does not exceed 50% of the minimum lot size for each zone (see II.E.1).

II. FINDINGS OF FACT AND CONCLUSIONS

A. SITE DESCRIPTION

1. Site Development and Zoning:

   a. Facts:

      (1) Size: 152,141 square feet (3.49 acres).

      (2) Land Use: The site currently contains multiple single family residences and associated accessory structures. All structures are proposed to be removed.

      (3) Zoning: Single Family Residential. The subject property is split zoned between the RSX 7.2 and RSX 8.5 zones. The RSX 7.2 zone has a minimum lot size of 7,200 square feet and the RSX 8.5 has a minimum lot size of 8,500 square feet. Pursuant to KZC 114.15 (Low Impact Development), individual lot sizes must be at least 50% of the minimum lot size for the underlying zone. Proposed lot sizes range from 3,600 to 10,742 square feet.

      (4) Terrain: The property slopes downward from the northern property line (adjacent to NE 124th Street) to the south at a gradual slope. The west side of the property has a more significant slope due to the stream channel.

      (5) Vegetation: There are 74 significant trees on the property. Retention of trees is discussed in Section II.E.9.

      (6) Stream: A Class A Stream (a tributary to Juanita Creek) exists on the western portion of the property. This stream is part of the Juanita Creek Basin, which is primary basin and requires a 75 foot buffer and a ten foot buffer setback.

b. Conclusions: Size, land use, zoning, terrain and vegetation are not constraining factors in the consideration of this application. The stream is a relevant factor in the review of the application and discussed in Section II.D.2.

2. Neighboring Development and Zoning:

a. Facts: The neighboring properties are zoned as follows and contain the following uses:

North and West: Zoned RSX 7.2; Single-family residences

East and South: Zoned RSX 8.5, Single-family residences

b. Conclusion: The neighboring development and zoning are not constraining factors in this application.

B. PUBLIC COMMENT

1. Facts: The initial public comment period ran from August 12 to September 11, 2015. The Planning Department received two comment letters (see Attachment 4) during this comment period. The first comment letter, from Allyson O'Malley Jones of the Northwest Justice Project brought up issues that were related to the SEPA Determination for the project. Staff addressed these issues in the SEPA Determination memo (see Attachment 5).

The second letter, from Karen Walter of the Muckleshoot Tribe, requested clarification of a few issues and requested additional information. Staff sent an email responding to these items.

C. STATE ENVIRONMENTAL POLICY ACT (SEPA) AND CONCURRENCY

1. Facts: A Determination of Nonsignificance (DNS) was issued on December 3, 2015. The project passed Traffic Concurrency on May 19, 2015. The appeal period for both SEPA and Concurrency ended on December 17, 2015. No appeals were received. The Environmental Determination is included as Attachment 5.

2. Conclusion: The applicant and the City have satisfied the requirements of SEPA and Concurrency.

D. APPROVAL CRITERIA

1. SUBDIVISION AND LOW IMPACT DEVELOPMENT PROPOSALS

a. Facts:

(1) KZC Section 114.25 states that the City will review and process an application for a LID project concurrent with and through the same process as the underlying subdivision proposal.

(2) Kirkland Municipal Code section 22.12.230 states that the Hearing Examiner may approve a proposed plat only if:

(a) There are adequate provisions for open spaces, drainage ways, rights-of-way, easements, water supplies, sanitary waste, power service, parks, playgrounds, and schools; and

(b) It will serve the public use and interest and is consistent with the public health, safety, and welfare. The Hearing Examiner shall be guided by the policy and standards and may exercise the powers and authority set forth in RCW 58.17.

(c) Zoning Code section 150.65 states that the Hearing Examiner may approve a proposed plat only if it is consistent with the all applicable development regulations, including but not limited to the Zoning Code and Subdivision Code, and to the extent there is no applicable development regulation, the Comprehensive Plan.

b. Conclusions The proposal complies with Municipal Code section 22.12.230 and Zoning Code section 150.65. With the recommended conditions of approval, it is consistent with the Zoning Code and Subdivision regulations (see Sections II.D & E) and there are adequate provisions for open spaces, drainage ways, rights-of-way, easements, water supplies, sanitary waste, power service, parks, playgrounds, and schools. It will serve the public use and interest and is consistent with the public health, safety, and welfare because it will add housing stock to the City of Kirkland in a manner that is consistent with applicable development regulations.

2. BUFFER MODIFICATION

a. Facts:

(1) KZC 90.100.2 establishes that a Stream Buffer Modification may only be granted when the proposed development is consistent with all of the following 9 criteria:

- It is consistent with Kirkland's Streams, Wetlands and Wildlife Study (The Watershed Company, 1998) and the Kirkland Sensitive Areas Regulatory Recommendations Report (Adolfson Associates, Inc., 1998);
- It will not adversely affect water quality;
- It will not adversely affect fish, wildlife, or their habitat;
- It will not have an adverse effect on drainage and/or storm water detention capabilities;
- It will not lead to unstable earth conditions or create an erosion hazard or contribute to scouring actions;
- It will not be materially detrimental to any other property or the City as a whole;
- Fill material does not contain organic or inorganic material that would be detrimental to water quality or to fish, wildlife, or their habitat;
- All exposed areas are stabilized with vegetation normally associated with native stream buffers, as appropriate; and
- There is no practicable or feasible alternative development proposal that results in less impact to the buffer.

(2) As required by the KZC, the applicant submitted a report prepared by Wetland Resources, Inc dated June 10, 2015 that responds to the decisional criteria for modifying a stream buffer (see Attachment 6)

(3) The Watershed Company, the City's Consultant, reviewed the applicant's report and in a letter dated September 16, 2015 requested revisions (see Attachment 7).

(4) The applicant submitted a revised report dated December 8, 2015 (see Attachment 8). The report was reviewed by the Watershed Company and confirmed that all of their comments have been incorporated into the final report.

(5) KZC Section 90.100.1(b) states that a stream buffer cannot be reduced by more than one-third of the standard buffer width. An additional 10-foot buffer setback is required through KZC Section 90.90.2. The reduced buffer line and 10-foot buffer setback line are shown on the applicant's plans. Preliminary measurement by Staff shows compliance with the referenced code sections.

b. Conclusions: Pursuant to the attachments included with this report, which include the proposed site plan, stream buffer mitigation plan, and monitoring and maintenance plans (see Attachment 8), and the review letter from The Watershed Company (see Attachment 7), the proposed development is consistent with the above criteria, subject to the following conditions:

(1) As part of the land surface modification permit application, the applicant should submit development plans that incorporate the approved stream buffer enhancement, monitoring and maintenance plans.

(2) Prior to final inspection of the land surface modification permit, the applicant should:

- Complete installation of the stream buffer enhancement plan, subject to inspection by the City's consultant at the applicant's expense.
- Provide proof of a written contract with a qualified professional who will perform the monitoring program, together with a completed contract and fees to fund review of the monitoring and maintenance activities, (i.e. inspection of plant materials, annual monitoring reports or revegetation activities) by the City's consultant. Alternatively, the applicant should provide a copy of a completed contract and fees to fund completion of the monitoring program by the City's consultant.
- Provide proof of a written contract to cover maintenance activities outlined in the stream buffer modification report.

E. DEVELOPMENT REGULATIONS

1. Low Impact Development Standards

a. Facts:

(1) KZC Chapter 114 provides standards for an alternative type of site development that ensures low impact development (LID) facilities are utilized to manage stormwater on project sites in specified low density zones.

(2) KZC Section 114.15 lists the standard for a low impact development. The following is a review, in a checklist format, of compliance with these standards:

Complies as proposed	Complies as conditioned	Code Section
☒	☐	Permitted Housing Types: Detached Dwelling Units
☒	☐	Minimum Lot Size: 3,600 square feet for the RSX 7.2 zone and 4,250 square feet for the RSX 8.5 zone
☒	☐	Minimum Number of Lots: Over 4 Lots
☒	☐	Maximum Density: 20 units (see Section E.2 below)
☒	☐	Low Impact Development: LID Techniques are employed to control stormwater runoff from 50% of all hard surfaces.
☒	☐	Locations: Allowed in RSX 7.2 and RSX 8.5 zones (Low Density Residential)
☒	☐	Review Process: Appropriate Review Process IIA is being used.
☐	☒	Parking Requirements: Project is required to provide 2 stalls/ unit.
☒	☐	Ownership Structure: Subdivision is permitted
☐	☒	Minimum External Required Yards: 20 feet from NE 124th Street property line and 10 feet from all other property lines. Preliminary plans show compliance. Compliance will be reviewed with building permit applications.
☐	☒	Minimum Internal Required Yards: 10 feet for front, Required front yard can be reduced to 5 feet, if required front yard is increased by same amount of front yard reduction, 5 feet for rear and side. Compliance will be reviewed with building permit applications.
☐	☒	Front Porches: Must comply with KZC 115.115.3(n), except that front entry porches may extend to within 5 feet of the interior required front yard. Compliance will be reviewed with building permit applications.
☐	☒	Garage Setbacks: Must comply with KZC 115.43, except that attached garages on front facade of dwelling unit facing internal front property line must be set back 18 feet from internal front property line. Compliance will be reviewed with building permit applications.
☐	☒	Lot Coverage: Maximum lot coverage is 50%. To be verified with land surface modification and building permit applications.
☒	☐	Required Common Open Space: The proposed open space, minus the stream area, exceeds the 40% minimum. An open space easement will be required as part of the final plat recording.
☐	☒	Maximum Floor Area: Maximum gross floor area for each lot is 50% of the minimum lot size for each zone. Compliance will be reviewed with building permit application.

2. Maximum Development Potential

a. Facts:

(1) Zoning Code Section 90.135 provides that the maximum potential number of dwelling units for a site which contains a stream and associated buffer shall be the buildable area in square feet divided by the maximum lot area per unit as specified in KZC Chapters 15 through 60, plus the required stream buffer area in square feet divided by the minimum lot area as specified in KZC chapters 15 through 60, multiplied by the development factor from Subsection 2 of KZC Section 90.135.

(2) The following is the maximum development potential calculations for the RSX 7.2 portion of the site:

Total Property Size	113,570 square feet
Stream Area	2,479 square feet
Unmodified Stream Buffer	39,634 square feet
Buildable Area	71,457 square feet
Percentage of Site in Stream and Buffer	35%
Minimum Lots Size	7,200 square feet
Development Factor per Chart in Section 90.135.	70%
Maximum Development Potential	13.78 units
KZC 114.15 10% Bonus	1.38 units
Total Allowed Density	15.16 units

(3) The following is the maximum development potential calculations for the RSX 8.5 portion of the site:

Total Property Size	38,571 square feet
Stream Area	461 square feet
Unmodified Stream Buffer	10,795 square feet
Buildable Area	27,315 square feet
Percentage of Site in Stream and Buffer	28%
Minimum Lots Size	8,500 square feet

Development Factor per Chart in Section 90.135.	80%
Maximum Development Potential	4.23 units
KZC 114.15 10% Bonus	0.42 units
Total Allowed Density	4.65 units, rounded to 5 units per KZC Section 114.15

b. Conclusion: With 19 proposed lots, the proposed preliminary plat does not exceed the maximum lots permitted by the Zoning Code.

3. General Lot Layout and Site Development Standards

a. Facts:

(1) Kirkland Municipal Code Section 22.28.041.a states that the minimum lot size will be deemed to have been met if the minimum lot area is not less than fifty percent of the lot area required of the zoning district in which the property is located.

(2) In the RSX 7.2 Use Zone, the minimum lot size shall be at least 3,600 square feet. The lots in the RSX 7.2 Zone range from 3,600 square feet to 10,742 square feet.

(3) In the RSX 8.5 Use Zone, the minimum lot size shall be at least 4,250 square feet. The lots in the RSX 8.5 Zone range from 4,320 square feet to 7,342 square feet.

(4) KMC Section 22.28.041.b requires that the lots within the low impact development meet the design standards and guidelines and approval criteria as defined in Chapter 114 of the Kirkland Zoning Code.

b. Conclusion:

(1) The proposal complies with KMC Section 22.28.041.a.

(2) As outlined in Section II.E.1, the lots within the low impact development meet the design standards and guidelines and approval criteria as defined in Chapter 114 of the Kirkland Zoning Code.

4. Vehicular Access Easements

a. Facts:

(1) Municipal Code sections 22.28.110 and 22.28.130 establish that if vehicular access within the plat is provided by means other than rights-of-way, the plat must establish easements or tracts, compliant with Zoning Code Section 105.10, which will provide the legal right of access to each of the lots served.

(2) Zoning Code section 105.10 establishes dimensional standards for vehicular access easements or tracts. Easements or tracts which serve 1-4 lots must be 20 feet wide and contain a paved surface 16 feet in width.

(3) Lots 8, 9, 10, and 11 are considered as being served as they are not directly adjacent to the right-of-way.

b. Conclusion: The proposed vehicular access Tract D complies with section 105.10. A minimum 16-foot wide paved road should be installed within a minimum 20-foot wide vehicular access tract.

5. Bonds and Securities

a. Facts:

(1) Zoning Code section 90.145 establishes the requirement for the applicant to submit a performance or maintenance bond to ensure compliance with any aspect of the Drainage Basin regulations contained in Chapter 90 of the Kirkland Zoning Code or any decision or determination made pursuant to the chapter.

b. Conclusions:

(1) As part of the land surface modification permit application, the applicant should submit a financial security device to cover the cost of completing the stream buffer enhancement improvements. The security should be consistent with the standards outlined in Zoning Code section 90.145.

(2) Prior to final inspection of the land surface modification permit, the applicant should submit to the Planning Department a financial security device to cover all monitoring and maintenance activities that will need to be done including stream consultant site visits, reports to the Planning Department, and any vegetation that needs to be replaced. The security should be consistent with the standards outlined in Zoning Code section 90.145

6. Sensitive Areas Covenant

a. Fact: KZC 90.155 establishes that prior to issuance of a land surface modification permit or a building permit, whichever is issued first, the applicant shall enter into an agreement with the City that runs with the property, in a form acceptable to the City Attorney, indemnifying the City from any claims, actions, liability and damages to sensitive areas arising out of development activity on the subject property. The applicant shall record this agreement with the King County Department of Elections and Records.

b. Conclusion: Prior to issuance of a land surface modification permit or a building permit, whichever is issued first, the applicant should enter into an agreement with the City that runs with the property, in a form acceptable to the City Attorney, indemnifying the City from any claims, actions, liability and damages to sensitive areas arising out of development activity on the subject property.

7. Natural Greenbelt Protection Easement

   a. Fact: KZC Section 90.150 requires that consistent with law, the applicant shall dedicate development rights, air space, or grant a greenbelt protection or open space easement to the City to protect sensitive areas and their buffers.

   b. Conclusion: As part of the final plat recording, the applicant should dedicate a natural greenbelt protection easement encompassing the stream and associated buffer on the site. The boundaries of the Natural Greenbelt Protection Easement should be established by survey. All surveys shall be located on KCAS or plat bearing system and tied to known monuments

8. Stream Buffer Fence or Barrier

   a. Facts:

      (1) Zoning Code sections 90.50 and 90.95 require that prior to the start of development activities, the applicant install a six-foot high construction-phase chain link fence or equivalent fence, as approved by the Planning Official, along the upland boundary of the entire stream buffer with silt screen fabric installed per City standard.

      (2) Zoning Code sections 90.50 and 90.95 require the applicant to install either (1) a permanent three- to four-foot-tall split rail fence; or (2) permanent planting of equal barrier value; or (3) equivalent barrier, as approved by the Planning Official between the upland boundary of the stream buffer and the developed portion of the site.

   b. Conclusions:

      (1) As part of the land surface modification permit application, the applicant should submit Erosion control plans, which depict the location of a six-foot high construction phase fence along the boundary of the entire stream buffer with silt screen fabric installed per City standard. The fencing should be installed prior to issuance of any permits. The fence should remain upright in the approved location for the duration of development activities.

      (2) Prior to final inspection of the land surface modification permit, the applicant should install a permanent 3 to 4 foot tall split rail fence between the boundary of the stream buffer and the developed portion of the site.

9. Natural Features - Significant Vegetation

   a. Facts:

      (1) The applicant has submitted a Tree Plan, prepared by a certified arborist (see Attachment 9). Specific information regarding the tree density on site and the viability of each tree can be found in Attachment 3, Development Standards.

(2) The applicant has opted to submit an Integrated Development Plan (KZC 95.30.4) rather than applying for Phased review (KZC 95.30.6.a), which allows the City to consider specific tree retention and removals at the time of Plat approval.

(3) The City's Arborist has reviewed this plan and agrees with the applicant's arborist.

(4) KZC 95.33 requires that all lots individually meet the tree density minimum.

b. Conclusions: The proposed tree retention plan complies with applicable City requirements. The applicant should retain all viable trees as shown on the IDP through the completion of all phases of development and meet the tree density requirements for each lot.

F. COMPREHENSIVE PLAN

1. Fact: The subject property is located within the South Juanita neighborhood. Figure J-2b on page XV.I.6.1 designates the subject property for Low Density Residential, 6 and 5 dwelling units per acre (see Attachment 10).

2. Conclusion: The proposed use of the subject property is consistent with the Comprehensive Plan.

G. DEVELOPMENT STANDARDS

1. Fact: Additional comments and requirements placed on the project are found on the Development Standards, Attachment 3.

2. Conclusion: The applicant should follow the requirements set forth in Attachment 3.

III. SUBSEQUENT MODIFICATIONS

Modifications to the approval may be requested and reviewed pursuant to the applicable modification procedures and criteria in effect at the time of the requested modification.

IV. APPEALS AND JUDICIAL REVIEW

The following is a summary of the deadlines and procedures for and appeals. Any person wishing to file or respond to an appeal should contact the Planning Department for further procedural information.

A. APPEALS

Appeal to City Council:

Section 150.80 of the Zoning Code allows the Hearing Examiner's decision to be appealed by the applicant and any person who submitted written or oral testimony or comments to the Hearing Examiner. A party who signed a petition may not appeal unless such party also submitted independent written comments or information. The appeal must be in writing and must be delivered, along with any fees set by ordinance, to the Planning Department by 5:00 p.m., _____, fourteen (14) calendar days following the postmarked date of distribution of the Hearing Examiner's decision on the application.

B. JUDICIAL REVIEW

Section 150.130 of the Zoning Code allows the action of the City in granting or denying this zoning permit to be reviewed in King County Superior Court. The petition for review must be filed within 21 calendar days of the issuance of the final land use decision by the City.

V. LAPSE OF APPROVAL

A. Final Plat

Under Section 22.20.370 of the Subdivision Ordinance, the final plat must be recorded with King County within five (5) years following the date of approval, or the decision becomes void; provided, however, that in the event judicial review is initiated, the running of the five years is tolled for any period of time during which a court order in said judicial review proceeding prohibits the recording of the final plat.

B. Buffer Modification

The applicant must begin construction or submit to the City a complete building permit application for the development activity, use of land or other actions approved under this chapter within five (5) years after the final approval of the City of Kirkland on the matter, or the decision becomes void; provided, however, that in the event judicial review is initiated per KZC 150.130, the running of the five (5) years is tolled for any period of time during which a court order in said judicial review proceeding prohibits the required development activity, use of land, or other actions.

The applicant must substantially complete construction for the development activity, use of land, or other actions approved under this chapter and complete the applicable conditions listed on the notice of decision within nine (9) years after the final approval on the matter, or the decision becomes void.

VI. APPENDICES

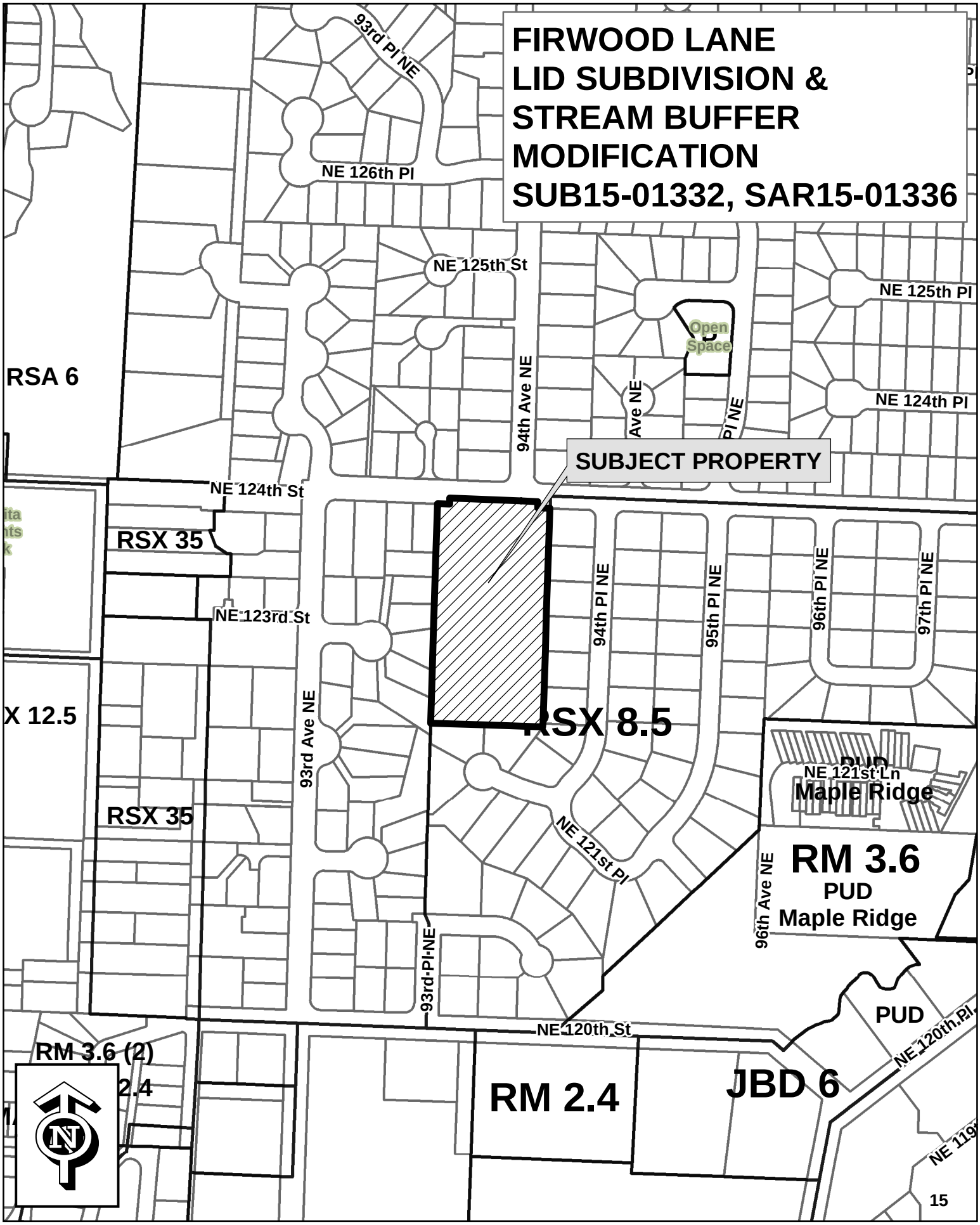
Attachments 1 through 11 are attached.

1. Vicinity Map
2. Development Plans
3. Development Standards
4. Public Comments
5. SEPA Determination and Memo
6. Buffer Enhancement Plan prepared by Wetland Resources Inc. dated June 10, 2015
7. The Watershed Company Review Letter dated September 16, 2015
8. Revised Buffer Enhancement Plan prepared by Wetland Resources Inc. dated December 8, 2015
9. Tree Plan prepared by Tree Solutions, Inc., dated May 19, 2015
10. South Juanita Neighborhood Land Use Map

VII. PARTIES OF RECORD

Applicant
Parties of Record
Department of Planning and Community Development
Department of Public Works
Department of Building and Fire Services

A written decision will be issued by the Hearing Examiner within eight calendar days of the date of the open record hearing.


FIRWOOD LANE
LID SUBDIVISION &
STREAM BUFFER
MODIFICATION
SUB15-01332, SAR15-01336
93rd Pl NE
NE 126th Pl
NE 125th St
NE 125th Pl
Open Space
94th Ave NE
NE 124th Pl
SUBJECT PROPERTY
NE 124th St
RSA 6
RSX 35
NE 123rd St
94th Pl NE
95th Pl NE
96th Pl NE
97th Pl NE
93rd Ave NE
RSX 8.5
X 12.5
NE 121st Ln
Maple Ridge
RSX 35
NE 121st Pl
RM 3.6
PUD
Maple Ridge
96th Ave NE
93rd Pl NE
NE 120th St
PUD
NE 120th Pl
RM 3.6 (2)
RM 2.4
JBD 6
N

POR SE 1/4, SEC 30, TWP 26N RGE 5E, W.M.

FIRWOOD LANE
L.I.D. SUBDIVISION

LEGAL DESCRIPTION

LOTS 1 THROUGH 26, INCLUSIVE, BLOCK 3, ALSO LOTS 1 AND 2 AND THE NORTH 7.5 FEET OF LOT 3, AND THE NORTH 20 FEET OF LOT 21 AND ALL OF LOTS 22, 23 AND 24, BLOCK 16, WATERFRONT ADDITION TO KIRKLAND, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 1 OF PLATS, PAGES 92 THROUGH 94, INCLUSIVE, IN KING COUNTY, WASHINGTON;

TOGETHER WITH THOSE PORTIONS OF STREETS AND ALLEYS VACATED BY ORDER ENTERED OCTOBER 3, 1987, UNDER KING COUNTY SUPERIOR COURT CAUSE NO. 87-2-11593-3, DESCRIBED AS FOLLOWS:

ALL OF NORTHEAST 122ND STREET (47TH STREET) LYING EAST OF THE PLAT OF CREEKSIDE, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 130 OF PLATS, PAGES 43 THROUGH 45, INCLUSIVE, IN KING COUNTY, WASHINGTON; AND LYING WEST OF LOTS 24 AND 25, BLOCK 1, JUANITA PARKWAY DIVISION NO. 2, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 67 OF PLATS, PAGES 56 THROUGH 58, INCLUSIVE, IN KING COUNTY, WASHINGTON;

ALSO THE EAST HALF OF 93RD PLACE NORTHEAST (KIRKLAND AVENUE), AND THE WEST HALF OF 94TH AVENUE NORTHEAST (MANCHESTER STREET), AND ALL ALLEYWAYS WITHIN BLOCKS 3 AND 16, WATERFRONT ADDITION TO KIRKLAND, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 6 OF PLATS, PAGES 92 THROUGH 94, INCLUSIVE, IN KING COUNTY, WASHINGTON, LYING NORTH OF LOTS 20 AND 21, BLOCK 1, JUANITA PARKWAY DIVISION NO. 2, AND SOUTH OF A LINE LOCATED 30 FEET SOUTH OF AND PARALLEL WITH THE CENTERLINE OF NORTHEAST 124TH STREET.

(PER CHICAGO TITLE COMPANY OF WASHINGTON, ORDER NO. 0026279-06, DATED: OCTOBER 13, 2014)

SURVEY NOTES

INSTRUMENTATION FOR THIS SURVEY WAS A SOKKIA 530R TOTAL STATION.

PROCEDURES USED WERE FIELD TRAVERSE, MEETING OR EXCEEDING STANDARDS SET BY WAC 332-130-090

ALL UTILITIES SHOWN WERE DERIVED FROM PHYSICAL LOCATIONS ON THE GROUND SURFACE AT TIME OF SURVEY. CONTRACTOR TO VERIFY PRIOR TO ANY EXCAVATION.

THIS SURVEY HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF PARTIES WHOSE NAMES APPEAR HEREON ONLY, AND DOES NOT EXTEND TO ANY UNNAMED THIRD PARTIES WITHOUT EXPRESS RECERTIFICATION BY THE LAND SURVEYOR.

BOUNDARY LINES SHOWN REPRESENT DEED LOCATIONS, OWNERSHIP LINES MAY VARY. NO GUARANTEE OF OWNERSHIP IS EXPRESSED OR IMPLIED.

DATUM

NAVD88
DESIGNATION: 51
DB ID: 46517
DESCRIPTION: CONCRETE MONUMENT IN CASE WITH BRASS PIN SET IN LEAD 0.75' BELOW SURFACE.
LOCATION: AT THE INTERSECTION OF NORTHEAST 124TH STREET AND 100TH AVENUE NORTHEAST.
ELEVATION: 77.82

BASIS OF BEARINGS

N87°43'44"W ALONG THE MONUMENTED CENTER LINE OF NORTHEAST 124TH STREET

REFERENCES

--WEST PROPERTY LINE SURVEY RECORDED IN VOLUME 120, PAGE(S) 133

--PLAT OF JUANITA PARKWAY DIVISION NO. 2 RECORDED IN VOLUME 67, PAGE(S) 56-58

--PLAT OF CREEKSIDE RECORDED IN VOLUME 130, PAGE(S) 43-45.

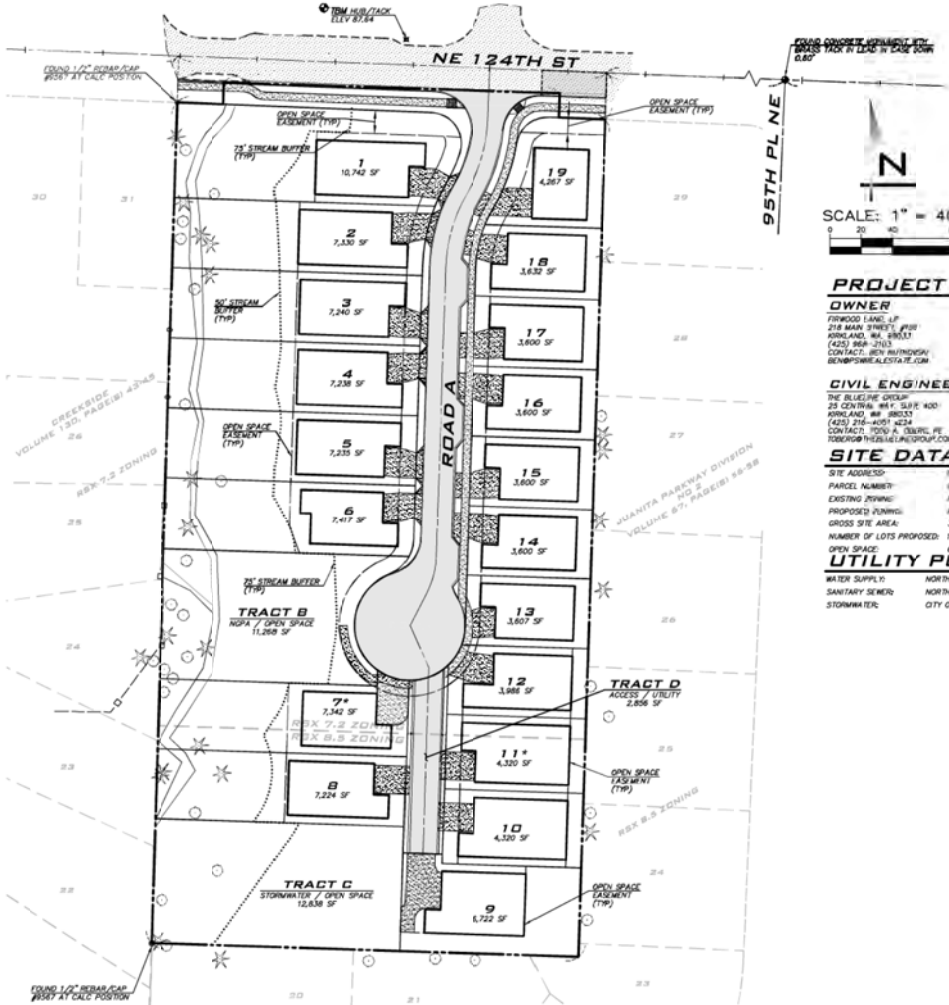
LOT CALCULATIONS

*SITE IMPERVIOUS IS 50% MAX

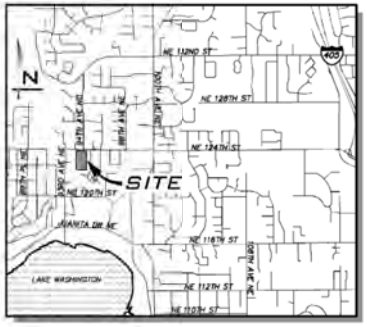
LOT 1 AREA:	10,742 SF	LOT 11 AREA:	4,320 SF
AREA WITHIN OPEN SPACE EASEMENT	9,817 SF	AREA WITHIN OPEN SPACE EASEMENT	480 SF
LOT 2 AREA:	7,330 SF	LOT 12 AREA:	3,986 SF
AREA WITHIN OPEN SPACE EASEMENT	3,642 SF	AREA WITHIN OPEN SPACE EASEMENT	450 SF
LOT 3 AREA:	7,240 SF	LOT 13 AREA:	3,607 SF
AREA WITHIN OPEN SPACE EASEMENT	3,840 SF		
LOT 4 AREA:	7,238 SF	LOT 14 AREA:	3,600 SF
AREA WITHIN OPEN SPACE EASEMENT	3,638 SF		
LOT 5 AREA:	7,235 SF	LOT 15 AREA:	3,600 SF
AREA WITHIN OPEN SPACE EASEMENT	3,635 SF		
LOT 6 AREA:	7,417 SF	LOT 16 AREA:	3,600 SF
AREA WITHIN OPEN SPACE EASEMENT	3,791 SF	LOT 17 AREA:	3,600 SF
LOT 7 AREA:	7,342 SF	LOT 18 AREA:	3,632 SF
AREA WITHIN OPEN SPACE EASEMENT	3,754 SF	LOT 19 AREA:	4,267 SF
		AREA WITHIN OPEN SPACE EASEMENT	496 SF
LOT 8 AREA:	7,224SF	TRACT B AREA:	11,268 SF
AREA WITHIN OPEN SPACE EASEMENT	3,753 SF		
		TRACT C AREA:	12,838 SF
LOT 9 AREA:	6,722 SF		
AREA WITHIN OPEN SPACE EASEMENT	2,972 SF	TRACT D AREA:	2,856 SF
LOT 10 AREA:	4,320 SF		
AREA WITHIN OPEN SPACE EASEMENT	480 SF		

MAXIMUM DEVELOPMENT POTENTIAL

	RSX 7.2	RSX 8.5
Total Site Area	3.1[illegible]	3[illegible].17
Sensitive Area (Wetland)	3.47%	46
Unusable/Buff buffer	33.92%	0.[illegible]
% Site in Sensitive Area & Buffer	37%	23%
Min Lot Size	7,200	3,600
Development Factor	70%	100%
Base Density	3.78	4.23
LID (% Bonus)	28	0.43
LID Density	5.[illegible]	4.60
Allowed Density (#)	5	5



* LOT 7: 4,933 SF WITHIN ZONE RSX 7.2 – 2,409 SF WITHIN ZONE RSX 8.5
* LOT 11: 1,184 SF WITHIN ZONE RSX 7.2 – 3,136 SF WITHIN ZONE RSX 8.5



VICINITY MAP

NOT TO SCALE

PROJECT TEAM

OWNER
FIRWOOD LANE, LLC
218 MAIN STREET, #[illegible]
KIRKLAND, WA 98033
(425) 868-2103
CONTACT: BEN RUTKOWSKI
BEN@FSWREALESTATE.COM

GEOTECHNICAL
EARTH SOLUTIONS NW, LLC
1805 136TH PL NE, SUITE 201
BELLEVUE, WA 98005
(425) 284-1300
CONTACT: RAY COULAS
COULAS@EARTHSOLUTIONSNW.COM

SURVEYOR
MEAD GILMAN ASSOCIATES
17825 130TH AVE N., #104
WOODINVILLE, WA 98072
(425) 486-1252
CONTACT: SHANE BARNES
SHANE@MEADGILMAN.COM

CIVIL ENGINEER
THE BLUELINE GROUP
25 CENTRAL WAY, SUITE 400
KIRKLAND, WA 98033
(425) 216-4051 x234
CONTACT: TODD A. OBERG, PE
TODD@THEBLUELINEGROUP.COM

ARBORIST
ORIS SOLUTIONS, INC
2940 WESTLAKE AVE N, SUITE #200
SEATTLE, WA 98109
(206) 535-4670
CONTACT: CHRIS MADSEN
CHRIS@ORISSOLUTIONS.NET

SITE DATA

SITE ADDRESS:	12343 93RD LANE NE
PARCEL NUMBER:	0194100015
EXISTING ZONING:	RSX 7.2 & RSX 8.5
PROPOSED ZONING:	RSX 7.2 & RSX 8.5
GROSS SITE AREA:	3.4 ACRES
NUMBER OF LOTS PROPOSED:	19
OPEN SPACE:	61,653 SF

UTILITY PURVEYORS

WATER SUPPLY:	NORTHSHORE UTILITY DISTRICT
SANITARY SEWER:	NORTHSHORE UTILITY DISTRICT
STORMWATER:	CITY OF KIRKLAND

SHEET INDEX

1	CV-01	COVER SHEET
2	PU-01	PRELIMINARY UTILITY PLAN
3	PR-01	PRELIMINARY PROFILES
4	TR-01	TREE RETENTION PLAN
5	TR-01	TREE RETENTION DETAILS
6	TR-01	TREE RETENTION DETAILS

STREAM BUFFER NOTE

MINOR IMPROVEMENTS ALLOWED IN OUTER HALF OF SENSITIVE AREA BUFFER PURSUANT TO KZC 90.90.5. THESE IMPROVEMENTS MAY INCLUDE WALKWAYS, PEDESTRIAN BRIDGES, BENCHES AND SIMILAR FEATURES.

BUILDING FOOTPRINT

BUILDING FOOTPRINTS SHOWN ARE CONCEPTUAL AND SUBJECT TO CHANGE.

EXISTING STRUCTURES NOTE

ALL EXISTING STRUCTURES ONSITE TO BE REMOVED UNLESS OTHERWISE NOTED.

UNDERGROUND UTILITY NOTE

UNDERGROUND UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION. THERE IS NO GUARANTEE THAT ALL UTILITY LINES ARE SHOWN, OR THAT THE LOCATION, SIZE AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSING, INTERFERENCES, OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL. THE CONTRACTOR SHALL MAKE THE APPROPRIATE PROVISION FOR PROTECTION OF SAID FACILITIES. THE CONTRACTOR SHALL NOTIFY ONE CALL AT 8-1-1 (WASHINGTON811.COM) AND ARRANGE FOR FIELD LOCATION OF EXISTING FACILITIES BEFORE CONSTRUCTION.

BLUELINE

SCALE: AS NOTED
PROJECT MANAGER: TODD A. OBERG, PE
PROJECT ENGINEER: DONÉ KUZARO
DESIGNER: LEE TOWNINS
ISSUE DATE: 12/23/2015

NO	DATE	BY	REVISIONS

COVER SHEET
FIRWOOD LANE
PRELIMINARY PLAT / IDP
PARCEL #0194100015
CITY OF KIRKLAND WASHINGTON

12/23/15
JOB NUMBER: 14-266
SHEET NAME: CV-01
SHT 1 OF 6

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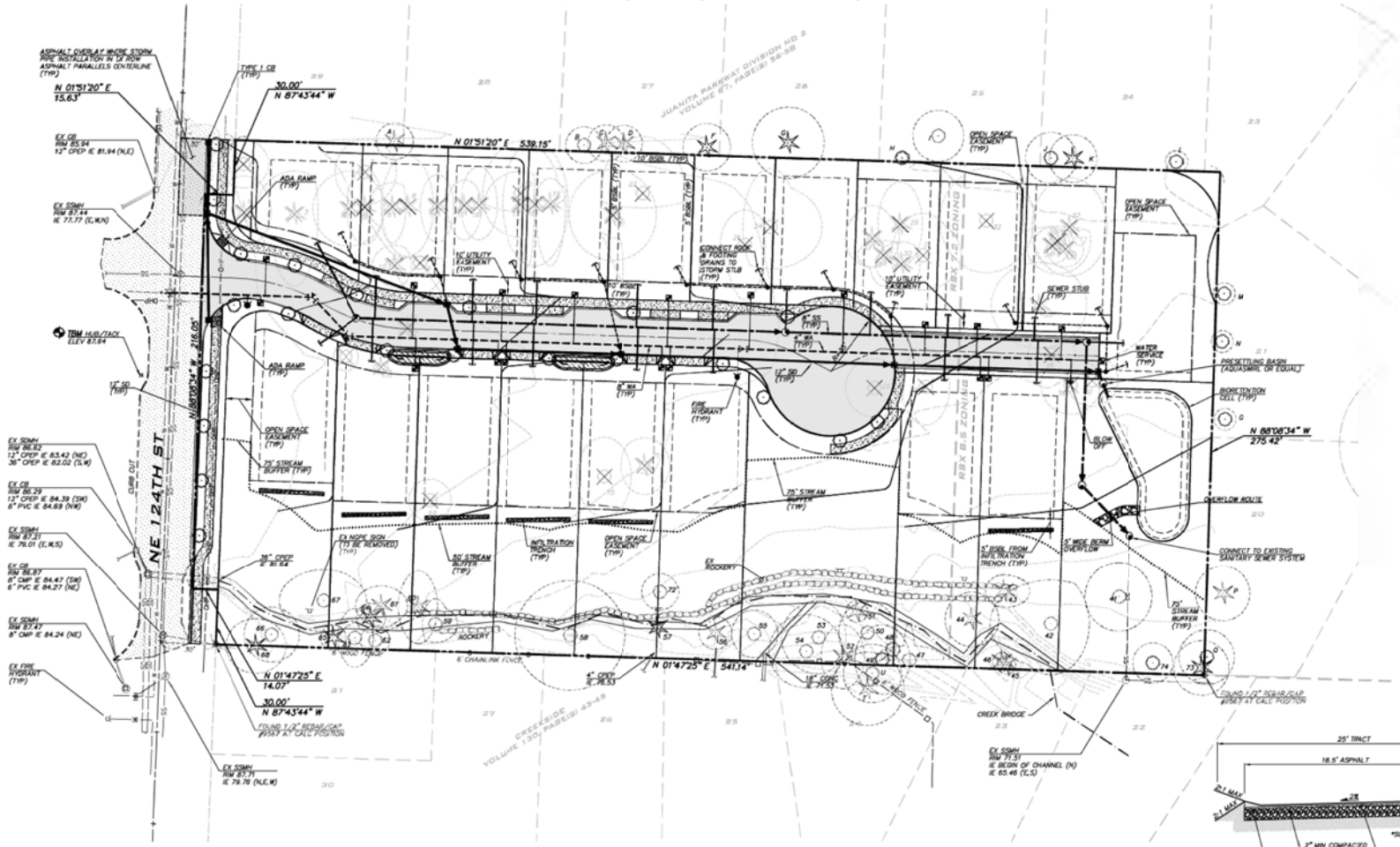
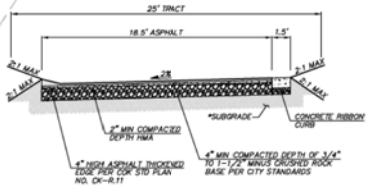
POR SE 1/4, SEC 30, TWP 26N RGE 5E, W.M.



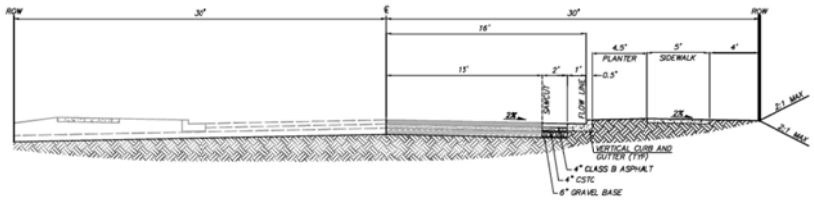
SCALE: 1" = 30'



TRACT E

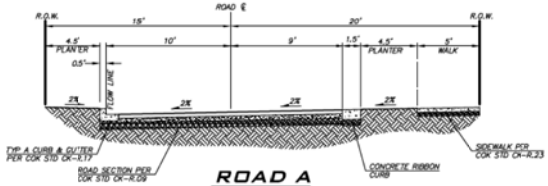
SCALE: 1" = 5'

*SUBGRADE TO BE PREPARED PER GEOTECHNICAL RECOMMENDATIONS.



NE 124TH STREET

SCALE: 1" = 5'



ROAD A

SCALE: 1" = 5'

GRADING QUANTITIES

CUT: 1,000 CY
FILL: 1,100 CY
NET 100 CY FILL

*GRADING QUANTITIES ARE PRELIMINARY AND CONCEPTUAL, AND SHALL NOT BE USED FOR CONTRACTUAL PURPOSES

UNDERGROUND UTILITY NOTE

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BLUELINE

SCALE: AS NOTED
PROJECT MANAGER: TODD A. OBERG, PE
PROJECT ENGINEER: DENE KUZIARO
DESIGNER: LEE TOMKINS
ISSUE DATE: 12/23/2015

INC	DATE	BY

PRELIMINARY UTILITY & GRADING PLAN
FIRWOOD LANE
PRELIMINARY PLAT / IDP
PARCEL #9194100015
CITY OF KIRKLAND WASHINGTON

12/23/15

JOB NUMBER: 14-266
SHEET NAME: PU-01
SHT 2 OF 6

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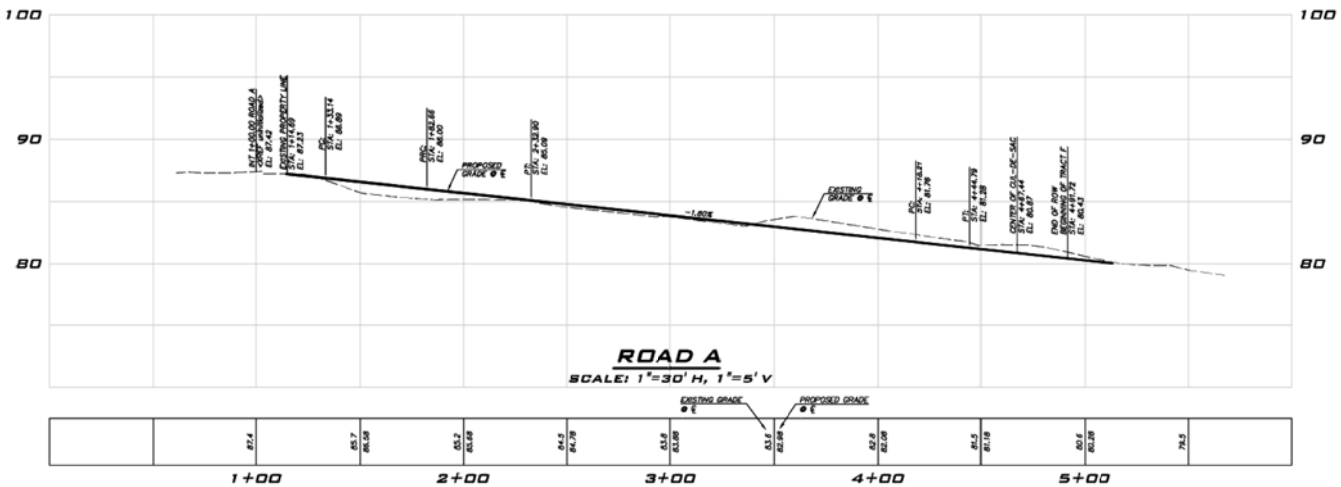

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BLUELINE

SCALE: AS NOTED
PROJECT MANAGER: TODD A. OBERG, PE
PROJECT ENGINEER: DONÉ KUZARO
DESIGNER: LEE TOWNINS
ISSUE DATE: 12/8/2015

NO	DATE	BY	REVISIONS

PRELIMINARY PROFILES

FIRWOOD LANE
PRELIMINARY PLAT / IDP
PARCEL #919410001 5
CITY OF KIRKLAND WASHINGTON

12/8/15

JOB NUMBER: 14-266
SHEET NAME: PR-01
SHT 3 OF 6

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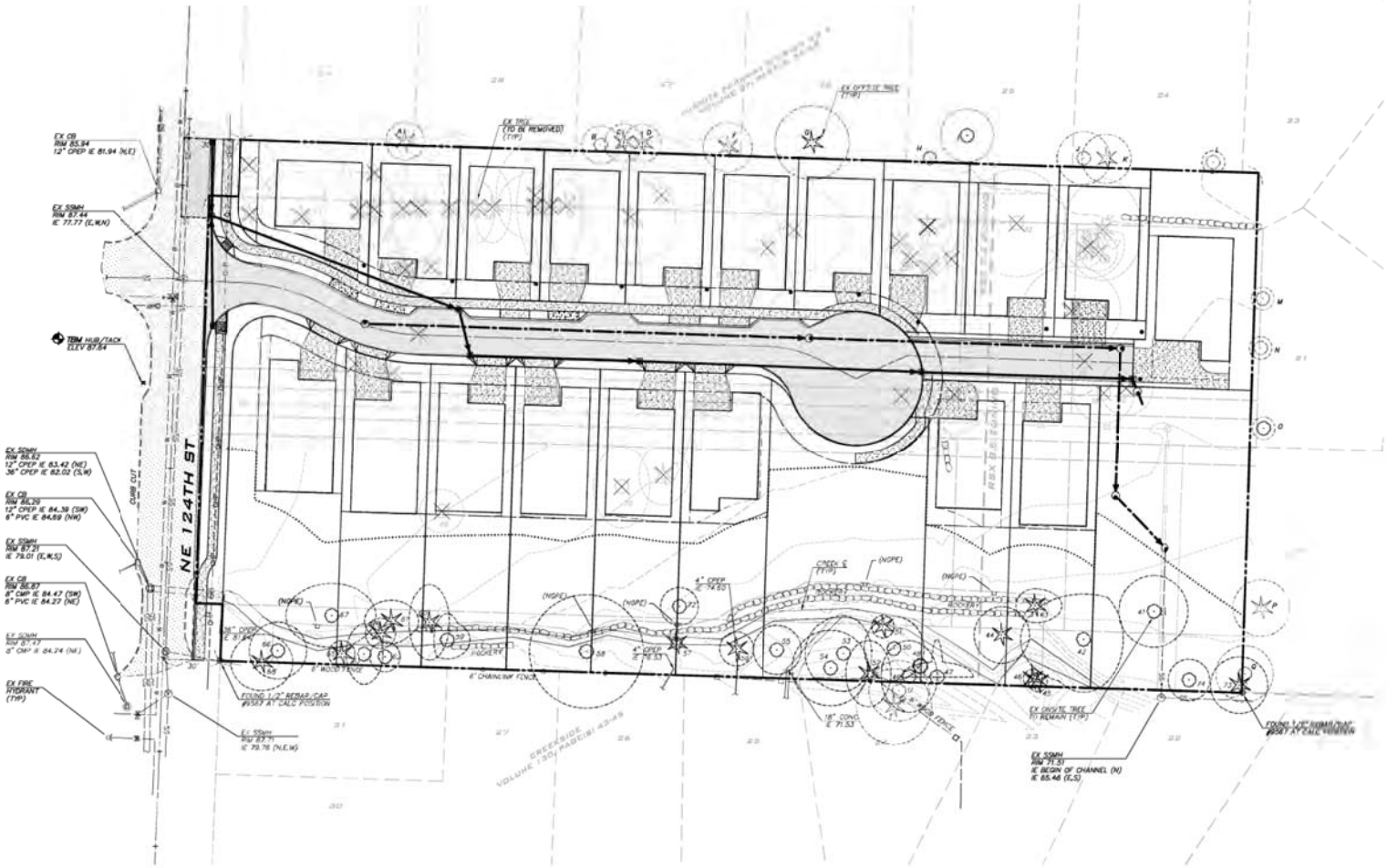

N

SCALE: 1" = 30'

0 15 30 60

TREE LEGEND

- EXISTING CONIFEROUS TREE TO REMAIN
- EXISTING DECIDUOUS TREE TO REMAIN
- DRIPLINE (TYP)
- EXISTING CONIFEROUS TREE TO BE REMOVED
- EXISTING DECIDUOUS TREE TO BE REMOVED
- A EXISTING OFFSITE CONIFEROUS TREE TO REMAIN
- A EXISTING OFFSITE DECIDUOUS TREE TO REMAIN

TREE RETENTION CALCULATIONS:

REQUIRED TREE CREDITS $= \frac{30 \text{ CREDITS}}{\text{ACRES}}$ 30 CR x 3.49 AC = 104.8 CREDITS

PROPOSED TREE CREDITS TO BE RETAINED* = 140 CREDITS

*PROPOSED TREE CREDITS RETAINED CALCULATED FOR THE SITE AS A WHOLE. CLUSTERING OF LOTS FOR LOW IMPACT DEVELOPMENT PREVENTS TREE CREDITS TO BE CALCULATED ON A LOT BY LOT BASIS. TREES RETAINED ARE LOCATED WITHIN CRITICAL AREA BUFFER, WHICH IS LISTED AS THE FIRST PRIORITY PER KZC 95.33.3.A.

UNDERGROUND UTILITY NOTE

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BLUELINE

SCALE: AS NOTED
PROJECT MANAGER: TODD A. OBERG, PE
PROJECT ENGINEER: DENE KUZARO
DESIGNER: LEE TOMKINS
ISSUE DATE: 12/23/2015

NO	DATE	BY	REVISIONS

TREE RETENTION PLAN

FIRWOOD LANE
PRELIMINARY PLAT / IDP
PARCEL #9194100015
CITY OF KIRKLAND WASHINGTON

12/23/15

JOB NUMBER: 14-266
SHEET NAME: TR-01
SHT 4 OF 6

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POR SE 1/4, SEC 30, TWP 26N RGE 5E, W.M.

Tree Solutions Inc

Table of Trees
12342 93rd Lane NE
Kirkland, WA

Date of Inventory: 05.07.2015
Table Prepared: 05.11.2015
Table Revised: 05.19.2015

Tree ID	Scientific Name	Common Name	DBH (inches)	Health Condition	Structural Condition	Limits of Disturbance	Drip line Radius (feet) North	East	South	West	Viable	Proposed Action	Credits	Notes
1	Prunus cerasifera	Douglas fir	37.1	Good	Good	10	35	20	15	18	Yes	Remove	-	Fruitless cherrytree. Fruiting body found near the base. Recommend additional testing if retained. History of utility pumps to North. Grove tree.
2	Prunus sp.	Cherry	5*	Good	Good	8	14	13	14	13	Yes	Remove	-	*Multiple stemmed tree: 5.4, 3.3, 4.5. Fruiting variety.
3	Pseudotsuga menziesii	Douglas fir	45	Good	Good	15	21	28.5	13	39.5	Yes	Remove	-	Crown raised. Grove tree.
4	Pseudotsuga menziesii	Douglas fir	29.2	Good	Good	11	20	20.5	15.5	20	Yes	Remove	-	Galls on lower branches in canopy. Few hangers in canopy. Grove tree.
5	Pseudotsuga menziesii	Douglas fir	27.4	Good	Good	9	10	20.5	10	20	Yes	Remove	-	Closed wound on west side. Grove tree.
6	Pseudotsuga menziesii	Douglas fir	24.5	Good	Good	8	13	13	7	20	Yes	Remove	-	Grove tree
7	Alnus rubra	Red alder	11.8	Good	Fair	9	17	18	13	12	Yes	Remove	-	Wound on southern side. Good callus of wood development. Base form due to phototropic tree. Past top failure. Grove tree.
8	Pseudotsuga menziesii	Douglas fir	43.4	Good	Good	12	14	27.5	13	25	Yes	Remove	-	English ivy (Hedera helix) on trunk. Possible top failure. Grove tree.
9	Betula pendula	European birch	19.5	Good	Fair	8	18	3	13	17	No	Remove	-	Suppressed tree. Heavy English ivy growth on trunk. Grove tree.
10	Pseudotsuga menziesii	Douglas fir	8.4	Good	Poor	7	12	11	9	12	Yes	Remove	-	Topped. Near foundation of house. Base average stem. Poor form base. Grove tree.
11	Ilex aquifolium	English holly	11.8*	Good	Good	6	7	7	7	8	No	Remove	-	*Multiple stemmed tree: 5.9, 7.1, 7.7. Shrub canopy with nearby large shrubs.
12	Abies grandis	Douglas fir	6.1	Good	Fair	2	4	1	4	4	Yes	Remove	-	Planted too close. Crowding. Unstable ground.
13	Ilex aquifolium	English holly	9.8*	Fair	Poor	1	9	3	3	3	No	Remove	-	Topped heavily. Close to home.
14	Pseudotsuga menziesii	Douglas fir	31.1	Good	Good	8	9	17	9	20	Yes	Remove	-	Suppressed. Grove tree.
15	Pseudotsuga menziesii	Douglas fir	24.2	Good	Good	8	9.5	14	9.5	19	Yes	Remove	-	Overwatered. Groundtree.
16	Pseudotsuga menziesii	Douglas fir	31.1	Good	Good	9	10	21	10	19	Yes	Remove	-	Crown raised. Grove tree.
17	Pseudotsuga menziesii	Douglas fir	29.5	Good	Fair	12	20	18	8	34	Yes	Remove	-	Co-dominant top. Crown raised. Grove tree.
18	Pseudotsuga menziesii	Douglas fir	16	Good	Good	14	12	32	18	34	Yes	Remove		Crown raised. Groundtree. Jacky residence of recent brown foliage.

Tree Solutions, Inc
2940 Westlake Ave. N (Suite #200) Seattle, WA 98109

Page 1 of 6

www.treesolutions.net
206-528-4670

Tree Solutions Inc

Table of Trees
12342 93rd Lane NE
Kirkland, WA

Date of Inventory: 05.07.2015
Table Prepared: 05.11.2015
Table Revised: 05.19.2015

Tree ID	Scientific Name	Common Name	DBH (inches)	Health Condition	Structural Condition	Limits of Disturbance	Drip line Radius (feet) North	East	South	West	Viable	Proposed Action	Credits	Notes
19	Pseudotsuga menziesii	Douglas fir	18	Good	Fair	10	8	14	5	34	Yes	Remove	-	Suppressed top. Grove tree.
20	Acer macrophyllum	Bigleaf maple	33.3	Good	Fair	13	21	28.5	25	10	Yes	Remove	-	Measurement taken from below union. Live tree dead woody parts in canopy. Dead wood with Ganoderma lucidum. Asymmetrical canopy to east.
21	Pseudotsuga menziesii	Douglas fir	53.6	Good	Good	14	24	25	21	23.5	Yes	Remove	-	Large basal flare. Recommend basal testing if retained. Hypomyces spp. growth. Grove tree.
22	Acer macrophyllum	Bigleaf maple	31.3*	Good	Fair	18	29	31	27	9	Yes	Remove	-	*Multi stemmed tree: 17.7, 17.1, 14.5, 12.2. Dense canopy with 21. Narrow fork wood parts in canopy. Narrow angle of attachment on middle stem. Decorticated cavity. Grove tree.
23	Acer macrophyllum	Bigleaf maple	24.4*	Good	Good	11	14	19	11	30	Yes	Remove	-	*Multi stemmed tree: 17, 22.6. Broken top and above union could deteriorate future. Soil compaction around base of tree.
24	Acer macrophyllum	Bigleaf maple	31.8	Good	Fair	15	15	32	28	23	Yes	Remove	-	Minor wounded tree. Multiple branch attachments at same union. Soil compaction at base.
25	Betula pendula	European birch	14	Fair	Good	8	10	16	10	14	Yes	Remove	-	Old medallion wounds. Deadtop, possible bronze birch borer
26	Betula pendula	European birch	14.1	Fair	Poor	12	13	21	21	22	Yes	Remove	-	Old topped form. Top undead, possibly bronze birch borer.
27	Pseudotsuga menziesii	Douglas fir	29	Good	Good	9	13	18	15	16	Yes	Remove	-	Old bark wound, closed set back side. Slight lean to north. Grove tree.
28	Pseudotsuga menziesii	Douglas fir	19.9	Good	Fair	7	14	8	3	17	Yes	Remove	-	Slight lean to north. Slightly suppressed. Grove tree.
29	Pseudotsuga menziesii	Douglas fir	11	Good	Fair	8	12	23	10	9	Yes	Remove	-	Tarpaper crew on east side. Grove tree.
30	Pseudotsuga menziesii	Douglas fir	23.1	Fair	Good	8	14	12	10	14	Yes	Remove	-	Deformed branching. Grove tree.
31	Acer macrophyllum	Bigleaf maple	28	Fair	Fair	12	17	23	21	19	Yes	Remove	-	Multiple wounds - good response growth. Fungal fruiting bodies. Grove tree.
32	Acer macrophyllum	Bigleaf maple	45.1	Fair	Fair	18	36	38.5	37	33	Yes	Remove	-	Atypical branch wounds. Numerous basal wounds. Target/concentric located under tree to east. Grove tree.
33	Tsuga heterophylla	Western hemlock	21.6	Good	Fair	14	26	23.5	22	24	Yes	Remove	-	Co-dominant top. Narrow angle of attachment. English ivy on trunk. Crown raised. Grove tree.
34	Thuja plicata	Winter red cedar	10.6*	Good	Fair	6	10	10	10	10	Yes	Remove	-	*Multi stemmed tree: 6.4, 5.9, 4.4. Topped in past.
35	Pseudotsuga menziesii	Douglas fir	24.1	Good	Good	10	23	8	18	18	Yes	Remove	-	Grove tree.

Tree Solutions, Inc
2940 Westlake Ave. N (Suite #200) Seattle, WA 98109

Page 2 of 6

www.treesolutions.net
206-528-4670

Tree Solutions Inc

Table of Trees
12342 93rd Lane NE
Kirkland, WA

Date of Inventory: 05.07.2015
Table Prepared: 05.11.2015
Table Revised: 05.19.2015

Tree ID	Scientific Name	Common Name	DBH (inches)	Health Condition	Structural Condition	Limits of Disturbance	Drip line Radius (feet) North	East	South	West	Viable	Proposed Action	Credits	Notes
36	Thuja plicata	Western red cedar	11.5*	Good	Fair	6	10	10	10	10	Yes	Remove	-	*Multi stemmed tree: 7.3, 8.
37	Pseudotsuga menziesii	Douglas fir	34.7	Good	Fair	12	20.5	27	20	15	Yes	Remove	-	Crack on north side of trunk. Inoked. Dark sheaath. Side seams. Poor outlook on southeast side of trunk. Grove tree.
38	Acer palmatum	Japanese maple	8.5	Good	Good	8	13	13	13	13	Yes	Remove	-	Specimen tree. Measured below union.
39	Prunus cerasifera 'Thundercloud'	Purple leaf plum	12.3	Good	Fair	10	16	18	16	16	Yes	Remove	-	Measured below union. Resetting sprouts arising from base.
40	Acer palmatum	Japanese maple	10.4*	Good	Good	9	14	14	14	14	Yes	Remove	-	*Multiple stemmed tree: 4.6, 3.6, 3.7, 4.5, 4.7. Some crossing branches. Specimen tree.
41	Prunus emarginata	Bitter cherry	17.4*	Good	Fair	10	17	15	18.5	19	Yes	Retain	4	*Multiple stemmed tree: 12.1, 11.8. Large wound on Northern trunk. Multiple bark cut wounds from crown raising.
42	Acer macrophyllum	Bigleaf maple	46.4*	Good	Good	16	33	24	21	26	Yes	Retain	16	*Multiple stemmed tree: 26.1, 31.6. Hanger in canopy. Past failure seen in canopy. Epicormic seen in union. Grove tree.
43	Chamaecyparis lawsoniana	Lawson cypress	12*	Good	Good	6	10	9	14	9	Yes	Retain	2	*Multiple stemmed tree: 11.7, 4.2. Grove tree.
44	Chamaecyparis lawsoniana	Lawson cypress	14.7*	Good	Fair	9	15	15	15	15	Yes	Retain	1	*Multiple stemmed tree: 13.1, 3.3, 4.1. Canopy 5 feet to west.
45	Thuja plicata	Western redcedar	9.1	Good	Fair	3	5	5	5	5	Yes	Retain	1	Co-dominant top. Shares canopy with 46.
46	Thuja plicata	Western redcedar	10.4	Good	Fair	3	5	5	5	5	Yes	Retain	1	Road abrasion to north. Off canopy/retaining wall. Shares canopy with 45.
47	Alnus rubra	Red alder	11	Poor	Poor	6	3	20	19	0	Yes	Retain	1	Heavy English ivy infestation. Leaning wall. Grove tree.
48	Alnus rubra	Red alder	6.9	Fair	Poor	2	4	4	4	4	Yes	Retain	1	Large wound on southern trunk. Poor wound response. Grove tree.
49	Alnus rubra	Red alder	12.5	Fair	Poor	7	15	19	10	3	Yes	Retain	2	Suppressed. Heavy English ivy cover age on trunk. Grove tree.
50	Alnus rubra	Red alder	13.8	Good	Good	8	16	17	9	10	Yes	Retain	1	
51	Thuja plicata	Western redcedar	7.3*	Good	Good	4	6	6	6	6	Yes	Retain	1	*Multiple stemmed tree: 5.9, 3.3, 2.9. Co-dominant union at the base. Narrow angle of attachment. Grove tree.
52	Pseudotsuga menziesii	Douglas fir	30.5	Good	Good	9	12	17.5	12	17.5	Yes	Retain	11	Light English ivy on trunk. Grove tree.
53	Acer macrophyllum	Bigleaf maple	34.7*	Good	Fair	11	20	20	15	20	Yes	Retain	13	*Multi stemmed tree: 26, 21. Covered with English ivy. Anthracnose seen. Co-dominant forks. Grove tree.

Tree Solutions, Inc
2940 Westlake Ave. N (Suite #200) Seattle, WA 98109

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Tree Solutions Inc

Table of Trees
12342 93rd Lane NE
Kirkland, WA

Date of Inventory: 05.07.2015
Table Prepared: 05.11.2015
Table Revised: 05.19.2015

Tree ID	Scientific Name	Common Name	DBH (inches)	Health Condition	Structural Condition	Limits of Disturbance	Drip line Radius (feet) North	East	South	West	Viable	Proposed Action	Credits	Notes
54	Populus nigra 'Italica'	Lombardy poplar	45	Good	Fair	12	20	20	20	20	Yes	Retain	18	Covered with English ivy. Grove tree.
55	Populus nigra 'Italica'	Lombardy poplar	42.4*	Good	Good	8	13	13	13	13	Yes	Retain	17	*Multi stemmed tree: 25, 16. Tree tag at the base. Heavy Hendersonia Blackberry (Rubus fruticosus) surrounding base.
56	Thuja plicata	Western redcedar	8	Good	Good	5	9	9	9	9	Yes	Retain	1	Base located in creek.
57	Thuja occidentalis	White cedar	9*	Fair	Good	2	3	3	3	3	Yes	Retain	1	*Multi stem tree: 6.1, 3.6.
58	Alnus rubra	Red alder	31.8	Good	Good	17	27	25	30	30	Yes	Retain	11	Large thinning nuts on west side of tree.
59	Salix scouleriana	Scouler's willow	9.7	Good	Good	6	7	14	12	10	Yes	Retain	1	Base located in creek. Grove tree.
60	Pinus contorta var. contorta	Shore pine	13.6	Fair	Good	9	10.5	20	9	17	Yes	Retain	4	Suppressed. Shaded to west.
61	Picea pungens	Colorado spruce	11.7	Good	Good	7	14	11	12	12	Yes	Retain	1	Lots of lower branch dieback - shaded. Grove tree.
62	Salix scouleriana	Scouler's willow	8	Good	Good	5	4	6	4	6	Yes	Retain	1	Base not in creek. Grove tree.
63	Salix scouleriana	Scouler's willow	11.6*	Good	Fair	7	9	9	10	16	Yes	Retain	1	*Multiple stemmed tree: 9.6, 6.6. Co-dominant forks. Adjacent to creek. Narrow angle of attachment with included bark. Grove tree.
64	Salix scouleriana	Scouler's willow	9.1*	Good	Fair	5	8	8	8	8	Yes	Retain	1	*Multiple stemmed tree: 5.5, 7.5. Some included bark in crotch. Narrow angle of attachment. Grove tree.
65	Thuja plicata	Western redcedar	6.3	Good	Good	4	7	7	7	7	Yes	Retain	1	Grove tree.
66	Acer rubrum	Red maple	18.2*	Fair	Poor	9	15	15	15	15	Yes	Retain	5	*Multi stemmed tree: 5.1, 4.4, 3.4, 7.7, 4.1, 6.1. Top dieback. Heavy tree bed stress. Ganoderma applanatum and Kretzschmaria deusta. Alliance.
67	Populus trichocarpa	Black cottonwood	14	Good	Fair	11	18	16	24	17	Yes	Retain	6	Dominant. Spline union. Co-dominant form. Some English ivy on trunk
68	Thuja plicata	Western redcedar	13.6	Good	Good	9	16.5	15	9	14.5	Yes	Retain	5	Stained tree. Overlands provided to west to neighboring driveway.
69	Prunus cerasifera 'Thundercloud'	Purple leaf plum	15.5	Good	Fair	7	11.5	11.5	11.5	11.5	Yes	Remove	-	Co-dominant form with narrow angle of attachment. Included bark in union.
70	Prunus cerasifera 'Thundercloud'	Purple leaf plum	17.5*	Good	Good	11	15	21.5	15	22	Yes	Remove	-	*Multi stemmed tree: 10.6, 7.2, 11.4. Heavily pruned. Good response growth. Large crown.
71	Thuja plicata	Western redcedar	25.2	Good	Good	9	13	16	14	15	Yes	Remove	-	Tree walking. Candidate for topping if retained.

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UNDERGROUND UTILITY NOTE

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BLUELINE

SCALE: AS NOTED
PROJECT MANAGER: TODD A. OBERG, PE
PROJECT ENGINEER: DONÉ KUZARO
DESIGNER: LEE TOMKINS
ISSUE DATE: 12/8/2015

NO	DATE	BY	REVISIONS

TREE RETENTION DETAILS

FIRWOOD LANE
PRELIMINARY PLAT / IDP
PARCEL #9194100015
CITY OF KIRKLAND WASHINGTON

12/8/15

JOB NUMBER: 14-266
SHEET NAME: TR-02
SHT 5 OF 6

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POR SE 1/4, SEC 30, TWP 26N RGE 5E, W.M.

Tree Solutions Inc

Table of Trees
12342 93rd Lane NE
Kirkland, WA

Date of Inventory: 05.01.2015
Table Prepared: 05.11.2015
Table Revised: 05.15.2015

Tree ID	Scientific Name	Common Name	DBH (inches)	Health Condition	Structural Condition	Limits of Disturbance	Drip line Radius (feet) North	East	South	West	Viable	Proposed Action	Credits	Notes
71	Gordonia mucronata	Evergreen mountain-camellia	15.5*	Good	Poor	6	10	10	10	10	Yes	Retain	3	*Multi stemmed tree: 7.8, 7.1, 7.5, 12. Some trees crossed, one starting to get girdled by two others.
72	Pseudotsuga menziesii	Douglas fir	16	Good	Good		15				Yes	Retain	4	
74	Prunus emarginata	Bitter cherry	12.1*	Good	Good			11			Yes	Retain	2	*Multi stemmed tree: 7, 7, 7 Suspicious/divided rock adjacent to fence.
											Total Tree Credits:		140	

Tree on Neighboring Properties with Canopies Overhanging Subject Property
(Diameters are estimated. Drip line radii are approximate to show extent of canopy).

A	Thuja plicata	Western redcedar	10.5	Good	Good				10		Yes	Retain	-	Shared tree.
B	Cupressocyparis leylandii "Naylorii"	Naylor's blue cypress	16	Fair	Fair				10		Yes	Retain	-	*Multi stemmed tree: 8, 8, 8.5. Tree base 10'5 feet from fence. Grows tree...
C	Prunus cerasifera "Thundercloud"	Purple leaf plum	12	Good	Fair				10		Yes	Retain		Tree 8 feet to fence. Grows far.
D	Pseudotsuga menziesii	Douglas fir	14	Good	Good				10		Yes	Retain	-	Tree 4 feet past fence (east) Grows far...
E	Pseudotsuga menziesii	Douglas fir	14	Good	Good				10		Yes	Retain	-	Tree 4 feet past fence to east Grows far...
F	Pseudotsuga menziesii	Douglas fir	29	Good	Good				13		Yes	Retain		Clearance pruned. Critical root zone likely (not drip line) Grows far...
G	Pseudotsuga menziesii	Douglas fir	26	Good	Good				19.5		Yes	Retain	-	Tree House plant attached to trunk.
H	Prunus nipponica "Kiku-shi"	Ornamental peaches	10	Good	Good				3		Yes	Retain	-	Located 1 foot from fence. Grows east.
I	Quercus palustris	Pin oak	28	Good	Good				14		Yes	Retain	-	27 foot drip line to truck.
J	Prunus emarginata	Bitter cherry	17*	Fair	Poor				14		Yes	Retain		*Multi stemmed tree: 12, 12.5 feet from fence.
K	Thuja plicata	Western redcedar	18	Good	Good				13		Yes	Retain	-	4 feet from fence.
L	Malus domestica	Apple	7	Good	Good				6		Yes	Retain	-	4 feet from fence.
M	Quercus palustris	Pin oak	8	Good	Good		6				Yes	Retain	-	3 feet from fence.

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Tree Solutions Inc

Table of Trees
12342 93rd Lane NE
Kirkland, WA

Date of Inventory: 05.01.2015
Table Prepared: 05.11.2015
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Tree ID	Scientific Name	Common Name	DBH (inches)	Health Condition	Structural Condition	Limits of Disturbance	Drip line Radius (feet) North	East	South	West	Viable	Proposed Action	Credits	Notes
N	Quercus palustris	Pin oak	8	Good	Good		6				Yes	Retain	-	3 feet from fence...
O	Juglans regia	English walnut	8	Good	Good		6				Yes	Retain	-	3 feet from fence.
P	Pseudotsuga menziesii	Douglas fir	26	Good	Good		15				Yes	Retain		Prune/Exploratory excavation.
Q	Acer macrophyllum	Bigleaf maple	25	Good	Good		15				Yes	Retain	-	
R	Pseudotsuga menziesii	Douglas fir	12	Good	Good			20			Yes	Retain	-	4.5 feet west of fence. Old English Ivy on trunk.
S	Acer macrophyllum	Bigleaf maple	7	Fair	Fair			16			Yes	Retain	-	Prune/Exploratory on trunk.

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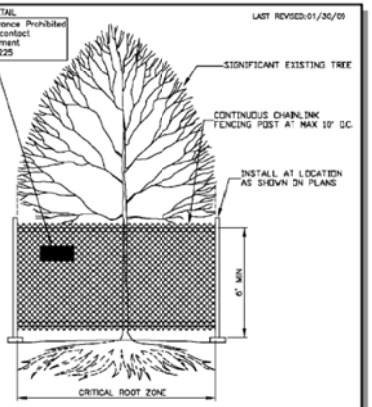
FENCING SIGN DETAIL

LAST REVISED:01/30/09

Tree Protection Area, Entrance Prohibited
To report violations contact
City Code Enforcement
at (425) 587-3225



NOTES

1. MINIMUM SIX (6) FOOT HIGH TEMPORARY CHAINLINK FENCE SHALL BE PLACED AT THE CRITICAL ROOT ZONE OR DESIGNATED LIMIT OF DISTURBANCE OF THE TREE TO BE SAVED. FENCE SHALL COMPLETELY ENCIRCLE TREE(S). INSTALL FENCE POSTS USING PIER BLOCK ONLY. AVOID POST OR STAKES INTO MAJOR ROOTS. MODIFICATIONS TO FENCING MATERIAL AND LOCATION MUST BE APPROVED BY PLANNING OFFICIAL.
2. TREATMENT OF ROOTS EXPOSED DURING CONSTRUCTION: FOR ROOTS OVER ONE (1) INCH DIAMETER DAMAGED DURING CONSTRUCTION, MAKE A CLEAN STRAIGHT CUT TO REMOVE DAMAGED PORTION OF ROOT. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING, AND COVERED WITH SOIL AS SOON AS POSSIBLE.
3. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING. FENCING SHALL NOT BE MOVED OR REMOVED UNLESS APPROVED BY THE CITY PLANNING OFFICIAL. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY UNDER THE SUPERVISION OF THE ON-SITE ARBORIST AND WITH PRIOR APPROVAL BY THE CITY PLANNING OFFICIAL.
4. FENCING SIGNAGE AS DETAILED ABOVE MUST BE POSTED EVERY FIFTEEN (15) FEET ALONG THE FENCE. SIGN TO BE MINIMUM 11"X17", AND MADE OF WEATHERPROOF MATERIAL.

CITY OF KIRKLAND
PLAN NO. CK-R.49
TREE PROTECTION

TREE PROTECTION MEASURES

1. TREE PROTECTION FENCES WILL NEED TO BE PLACED AROUND EACH TREE OR GROUP OF TREES TO BE RETAINED.
   A. TREE PROTECTION FENCES ARE TO BE PLACED ACCORDING TO CITY STANDARD PLAN NO. CK-R.49 AND AS NOTED IN THE TREE INVENTORY/CONDITIONS SPREADSHEET, COLUMN 6 – LIMITS OF DISTURBANCE (SEE ARBORIST REPORT DATED 6/14/12).
   B. TREE PROTECTION FENCES MUST BE INSPECTED PRIOR TO THE BEGINNING OF ANY CONSTRUCTION WORK/ACTIVITIES.
   C. NOTHING MUST BE PARKED OR STORED WITHIN THE TREE PROTECTION FENCES---NO EQUIPMENT, VEHICLES, SOIL, DEBRIS, OR CONSTRUCTION SUPPLIES OF ANY SORTS.
2. CEMENT TRUCKS MUST NOT BE ALLOWED TO DEPOSIT WASTE OR WASH OUT MATERIALS FROM THEIR TRUCKS WITHIN THE TREE PROTECTION FENCES.
3. THE TREE PROTECTION FENCES NEED TO BE CLEARLY MARKED WITH THE FOLLOWING OR SIMILAR TEXT IN FOUR INCH OR LARGER LETTERS:

   TREE PROTECTION AREA, ENTRANCE PROHIBITED
   TO REPORT VIOLATIONS CONTACT
   CITY CODE ENFORCEMENT AT
   425-587-3225

4. THE AREA WITHIN THE TREE PROTECTION FENCING MUST BE COVERED WITH WOOD CHIPS, HOG FUEL, OR SIMILAR MATERIALS TO A DEPTH OF 8 TO 10 INCHES. THE MATERIALS SHOULD BE PLACED PRIOR TO BEGINNING CONSTRUCTION AND REMAIN UNTIL THE TREE PROTECTION FENCING IS TAKEN DOWN.
5. WHEN EXCAVATION OCCURS NEAR TREES THAT ARE SCHEDULED FOR RETENTION, THE FOLLOWING PROCEDURE MUST BE FOLLOWED TO PROTECT THE LONG TERM SURVIVABILITY OF THE TREE:
   A. AN INTERNATIONAL SOCIETY OF ARBORICULTURE, (ISA) CERTIFIED ARBORIST MUST BE WORKING WITH ALL EQUIPMENT OPERATOR.
      i. THE CERTIFIED ARBORIST SHOULD BE OUTFITTED WITH A SHOVEL, HAND PRUNERS, A PAIR OF LOPPERS, A HANDSAW, AND A POWER SAW (A "SAWSALL" IS RECOMMENDED).
   B. THE HOE MUST BE PLACED TO "COMB" THE MATERIAL DIRECTLY AWAY FROM THE TRUNK AS OPPOSED TO CUTTING ACROSS THE ROOTS.
      i. COMBING IS THE GRADUAL EXCAVATION OF THE GROUND COVER PLANTS AND SOIL IN DEPTHS THAT ONLY EXTEND AS DEEP AS THE TINES OF THE HOE.
   C. WHEN ANY ROOTS OF ONE INCH DIAMETER OR GREATER, OF THE TREE TO BE RETAINED, IS STRUCK BY THE EQUIPMENT, THE CERTIFIED ARBORIST SHOULD STOP THE EQUIPMENT OPERATOR.
   D. THE CERTIFIED ARBORIST SHOULD THEN EXCAVATE AROUND THE TREE ROOT BY HAND/SHOVEL AND CLEANLY CUT THE TREE ROOT.
      i. THE CERTIFIED ARBORIST SHOULD THEN INSTRUCT THE EQUIPMENT OPERATOR TO CONTINUE.
6. PUTTING UTILITIES UNDER THE ROOT ZONE:
   A. BORING UNDER THE ROOT SYSTEMS OF TREES (AND OTHER VEGETATION) SHALL BE DONE UNDER THE SUPERVISION OF AN ISA CERTIFIED ARBORIST. THIS IS TO BE ACCOMPLISHED BY EXCAVATING A LIMITED TRENCH OR PIT ON EACH SIDE OF THE CRITICAL ROOT ZONE OF THE TREE AND THEN HAND DIGGING OR PUSHING THE PIPE THROUGH THE SOIL UNDER THE TREE. THE CLOSEST PIT WALLS SHALL BE A MINIMUM OF 7 FEET FROM THE CENTER OF THE TREE AND SHALL BE SUFFICIENT DEPTH TO LAY THE PIPE AT THE GRADE AS SHOWN ON THE PLAN AND PROFILE.
   B. TUNNELING UNDER THE ROOTS OF TREES SHALL BE DONE UNDER THE SUPERVISION OF AN ISA CERTIFIED ARBORIST IN AN OPEN TRENCH BY CAREFULLY EXCAVATING AND HAND DIGGING AROUND AREAS WHERE LARGE ROOTS ARE EXPOSED. NO ROOTS 1 INCH IN DIAMETER OR LARGER SHALL BE CUT.
   C. THE CONTRACTOR SHALL VERIFY THE VERTICAL AND HORIZONTAL LOCATION OF EXISTING UTILITIES TO AVOID CONFLICTS AND MAINTAIN MINIMUM CLEARANCES. ADJUSTMENT SHALL BE MADE TO THE GRADE OF THE NEW UTILITY AS REQUIRED.
7. WATERING:
   A. THE TREES WILL REQUIRE SIGNIFICANT WATERING THROUGHOUT THE SUMMER AND EARLY FALL IN ORDER TO SURVIVE LONG-TERM. AN EASY AND ECONOMICAL WATERING CAN BE DONE USING SOAKER HOSES PLACED THREE FEET FROM THE TRUNK OF THE TREE AND SPIRALED AROUND THE TREE. ONE 75-FOOT SOAKER HOSE PER TREE IS ADEQUATE. IT IS BEST TO PLACE THE SOAKERS USING LANDSCAPE STAPLES, (AVAILABLE FROM HD FOWLER IN BELLEVUE FOR PENNIES APIECE) THEN COVER THE AREA WITH TWO TO THREE INCHES COMPOSED MATERIALS. THE COMPOSTED MATERIAL WILL ACT AS A MULCH TO MINIMIZE EVAPORATION AND WILL ALSO STIMULATE THE MICROBIAL ACTIVITY OF THE SOIL WHICH IS ANOTHER BENEFIT TO THE HEALTH OF THE TREE.
   B. WATER THE TREE TO A DEPTH OF 18 TO 20 INCHES. I RECOMMENDED LEAVING THE WATER ON THE SOAKER HOSES FOR SIX TO EIGHT HOURS AND THEN DIGGING DOWN TO DETERMINE HOW DEEP YOUR WATER IS PENETRATING. THEN ADJUST ACCORDINGLY. IT MAY TAKE A GOOD TWO DAYS OF WATERING TO REACH THE PROPER DEPTH.
   C. ONCE THE WATER REACHES THE PROPER DEPTH, TURN OFF THE HOSES FOR FOUR WEEKS AND THEN WATER AGAIN. WATER MORE OFTEN WHEN TEMPERATURES INCREASE---EVERY THREE WEEKS WHEN TEMPERATURES EXCEED 80 DEGREES AND EVERY TWO WEEKS WHEN TEMPERATURES EXCEED 90 DEGREES. THIS DRYING OUT OF THE SOIL IN BETWEEN WATERING IS IMPORTANT TO PREVENT SOIL PATHOGENS FROM ATTACKING THE TREES.

UNDERGROUND UTILITY NOTE

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BLUELINE

SCALE: AS NOTED
PROJECT MANAGER: TODD A. OBERG, PE
PROJECT ENGINEER: DONÉ KUZARO
DESIGNER: LEE TOMKINS
ISSUE DATE: 12/8/2015

NO	DATE	BY	REVISIONS

TREE RETENTION DETAILS

FIRWOOD LANE
PRELIMINARY PLAT / IDP
PARCEL #9194100015
CITY OF KIRKLAND WASHINGTON

12/8/15

JOB NUMBER: 14-266
SHEET NAME: TR-03
SHT 6 OF 6

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CITY OF KIRKLAND
Planning and Community Development Department
123 Fifth Avenue, Kirkland, WA 98033 425.587-3225
www.kirklandwa.gov

DEVELOPMENT STANDARDS LIST
FILE: SUB15-01332, SAR15-01336
FIRWOOD LANE PRELIMINARY SUBDIVISION, LOW IMPACT DEVELOPMENT, AND STREAM BUFFER MODIFICATION PERMITS

TREE PLAN SUMMARY

A Tree Retention Plan was submitted with the preliminary plat in which the locations of all proposed improvements were known. The approved tree retention plan is included as Attachment 9 of the Staff Advisory Report.

Modifications to the Tree Retention Plan must be approved per KZC 95.30(6)(b).

KZC 95.33 requires new developments to meet a minimum tree density for individual lots in a short subdivision or subdivision with an approved Tree Retention Plan. The tree density shall be calculated for each lot within the short plat or subdivision and for the entire site. The tree density may consist of existing trees pursuant to the tree's retention value, supplemental trees or a combination of existing and supplemental trees. As part of the land surface modification permit, the applicant will be required to ensure compliance with the tree density requirements for the site.

SUBDIVISION STANDARDS

22.28.030 Lot Size. Unless otherwise approved in the preliminary subdivision or short subdivision approval, all lots within a subdivision must meet the minimum size requirements established for the property in the Kirkland zoning code or other land use regulatory document.

22.28.130 Vehicular Access Easements. The applicant shall comply with the requirements found in the Zoning Code for vehicular access easements or tracts.

22.32.010 Utility System Improvements. All utility system improvements must be designed and installed in accordance with all standards of the applicable serving utility.

22.32.030 Stormwater Control System. The applicant shall comply with the construction phase and permanent stormwater control requirements of the Municipal Code.

22.32.050 Transmission Line Undergrounding. The applicant shall comply with the utility lines and appurtenances requirements of the Zoning Code.

22.32.060 Utility Easements. Except in unusual circumstances, easements for utilities should be at least ten feet in width.

27.06.030 Park Impact Fees. New residential units are required to pay park impact fees prior to issuance of a building permit. Please see KMC 27.06 for the current rate. Exemptions and/or credits may apply pursuant to KMC 27.06.050 and KMC 27.06.060. If a property contains an existing unit to be removed, a "credit" for that unit shall apply to the first building permit of the subdivision.

Prior to Recording:

22.16.030 Final Plat - Lot Corners. The exterior plat boundary, and all interior lot corners shall be set by a registered land surveyor.

22.16.040 Final Plat - Title Report. The applicant shall submit a title company certification which is not more than 30 calendar days old verifying ownership of the subject property on the date that the property owner(s) (as indicated in the report) sign(s) the subdivision documents; containing a legal description of the entire parcel to be subdivided; describing any easements or restrictions affecting the property with a description, purpose and reference by auditor's file number and/or recording number; any encumbrances on the property; and any delinquent taxes or assessments on the property.

22.32.020 Water System. The applicant shall install a system to provide potable water, adequate fire flow and all required fire-fighting infrastructure and appurtenances to each lot created.

22.32.040 Sanitary Sewer System. The developer shall install a sanitary sewer system to serve each lot created.

22.32.080 Performance Bonds. In lieu of installing all required improvements and components as part of a plat or short plat, the applicant may propose to post a bond, or submit evidence that an adequate security device has been submitted and accepted by the service provider (City of Kirkland and/or Northshore Utility District), for a period of one year to ensure completion of these requirements within one year of plat/short plat approval.

Prior to occupancy:

22.32.020 Water System. The applicant shall install a system to provide potable water, adequate fire flow and all required fire-fighting infrastructure and appurtenances to each lot created.

22.32.040 Sanitary Sewer System. The developer shall install a sanitary sewer system to serve each lot created.

ZONING CODE STANDARDS

90.80 Streams. No land surface modification may take place and no improvements may be located in a stream except as specifically provided in this Section.

90.90 Stream Buffers. No land surface modification may take place and no improvement may be located within the environmentally sensitive buffer for a stream, except as provided in this Section.

90.95 Stream Buffer Fence. Prior to development, the applicant shall install a six-foot high construction phase fence along the upland boundary of the entire stream buffer with silt screen fabric installed per City standard. The fence shall remain upright in the approved location for the duration of development activities. Upon project completion, the applicant shall install between the upland boundary of all stream buffers and the developed portion of the site, either 1) a permanent 3 to 4 foot tall split rail fence, or 2) permanent planting of equal barrier value.

90.100.3 Monitoring and Maintenance of Stream Buffer Modifications: Modification of a stream buffer will require that the applicant submit a 5-year monitoring and maintenance plan consistent with KZC section 95.55. This plan shall be prepared by a qualified professional and reviewed by the City's wetland consultant. The cost of the plan and the City's review shall be borne by the applicant.

95.50 Tree Installation Standards. All supplemental trees to be planted shall conform to the Kirkland Plant List. All installation standards shall conform to Kirkland Zoning Code Section 95.45.

95.52 Prohibited Vegetation. Plants listed as prohibited in the Kirkland Plant List shall not be planted in the City.

105.20 Required Parking. 2 parking spaces are required for this use.

105.47 Required Parking Pad. Except for garages accessed from an alley, garages serving detached dwelling units in low density zones shall provide a minimum 20-foot by 20-foot parking pad between the garage and the access easement, tract, or right-of-way providing access to the garage.

110.60.5 Street Trees. All trees planted in the right-of-way must be approved as to species by the City. All trees must be two inches in diameter at the time of planting as measured using the standards of the American Association of Nurserymen with a canopy that starts at least six feet above finished grade and does not obstruct any adjoining sidewalks or driving lanes.

115.25 Work Hours. It is a violation of this Code to engage in any development activity or to operate any heavy equipment before 7:00 am. or after 8:00 pm Monday through Friday, or before 9:00 am or after 6:00 pm Saturday. No development activity or use of heavy equipment may occur on Sundays or on the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas Day. The applicant will be required to comply with these regulations and any violation of this section will result in enforcement action, unless written permission is obtained from the Planning official.

115.40 Fence Location. Fences over 6 feet in height may not be located in a required setback yard. A detached dwelling unit abutting a neighborhood access or collector street may not have a fence over 3.5 feet in height within the required front yard. No fence may be placed within a high waterline setback yard or within any portion of a north or south property line yard, which is coincident with the high waterline setback yard.

A detached dwelling unit may not have a fence over 3.5 feet in height within 3 feet of the property line abutting a principal or minor arterial except where the abutting arterial contains an improved landscape strip between the street and sidewalk. The area between the fence and property line shall be planted with vegetation and maintained by the property owner.

115.43 Garage Requirements for Detached Dwelling Units in Low Density Zones. Detached dwelling units served by an open public alley, or an easement or tract serving as an alley, shall enter all garages from that alley. Whenever practicable, garage doors shall not be placed on the front façade of the house. Side-entry garages shall minimize blank walls. For garages with garage doors on the front façade, increased setbacks apply, and the garage width shall not exceed 50% of the total width of the front façade. These regulations do not apply within the disapproval jurisdiction of the Houghton Community Council. Section 115.43 lists other exceptions to these requirements.

115.75.2 Fill Material. All materials used as fill must be non-dissolving and non-decomposing. Fill material must not contain organic or inorganic material that would be detrimental to the water quality, or existing habitat, or create any other significant adverse impacts to the environment.

115.90 Calculating Lot Coverage. The total area of all structures and pavement and any other impervious surface on the subject property is limited to a maximum percentage of total lot area. See the Use Zone charts for maximum lot coverage percentages allowed. Section 115.90 lists exceptions to total lot coverage calculations See Section 115.90 for a more detailed explanation of these exceptions.

115.95 Noise Standards. The City of Kirkland adopts by reference the Maximum Environmental Noise Levels established pursuant to the Noise Control Act of 1974, RCW 70.107. See Chapter 173-60 WAC. Any noise, which injures, endangers the comfort, repose, health or safety of persons, or in any way renders persons insecure in life, or in the use of property is a violation of this Code.

115.115 Required Setback Yards. This section establishes what structures, improvements and activities may be within required setback yards as established for each use in each zone.

115.115.3.g Rockeries and Retaining Walls. Rockeries and retaining walls are limited to a maximum height of four feet in a required yard unless certain modification criteria in this section are met. The combined height of fences and retaining walls within five feet of each other in a required yard is limited to a maximum height of 6 feet, unless certain modification criteria in this section are met.

115.115.3.n Covered Entry Porches. In residential zones, covered entry porches on dwelling units may be located within 13 feet of the front property line if certain criteria in this section are met. This incentive is not effective within the disapproval jurisdiction of the Houghton Community Council.

115.115.3.o Garage Setbacks. In low density residential zones, garages meeting certain criteria in this section can be placed closer to the rear property line than is normally allowed in those zones.

115.115.3.p HVAC and Similar Equipment: These may be placed no closer than five feet of a side or rear property line, and shall not be located within a required front yard; provided, that HVAC equipment may be located in a storage shed approved pursuant to subsection (3)(m) of this section or a garage approved pursuant to subsection (3)(o)(2) of this section. All HVAC equipment shall be baffled, shielded, enclosed, or placed on the property in a manner that will ensure compliance with the noise provisions of KZC 115.95.

115.115.5.a Driveway Width and Setbacks. For a detached dwelling unit, a driveway and/or parking area shall not exceed 20 feet in width in any required front yard, and shall be separated from other hard surfaced areas located in the front yard by a 5-foot wide landscape strip. Driveways shall not be closer than 5 feet to any side property line unless certain standards are met.

115.135 Sight Distance at Intersection. Areas around all intersections, including the entrance of driveways onto streets, must be kept clear of sight obstruction as described in this section.

Prior to recording:

110.60.5 Landscape Maintenance Agreement. The owner of the subject property shall sign a landscape maintenance agreement, in a form acceptable to the City Attorney, to run with the subject property to maintain landscaping within the landscape strip and landscape island portions of the right-of-way (see Attachment). It is a violation to pave or cover the landscape strip with impervious material or to park motor vehicles on this strip.

110.60.6 Mailboxes. Mailboxes shall be installed in the development in a location approved by the Postal Service and the Planning Official. The applicant shall, to the maximum extent possible, group mailboxes for units or uses in the development.

Prior to issuance of a grading or building permit:

90.95 Stream Buffer Fence. Prior to development, the applicant shall install a six-foot high construction phase fence along the upland boundary of the entire stream buffer with silt screen fabric installed per City standard. The fence shall remain upright in the approved location for the duration of development activities. Upon project completion, the applicant shall install between the upland boundary of all stream buffers and the developed portion of the site, either 1) a permanent 3 to 4 foot tall split rail fence, or 2) permanent planting of equal barrier value.

90.150 Natural Greenbelt Protective Easement. The applicant shall submit for recording a natural greenbelt protective easement, in a form acceptable to the City Attorney, for recording with King County.

90.155 Liability. The applicant shall enter into an agreement with the City which runs with the property, in a form acceptable to the City Attorney, indemnifying the City for any damage resulting from development activity on the subject property which is related to the physical condition of the stream, minor lake, or wetland.

95.30(4) Tree Protection Techniques. A description and location of tree protection measures during construction for trees to be retained must be shown on demolition and grading plans.

95.34 Tree Protection. Prior to development activity or initiating tree removal on the site, vegetated areas and individual trees to be preserved shall be protected from potentially damaging

activities. Protection measures for trees to be retained shall include (1) placing no construction material or equipment within the protected area of any tree to be retained; (2) providing a visible temporary protective chain link fence at least 6 feet in height around the protected area of retained trees or groups of trees until the Planning Official authorizes their removal; (3) installing visible signs spaced no further apart than 15 feet along the protective fence stating "Tree Protection Area, Entrance Prohibited" with the City code enforcement phone number; (4) prohibiting excavation or compaction of earth or other damaging activities within the barriers unless approved by the Planning Official and supervised by a qualified professional; and (5) ensuring that approved landscaping in a protected zone shall be done with light machinery or by hand.

27.06.030 Park Impact Fees. New residential units are required to pay park impact fees prior to issuance of a building permit. Please see KMC 27.06 for the current rate. Exemptions and/or credits may apply pursuant to KMC 27.06.050 and KMC 27.06.060. If a property contains an existing unit to be removed, a "credit" for that unit shall apply to the first building permit of the subdivision.

Prior to occupancy:

90.145 Bonds. The City may require a bond and/or a perpetual landscape maintenance agreement to ensure compliance with any aspect of the Drainage Basins chapter or any decision or determination made under this chapter.

95.51.2.b Tree Maintenance. For detached dwelling units, the applicant shall submit a 5-year tree maintenance agreement to the Planning Department to maintain all pre-existing trees designated for preservation and any supplemental trees required to be planted.

110.60.6 Mailboxes. Mailboxes shall be installed in the development in a location approved by the Postal Service and the Planning Official. The applicant shall, to the maximum extent possible, group mailboxes for units or uses in the development.

110.75 Bonds. The City may require or permit a bond to ensure compliance with any of the requirements of the Required Public Improvements chapter.

DEVELOPMENT STANDARDS

SUB15-01332

FIRE DEPARTMENT

FIRE DEPARTMENT COMMENTS

Contact: Grace Steuart at 425-587-3660; or gsteuart@kirklandwa.gov

ACCESS

Access as shown is adequate for both Road A and Tract E.

HYDRANTS

One additional hydrant is required on site as shown. The new hydrant as well as the existing hydrant on NE 124th and 93rd shall be equipped with a 5" Storz fitting.

FIRE FLOW

Fire flow requirement for this project is 1,000 gpm. The project is in Northshore Utility District. A certificate of water availability shall be provided from NUD.

SPRINKLER THRESHOLD

Per Kirkland Municipal Code, all new buildings which are 5,000 gross square feet or larger require fire sprinklers. Included are single family homes, duplexes, and zero lot line townhouses where the aggregate area of all connected townhouses is greater than 5,000 square feet.; garages, porches, covered decks, etc, are included in the gross square footage. (This comment is included in the subdivision conditions for informational purposes only.)

PUBLIC WORKS DEPARTMENT

Permit #: SUB15-01332
Project Name: Firewood Lane 19 Lot Subdivision
Project Address: 12342 93rd Lane NE
Date: August 21, 2015, Revised December 23, 2015

PUBLIC WORKS CONDITIONS

General Conditions:

1. All public improvements associated with this project including street and utility improvements, must meet the City of Kirkland Public Works Pre-Approved Plans and Policies Manual. A Public Works Pre-Approved Plans and Policies manual can be purchased from the Public Works Department, or it may be retrieved from the Public Works Department's page at the City of Kirkland's web site at www.kirklandwa.gov.

2. This project will be subject to Public Works Permit and Connection Fees. It is the applicant’s responsibility to contact the Public Works Department by phone or in person to determine the fees. The fees can also be review the City of Kirkland web site at www.kirklandwa.gov The applicant should anticipate the following fees:
- Surface Water Connection Fees (paid with the issuance of a Building Permit)
- Right-of-way Fee
- Review and Inspection Fee (for utilities and street improvements).

o Building Permits associated with this proposed project will be subject to the traffic, park, and school impact fees per Chapter 27 of the Kirkland Municipal Code. The impact fees shall be paid prior to issuance of the Building Permit(s). Any existing buildings within this project which are demolished will receive a Traffic Impact Fee credit, Park Impact Fee Credit and School Impact Fee Credit. This credit will be applied to the first Building Permits that are applied for within the project. The credit amount for each demolished building will be equal to the most currently adopted Fee schedule. Note: the impact fee credits will be based on Mobile Home Use,

3. All street and utility improvements shall be permitted by obtaining a Land Surface Modification (LSM) Permit.

4. Submittal of Building Permits within a subdivision prior to recording:

• Submittal of a Building Permit with an existing parcel number prior to subdivision recording: A Building Permit can be submitted prior to recording of the subdivision for each existing parcel number in the subject project, however in order for the Building Permit to be deemed a complete application, all of the utility and street improvements for the new home must be submitted with application. However, the Building Permit will not be eligible for issuance until after the Land Surface Modification Permit is submitted, reviewed, and approved to ensure the comprehensive storm water design required by the subdivision approval is reviewed and approved, and then shown correctly on the Building Permit plans to match the Land Surface Modification Permit.

• Review of Expedited or Green Building Permits: A new single family home Building Permit within a subdivision can only be review on an expedited or green building fast track if submitted electronically through MBP and the Land Surface Modification permit has been submitted, reviewed, and approved.

• Review of detached multi-family building permits: Detached multi-family building permits can only be applied for after the Land Surface Modification permit submitted, reviewed, and approved.

5. Subdivision Performance and Maintenance Securities:
• The subdivision can be recorded in advance of installing all the required street and utility improvements by posting a performance security equal to 130% of the value of work. This security amount will be determined by using the City of Kirkland's Improvement Evaluation Packet. Contact the Development Engineer assigned to this project to assist with this process.
• If the Developer will be installing the improvements prior to recording of the subdivision, there is a standard right of way restoration performance security equal to 20% of the value of the work. This security will be determined by using the City of Kirkland's Improvement Evaluation Packet and held until the project has been completed.
• Once the subdivision has been completed there will be a condition of the permit to establish a two year Maintenance security.

6. The applicant has applied for and received a Concurrency Test Notice.

7. After Concurrency has passed a certificate will be issued that will read as follows: CERTIFICATE OF CONCURRENCY: This project has been reviewed and approved for water, sewer, and traffic concurrency. Any water and sewer mitigating conditions are listed within the conditions below. Any traffic mitigating conditions will be found in an attached memorandum from the Public Works Traffic Engineering Analyst to the Planning Department Project Planner. Upon issuance of this permit, this project shall have a valid Certificate of Concurrency and concurrency vesting until the permit expires. This condition shall constitute issuance of a Certificate of Concurrency pursuant to chapter 25.12 of the Kirkland Municipal Code.

8. All civil engineering plans which are submitted in conjunction with a building, grading, or right-of-way permit must conform to the Public Works Policy titled ENGINEERING PLAN REQUIREMENTS. This policy is contained in the Public Works Pre-Approved Plans and Policies manual.

9. All street improvements and underground utility improvements (storm, sewer, and water) must be designed by a Washington State Licensed Engineer; all drawings shall bear the engineers stamp.

10. All plans submitted in conjunction with a building, grading or right-of-way permit must have elevations which are based

on the King County datum only (NAVD 88).

11. All subdivision recording documents shall include the following language:

o Utility Maintenance: Each property owner shall be responsible for maintenance of the sanitary sewer, storm water stub, rain garden, permeable pavement, or any infiltration facilities (known as Low Impact Development) from the point of use on their own property to the point of connection in the City sanitary sewer main or storm water main. Any portion of a sanitary sewer, surface water stub, rain garden, permeable pavement, or any infiltration facilities, which jointly serves more than one property, shall be jointly maintained and repaired by the property owners sharing such stub. The joint use and maintenance shall "run with the land" and will be binding on all property owners within this subdivision, including their heirs, successors and assigns.

o Public Right-of-way Sidewalk and Vegetation Maintenance: Each property owner shall be responsible for keeping the sidewalk abutting the subject property clean and litter free. The property owner shall also be responsible for the maintenance of the vegetation within the abutting landscape strip. The maintenance shall "run with the land" and will be binding on all property owners within this subdivision, including their heirs, successors and assigns.

If the lots have on-site private storm water facilities, include this language on the subdivision recording document:

o Maintenance of On-site Private Stormwater Facilities: Each Lot within the Subdivision has a stormwater facility (infiltration trench, dry wells, dispersion systems, rain garden, and permeable pavement) which is designed to aid storm water flow control for the development. The stormwater facility within the property shall be owned, operated and maintained by the Owner. The City of Kirkland shall have the right to ingress and egress the Property for inspection of and to reasonable monitoring of the performance, operational flows, or defects of the stormwater/flow control facility.
If the City of Kirkland determines related maintenance or repair work of the stormwater facility is required, the City of Kirkland shall give notice to the Owner of the specific maintenance and/or repair work required. If the above required maintenance or repair is not completed within the time set by the City of Kirkland, the City of Kirkland may perform the required maintenance or repair, or contract with a private company capable of performing the stormwater facility maintenance or repair and the Owner will be required to reimburse the City for any such work performed.
The Owner is required to obtain written approval from the City of Kirkland prior to replacing, altering, modifying or maintaining the storm water facility.

If the project contains LID storm improvements that will be installed as a condition of the new home Building Permit, then include this condition on the Short Plat recording documents:

o Installation of Low Impact Development (LID) storm drainage improvements with Building Permits: All LID storm drainage features depicted on Sheet ____ of ____ of issued permit LSM1X-0XXXX shall be installed in conjunction with the construction of each new home on lots X to X. The LID improvements include, but are not limited to the rain gardens and the pervious driveways. The Building Permit for the new signal family home on lots X to X will not receive a final inspection until said LID improvements are installed. The pervious access road/Tract serving lots X and X shall be constructed or secured by a performance bond prior to recording of the short plat

Sanitary Sewer and Water System Conditions:

1. Northshore Utility District approval required for water and/or sewer service. A letter of sewer/water availability is required; call N.U.D at 425-398-4400.

Surface Water Conditions:

1. Provide temporary and permanent storm water control per the 2009 King County Surface Water Design Manual and the Kirkland Addendum (Policy D-10). See Policies D-2 and D-3 in the PW Pre-Approved Plans for drainage review information, or contact city of Kirkland Surface Water staff at (425) 587-3800 for help in determining drainage review requirements. Summarized below are the levels of drainage review based on site and project characteristics:

- Full Drainage Review

A full drainage review is required for any proposed project, new or redevelopment, that will:

- Adds 5,000ft2 or more of new impervious surface area or 10,000ft2 or more of new plus replaced impervious surface area,
- Propose 7,000ft2 or more of land disturbing activity, or,
- Be a redevelopment project on a single or multiple parcel site in which the total of new plus replaced impervious surface area is 5,000ft2 or more and whose valuation of proposed improvements (including interior improvements but excluding required mitigation and frontage improvements) exceeds 50% of the assessed value of the existing site improvements.

2. A preliminary drainage report (Technical Information Report) has been submitted with the subdivision application. The Public Works staff has reviewed it and has the following comments:

- Full infiltration testing per City of Kirkland Pre-Approved Plan D-8 will be required prior to permit issuance. This includes providing 3 infiltration test locations per stormwater facility. If fewer tests are proposed, justification for the fewer tests will need to be provided from a licensed geotechnical engineer with a Stormwater Adjustment.
- Based on preliminary geotechnical information, there may be high groundwater in the location of the infiltration trenches on the west side of the site. Please ensure that the geotechnical/infiltration investigations evaluate the groundwater to at least 5' below the finished bottom of the facilities. Additionally, it may be a good idea to evaluate other BMPs for this area that are not as highly impacted by groundwater.
- The frontage improvements and half of the roadway must be modeled for flow control. Since the existing condition is dispersion/infiltration onsite, changing it to a point discharge will require that it is evaluated as part of the project flow control.
- Show that the overflow path from the bioretention facility will be contained and not negatively impact neighboring properties.

3. Because this project site is one acre or greater, the following conditions apply:

- Amended soil requirements (per Ecology BMP T5.13) must be used in all landscaped areas.
- If the project meets minimum criteria for water quality treatment (5,000ft2 pollution generating impervious surface area), the enhanced level of treatment is required if the project is multi-family residential, commercial, or industrial. Enhanced treatment targets the removal of metals such as copper and zinc.
- The applicant is responsible to apply for a Construction Stormwater General Permit from Washington State Department of Ecology. Provide the City with a copy of the Notice of Intent for the permit. Permit Information can be found at the following website: http://www.ecy.wa.gov/programs/wq/stormwater/construction/
  - Among other requirements, this permit requires the applicant to prepare a Storm Water Pollution Prevention Plan (SWPPP) and identify a Certified Erosion and Sediment Control Lead (CESCL) prior to the start of construction. The CESCL shall attend the City of Kirkland PW Dept. pre-construction meeting with a completed SWPPP.
- Turbidity monitoring by the developer/contractor is required if a project contains a lake, stream, or wetland.
- A Stormwater Pollution Prevention and Spill (SWPPS) Plan must be kept on site during all phases of construction and shall address construction-related pollution generating activities. Follow the guidelines in the 2009 King County Surface Water Design Manual for plan preparation.

4. This project is creating or replacing more than 5000 square feet of new impervious area that will be used by vehicles (PGIS - pollution generating impervious surface). Provide storm water quality treatment per the 2009 King County Surface Water Design Manual. The enhanced treatment level is encouraged when feasible for multi-family residential, commercial, and industrial projects less than 1 acre in size.

5. Provide a level one off-site analysis (based on the King County Surface Water Design Manual, core requirement #2).

6. It doesn't appear that any work within an existing ditch will be required, however the developer has been given notice that the Army Corps of Engineers (COE) has asserted jurisdiction over upland ditches draining to streams. Either an existing Nationwide COE permit or an Individual COE permit may be necessary for work within ditches, depending on the project activities.
Applicants should obtain the applicable COE permit; information about COE permits can be found at: U.S. Army Corps of Engineers, Seattle District Regulatory Branch
http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits.aspx

Specific questions can be directed to: Seattle District, Corps of Engineers, Regulatory Branch, CENWS-OD-RG, Post Office Box 3755, Seattle, WA 98124-3755, Phone: (206) 764-3495

7. Provide an erosion control report and plan with Building or Land Surface Modification Permit application. The plan shall be in accordance with the 2009 King County Surface Water Design Manual.

8. Construction drainage control shall be maintained by the developer and will be subject to periodic inspections. During the period from May 1 and September 30, all denuded soils must be covered within 7 days; between October 1 and April 30, all denuded soils must be covered within 12 hours. Additional erosion control measures may be required based on site and weather conditions. Exposed soils shall be stabilized at the end of the workday prior to a weekend, holiday, or predicted rain event.

9. Provide collection and conveyance of right-of-way storm drainage

10. Provide a separate storm drainage connection for each lot. All roof and driveway drainage must be tight-lined to the storm drainage system or utilize low impact development techniques. The tight line connections shall be installed with the individual new houses.

11. Provide a plan and profile design for the storm sewer system.

12. A storm sewer "Joint Maintenance Agreement" must be recorded with the property for the jointly used storm sewer lines.

13. It doesn't appear this project is proposing to work in the stream but if it does include work within the ordinary high water (OHW) level of a stream or lake the Washington State Department of Fish & Wildlife must review and approve all work within the OHW level prior to COK permit approval.

14. This project is under KZC Chapter 114 – Low Impact Development (LID), which requires LID facilities to be designed to control runoff from 50% of all hard surfaces. The design should seek to meet the following objectives:

- Preservation of natural hydrology.
- Reduced impervious surfaces.
- Treatment in numerous small decentralized structures of at least 50% of the stormwater generated from hard surfaces of the project.
- Use of natural topography for drainage ways and storage areas.
- Preservation of portions of the site in undisturbed, natural conditions.
- Restoration of disturbed sites.
- Reduction of the use of piped systems. Whenever possible, site design shall use multifunctional open drainage systems such as rain gardens, vegetated swales or filter strips that also help to fulfill landscaping and open space requirements.

Street and Pedestrian Improvement Conditions:

1. The subject property abuts NE 124th Street (a collector type street) and proposes a new neighborhood access type street to serve the lots within the project (94th Ave. NE). Zoning Code sections 110.10 and 110.25 require the applicant to make half-street improvements in rights-of-way abutting the subject property. Section 110.30-110.50 establishes that this street must be improved with the following:

NE 124th Street
A. Widen the street to approximately 32 ft. from the existing curb on the north side of the street (and aligning with the existing curb to the west in front of 9329 NE 124th St).
B. Install storm drainage, curb and gutter, a 4.5 ft. planter strip with street trees 30 ft. on-center, and a 5 ft. wide sidewalk.
C. At the west end of the street improvements, the existing traffic calming curb bump-out shall be removed and reconstructed with standard type-A vertical curb and gutter in approximately the same location. The sidewalk can be shifted the north in this location to correspond to the new curb bump-out (more design detail will occur during the Land

Surface Modification Permit design and review). The sidewalk inside the stream buffer shall be constructed with pervious concrete and a railing may be necessary to protect pedestrians from falling into the stream.
D. Dedicate right-of-way to encompass improvements; new right-of-way shall be 30 ft from centerline of NE 124th Street to property line (submitted plans depict this dedication).

94th Ave NE (new access street)
E. Dedicate 40 ft. of ROW to encompass the new street improvements (this width may be reduced to 35 ft. if the applicant participates in the sidewalk construction-in-lieu program- see condition below).
F. The road cross section is as shown on sheet 2 of 6 in the Preliminary Utility and Grading Plan and includes the following:
a. 19 ft. of paving with a vertical curb on the west and 1.5 ft flat ribbon curb on the east (providing a 21 ft wide street).
b. 4 ft wide parking bump-outs on the east (road will be 24 ft wide through these areas)
c. 4.5 ft wide landscape strips with street trees planted 30 ft. on-center along both sides of the street.
d. A 5 ft wide sidewalk along the east side of the street (sidewalk terminates at recreation facility in tract C)
e. Participation in the Sidewalk Construction-in-lieu program for the deleted sidewalk and 5 ft of right-of-way along the west side of the street.

G. The cul-de-sac shall be paved 70 ft. in diameter, with vertical curb and gutter around the perimeter and a 4.5 ft. landscape strip with street trees 30 ft. on-center where there is no sidewalk (see Preliminary Engineering Plans). A 80 ft. diameter ROW dedication is required to encompass these improvements.
H. As mentioned above, the Public Works Department supports the proposal to eliminate the sidewalk along the west side of the street and the ROW dedication can be reduced accordingly if the applicant participates in the City's Sidewalk-Construction-in-lieu program. There is a need for additional sidewalk along the south side of NE 124th Street so this may be a good option.

2. When three or more utility trench crossings occur within 150 lineal ft. of street length or where utility trenches parallel the street centerline, the street shall be overlaid with new asphalt or the existing asphalt shall be removed and replaced.
- Existing streets with 4-inches or more of existing asphalt shall receive a 2-inch (minimum thickness) asphalt overlay. Grinding of the existing asphalt to blend in the overlay will be required along all match lines.
- Existing streets with 3-inches or less of existing asphalt shall have the existing asphalt removed and replaced with an asphalt thickness equal or greater than the existing asphalt provided however that no asphalt shall be less than 2-inches thick and the subgrade shall be compacted to 95% density.

3. The driveway for each lot shall be long enough so that parked cars do not extend into the access easement or right-of-way (20 ft. min.); or meet the requirements of the KZC Chapter 114 – Low Impact Development (LID), if that section of the code is used (18 ft. min).

4. All lots shall take access from 94th Ave NE (new street) and the driveway shall be set back at least 50 ft. from the face of curb on NE 124th St. It may be necessary for lot 1 and lot to share a joint driveway access to meet this setback from the intersection.

5. All street and driveway intersections shall not have any visual obstructions within the sight distance triangle. See Public Works Pre-approved Policy R.13 for the sight distance criteria and specifications.

6. Prior to the final of the building or grading permit, pay for the installation of stop and street signs at the new intersections.

7. Install "NO PARKING ANYTIME" signs along the perimeter of the cul-de-sac.

8. Install new monuments at the new intersection with NE 124th St, the cul-de-sac, and as recommended by the project surveyor and/or required by the Public Work Department.

9. It shall be the responsibility of the applicant to relocate any above-ground or below-ground utilities which conflict with the project associated street or utility improvements.

10. Underground all new and existing on-site utility lines and overhead transmission lines.

11. Underground any new off-site transmission lines.

12. Zoning Code Section 110.60.9 establishes the requirement that existing utility and transmission (power, telephone, etc.) lines on-site and in rights-of-way adjacent to the site must be underground. Underground the lines along the project frontage on NE 124th Street. A new pole will need to be installed at the northwest corner of the lot.

13. New LED street lights will be required per Puget Power design and Public Works approval. Contact the INTO Light Division at PSE for a lighting analysis. The lighting design must be submitted prior to issuance of a grading permit.

401 Second Ave S. Suite 407
Seattle, WA 98104
Tel. (206) 464-1519
Fax (206) 624-7501

Toll Free 1-888-201-1012
www.nwjustice.org

César E. Torres
Executive Director

Northwest Justice Project

September 11, 2015

Mr. Tony Leavitt
Planning and Building Department, City of Kirkland
123 5th Avenue
Kirkland WA 98033

Re: Permit Number SUB15-01332 & SAR15-01366 SEPA Comments

Dear Mr. Leavitt:

These comments are presented on behalf of the Firwood Lane Mobile Home Park Homeowner's Association, as authorized by its member and officer Lynn Leonard. Please accept these SEPA comments on behalf of the Homeowners Association and its members and officers. The homeowners understand that the park owner submitted an application to the City of Kirkland to subdivide the existing 3.4 acre parcel, currently used as a manufactured home park that houses 31 households, into 19 separate lots for the development of 19 single family homes through the LID subdivision process. The homeowners understand that the owner requested exceptions to the City zoning code to grant a reduction in the minimum lot size, an increase in the allowed lot density by 1 lot, and a stream buffer modification. For the reasons discussed below, the Firwood Lane Homeowners oppose this application and ask that the determination of non-significance be changed to a determination of significance because of the lack of mitigating measures regarding the loss of affordable housing should this development proceed.

Background

Firwood Lane is a community of 31 manufactured homes in which the homeowners own their homes and rent the lot space on which their homes sit. The homeowners pay a small amount of money each month to rent the space, and as they own their homes, they pay for all upkeep and maintenance of their homes. Although the costs of purchasing a manufactured or mobile home are significantly less than purchasing a typical single-family home, the costs, as a percentage of income, are significant to the typically low- and moderate-income families who generally purchase these homes. As such, several of the Firwood Lane Homeowners financed their purchase with a home loan. Some homeowners still owe thousands of dollars on their home loans. Many Firwood Lane homeowners purchased their homes years ago and have raised their families in the park. Some of the children raised at Firwood Lane are now

approaching adulthood and have never known another home. The children attend local public schools and the Firwood Homeowners are well-integrated in to the community. Compared to the rest of the City of Kirkland demographics, a disproportionate number of the Firwood Lane Homeowners are disabled, persons of color, speak a language other than English as their first language, and have a low or a moderate income.[1] Because of their mainly below median income, most all of the Firwood homeowners will be unable to afford to purchase a single family home or condominium in Kirkland or in King County and are unable to locate an affordable rental within the City limits. Firwood Lane gives its residents the opportunity to be homeowners despite their below median income and to live in the City Kirkland where the residents are able to enjoy all that the City has to offer. For some Firwood Lane is close to their jobs and they would face long commutes if they had to move.

The proposed development will close Firwood Lane Mobile Home Park and develop the site into 19 separate market-rate single family homes. The Firwood Lane homeowners have already received a notice of park closure, giving them 12 months' notice of the park closure, and all of the Firwood Lane homeowners will be displaced if the application is ultimately approved and the park closes. The homeowners have been diligently searching for other parks to move their homes to, but because of various factors, most are unable to find other places in Western Washington where they are able to move their homes. Additionally, some of the homes are at an age or condition that would prevent them from being moved, those homes will be demolished. Some of the homeowners bought their homes with their life savings and those homeowners will lose their investment and their homes.

Other homeowners used home loans or mortgages to purchase their manufactured homes. Those homeowners who still owe balances on their loans and are unable to move their homes will be required to abandon their homes but will still remain responsible for the mortgage or other financing instrument used to purchase their home. Children enrolled in school will be required to leave their friends and change schools and school districts as the homeowners are unlikely to find housing in the City and school district. To these residents, the consequences of the park closure are dire and are compounded by the lack of housing affordable to low and moderate income earners in Kirkland.

The proposed development will displace 31 households, will decrease the availability of homes for low- and moderate-income households, will decrease housing density in the community at a time when Kirkland is struggling to provide housing for an increasing

[1] Although we were unable to obtain income information for all of the Firwood Lane's households, the information we obtained shows that nine of Firwood Lane's households officially qualify as low-income, six qualify as moderate-income (just based on the information we have, almost half of Firwood Lane's households qualify as low- and moderate-income), three households are at a median-income and one household is above median-income. It is very likely that a significant portion of the approximately ten households for which we are unaware of the amount of their income would also qualify as low- and moderate-income households. We are aware that of the approximately ten households for which we have no specific income data, two households are comprised of retired and disabled persons, and two additional households receive social security as their only income. According to Kirkland's Comprehensive Plan, in Kirkland only 15% of the population is considered low-income and 16% are considered moderate-income. Out of 83 total Firwood Lane residents, 63 residents are persons of color (primarily Latino and Vietnamese), which far exceeds Kirkland's persons of color demographics – with City residents being 79.3% Caucasian, 6.3% Latino, and 11% Asian, demographics according to the 2010 US Census data.

population, will eliminate the only manufactured home park within Kirkland City limits, and will eliminate home ownership opportunities for many low-income Kirkland residents. These impacts are adverse, significant, and likely to occur.

Comments:

SEPA Requires Consideration of Housing. Applicant's Proposed Development Plan Will Have Significant and Certain Adverse Impacts on Housing. Applicant Failed to Provide Measures to Reduce or Control the Proposed Development's Adverse Impacts on Housing.

SEPA has four primary purposes, three of which specifically relate to ecology and the human relationship to the environment, but one of SEPA's four purposes is "to stimulate the health and welfare of human beings."[2] The legislature identified seven goals of SEPA, including maintaining, wherever possible an environment which supports diversity and variety of individual choice and achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities.[3] Through SEPA, the legislature requires the City of Kirkland to evaluate reasonably foreseeable environmental impacts of proposed projects.[4] SEPA specifically lists "Housing" as one environmental elements to be considered during a SEPA review.[5] The Firwood Lane Homeowners believe that the adverse environmental impacts on housing are both significant and very likely to occur should the proposed development proceed.

Approval of the applicant's proposed project will eliminate the last mobile/manufactured home park in the City of Kirkland.[6] Manufactured housing is one of the few opportunities for low-income families to own their own homes. Home ownership opportunities for low- and moderate-income households within Kirkland, which the City of Kirkland acknowledged in its Comprehensive Plan were already essentially non-existent, will become even further limited.[7]

The park closure will displace primarily low- and moderate-income households in favor of market-rate housing for above median-income households.[8] If the proposed development goes forward these impacts are certain to occur because the development plan readily states that it will replace 31 manufactured homes with 19 market-rate single family homes (the City acknowledges that even median-income prospective homebuyers find it difficult to purchase

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[2] See RCW 41C.010
[3] See RCW 43.21C.020(2)
[4] See RCW 43.21C.303
[5] See RCW 43.21C.110(f), see also WAC 197-11-444, see also See WAC 197-11-060
[6] See Applicant's SEPA Checklist, response to question 9, all 31 manufactured homes will be removed if the development is permitted and will be replaced with 19 single family homes, see also Notices of Park Closure submitted with the application.
[7] See CP at VII-4 which acknowledges that the vast majority of homes available to low- and moderate-income families is rental housing, and even median-income families, families earning over 80% of the median income, find it difficult to purchase homes without assistance.
[8] See SEPA Checklist, response to Question 9

homes in Kirkland without assistance so it is likely the buyers will have above-median incomes).[9]

Neither the City through its Comprehensive Plan and Development Regulations, nor the applicant has provided measures to reduce or control the development's adverse impacts on housing, except to say that the applicant provided the homeowners with notices of park closure and referrals to the State's relocation assistance program. The applicant appears not to have considered the impact the proposed development will have on housing and that low- and moderate-income families will likely be displaced from the City as some of these homes cannot be moved because of their age and condition, there is no place in the City of Kirkland or very likely even within King County for these homes to move, and there is insufficient low- and moderate-income housing in Kirkland to provide replacement housing for the Firwood Lane families. Because these adverse housing impacts are significant, are certain to occur, and are entirely unmitigated by the proposal, the City's proposed determination of non-significance (DNS) should be rescinded and a full environmental analysis should be required before the City acts to approve, deny, or further condition the requested permit.

The Proposed Development's Adverse Housing Impacts Are Contrary To The Goals Of The Growth Management Act And Kirkland's Comprehensive Plan.

Pursuant to the Growth Management Act, the City of Kirkland is required to develop a Comprehensive Plan.[10] The Comprehensive Plan must comply with the Growth Management Act and must contain eight elements, one of which is a housing element.[11] The Comprehensive Plan's Housing Element is designed to ensure "the vitality and character of established residential neighborhoods that: (a) includes an inventory and analysis of existing and projected housing needs that identifies the number of housing units necessary to manage projected growth; (b) includes a statement of goals, policies, objectives, and mandatory provisions for the preservation, improvement, and development of housing, including single-family residences; (c) **identifies sufficient land for housing including**, but not limited to, government-assisted housing, housing for low-income families, **manufactured housing**, multifamily housing, and group homes and foster care facilities; and (d) **makes adequate provisions for existing and projected needs of all economic segments of the community** (emphasis added)."[12] As SEPA and GMA are intertwined, SEPA reviews can be completed concurrently with GMA reviews.[13]

Without Identification Of Sufficient Land For Manufactured Housing, The Proposed Development Will Likely Have Significant Impacts; Therefore, A Full Environmental Analysis is Warranted.

As required, the City of Kirkland developed a Comprehensive Plan with the required Housing Element. Additionally the City of Kirkland developed Development Regulations

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[9] See SEPA Checklist, response to Question 9, see also See CP at VII-4
[10] See RCW 36.70A.040(1)
[11] See RCW 36.70A.040(1), LIHI v. City of Lakewood, 119 Wn. App. 110, 116; 77 P.3d 653 (2003); see also RCW 36.70A.070(2)
[12] See RCW 36.70A.070(2)
[13] See WAC 197-11-210

that regulate development within the City. Pursuant to the Growth Management Act, Kirkland's Development Regulations are required to be consistent with and implement its Comprehensive Plan.[14] Kirkland's Comprehensive Plan and Development Regulations do not identify sufficient land for manufactured housing within the City of Kirkland.[15] In reviewing the City of Kirkland Development and Zoning Regulations, it appears that the City of Kirkland has not considered issues related to displacement of low-income households whose housing is redeveloped into market rate housing, as no lands within the City of Kirkland have been designated for mobile home parks. As all site specific permits must conform to Kirkland's Development Regulations, if the development regulations provided for issues related to displacement of manufactured homeowners, then the applicant could have followed the regulations to minimize impacts on the homeowners. Because the Comprehensive Plan and Development Regulations do not identify sufficient land for manufactured homes, Kirkland's Development Regulations do not implement Kirkland's Comprehensive Plan with respect to identifying sufficient land for manufactured housing, or mitigate the displacement caused by manufactured home park development, and the proposal did not address the displacement issues, the proposed development will likely have significant adverse impacts on housing and a full environmental analysis is warranted.

Without Identification Of Sufficient Housing Affordable to Low- and Moderate-Income Families The Proposed Development Will Likely Have Significant Adverse Impacts. Around the time Kirkland adopted its Comprehensive Plan and during revisions of its Comprehensive Plan, Kirkland recognized that it had a smaller percentage of low-income households compared with the rest of King County.[16] The Housing Element notes that although the 2004 figures show that the proportion of Kirkland residents with a low- and moderate-income have remained stable since 1990, but the percentage of above median-income households increased over this time period, and the percentage of median-income households has decreased over the same time period, thus showing a trend towards above-median income households in the City.[17]

In light of the fact that as of the year 2000, only 16% of Kirkland rental housing were affordable to low-income families, the supply of rental housing is mostly out of reach to the lowest-income families, and, as noted in the Plan, even moderate-income first-time homebuyer families are inadequately served by Kirkland's housing (note: Kirkland did not make provisions for low-income homebuyers, presumably because homeownership is believed to be completely out of reach for these families),[18] Kirkland adopted a goal to promote the creation of affordable housing and provide for a range of housing types and opportunities to meet the needs of all segments of the population.[19] Kirkland does not appear to have any Development Regulations which prescribe how its goal of meeting the housing affordability needs of its low-income residents will be addressed in the context of a proposal

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[14] See RCW 36.70A.070(4)
[15] See RCW 36.70A.070(2)(c)
[16] See City of Kirkland Comprehensive Plan, I-5, according to the data, only 5.3% of the City's households were considered low-income, compared with 8.4% for King County as a whole, see also See City of Kirkland Comprehensive Plan, VII-3.
[17] See City of Kirkland Comprehensive Plan, VII-3
[18] See See City of Kirkland Comprehensive Plan, VII-4
[19] See City of Kirkland Comprehensive Plan, VII-4

that would replace already scarce affordable housing with abundant market rate housing. The proposed development reduces the available housing for low- and moderate-income families and reduces homeownership opportunities for moderate- and low-income first-time home buyers. The lack of Development Regulations that mitigate the impacts this development will have on low- and moderate-income families makes it likely that the proposed development will have significant adverse impacts on housing for SEPA purposes and we believe that a full environmental review, and not a DNS is appropriate.

Kirkland's Comprehensive Plan Contains Goals To Increase Housing For Projected Population Increases And Goals To Increase Housing Opportunities for Low- And Moderate-Income Households.

Comprehensive Plan Policy H-2.1 is designed to strive to meet the targets established and defined in the Countywide policies for low-and moderate-income housing as a percentage of projected net household growth. The Countywide plan targets for Kirkland include 17% of growth in new households affordable to moderate-income households and 24% of growth in new households affordable to low-income households.[20] However, the plan notes that "these targets have proven to be a challenge to meet. . . [w]hile market conditions and existing plans have been fairly successful in providing rental housing for moderate-income households, low-income households have not been well served by either rental or homeownership markets."[21]

The Comprehensive Plan and the Development Regulations offer no concrete remedies to meet the needs of all low- and moderate-income households of its current residents and offers no strategies that appear to add housing to make room for the projected new low- and moderate-income residents. Because the proposed development reduces housing for low- and moderate-income households and reduces the homeownership opportunities for these groups, and the Comprehensive Plan and the Development Regulations do not provide a plan to meet the needs of Kirkland's low- and moderate income residents, the proposed development is inconsistent with the City's stated goals, further illustrating why the development's adverse housing impacts are significant for purposes of the SEPA analysis and warrants a full environmental review instead of a DNS.

In addition to providing housing to meet the needs of its low- and moderate-income households, as a part of its Housing Element, Kirkland enacted policy H-2.5 to ensure that affordable housing opportunities are not concentrated, but rather are dispersed throughout the City.[22] The policy recognizes that the bulk Kirkland's affordable housing is located in multi-family developments, thereby limiting housing choice of Kirkland's low- and moderate-income families. The policy calls for housing affordable to low- and moderate-income households to be dispersed throughout the community and integrated into neighborhoods.[23] Firwood Lane is situated in a low-density residential neighborhood, many of the homeowners have resided in the community for over a decade and have raised their families there. The homes are for all intents and purposes the equivalent of single family residences. The

[20] See City of Kirkland Comprehensive Plan, VII-4
[21] See City of Kirkland Comprehensive Plan, VII-5
[22] See City of Kirkland Comprehensive Plan, VII-5
[23] See City of Kirkland Comprehensive Plan, VII-5

residents are well-integrated into the community and they enjoy living in a single family home as opposed to an apartment or other multi-family building. Approving the proposed development will further limit housing choice of Kirkland's low- and moderate-income households and will further limit these populations to multi-family developments, if they are able to remain in the City at all, and the Comprehensive Plan and Development Regulations make no provisions as to how Kirkland will meet its affordable housing goals, these are other reasons the Homeowners believe that the proposed development will likely result in significant adverse impacts and warrants a full environmental review instead of a DNS.

Fair Housing

The Fair Housing Act[24] prohibits discrimination on the basis of race, color, national origin, religion, sex, familial status or handicap in the provision of housing. And, as a recipient of Community Development Block Grant funds, Kirkland is required to affirmatively further fair housing.[25] A lack of affordable housing can be an impediment to fair housing.[26] As discussed above, the proposed development of Firwood Lane Mobile Home Park will displace the residents of 31 manufactured homes, reduce housing available to low- and moderate-income families, and will essentially eliminate the opportunity for low-income families to achieve home ownership within the City of Kirkland. The proposed development will disproportionately impact members of protected classes on the basis of race, color, and national origin because compared with the City of Kirkland in general, the residents of Firwood Lane are disproportionately persons of color.[27]

Because the City of Kirkland already has a significant shortage of affordable housing, most of the Firwood Lane homeowners are unlikely to locate affordable housing within the City of Kirkland and will be forced to relocate not only outside of the City of Kirkland, but also to historically disadvantaged areas and lower opportunity areas. Neither the development proposal, nor the City of Kirkland in its Development Regulations or Comprehensive Plan provide for any alternate affordable housing within the City limits to prevent displacement of these residents from the City. The proposed development will reduce the amount of housing affordable to low- and moderate-income households, thereby likely creating or worsening an impediment to fair housing, and appears to be inconsistent with the goals of affirmatively furthering fair housing.

Because the proposed development requires closure of Firwood Lane Mobile Home Park and displacement of all of the Firwood Lane Homeowners, we believe the proposed development would likely result in significant adverse environmental impacts (housing), and because the City of Kirkland has made no concrete plans on how to address the loss of affordable housing (neither Kirkland's development regulations nor Comprehensive Plan address the issue) and reductions in the diversity of its residents, a Determination of Non-significance is not

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[24] See 42 USC §3601

[25] See City of Kirkland City Council Resolution R-5071, see also 42 USC §3608, see also, Affirmatively Furthering Fair Housing; Final Rule, 80 Fed. Reg. 136, 42272 (July 15, 2015) (to be codified at 24 CFR pt. 5, 91, 92).

[26] See Fair Housing Equity Assessment for the Central Puget Sound Region, Section II, p. 51, April 20, 2015; see also Washington State Analysis of Impediments to Fair Housing Choice, p. 50, 2015

[27] As discussed above, in footnote 1, more than 50% of Firwood Lane's resident are persons of color, significantly more that the population of the City of Kirkland as a whole.

appropriate in this case. The Firwood Lane Homeowners respectfully request that Kirkland find that the environmental impacts associated with this application are significant and likely to occur.

Thank you for taking the time to review these comments. I look forward to your response. My email address is allysono@nwjustice.org and my mailing address is at the top of this letter.

Kind regards,

Allyson O'Malley-Jones
Attorney

Tony Leavitt

From: Karen Walter <KWalter@muckleshoot.nsn.us>
Sent: Thursday, September 10, 2015 11:40 AM
To: Tony Leavitt
Subject: RE: Notice of Application - Firwood Lane LID Subdivision SUB15-01332 & SAR15-01336

Tony,

Thank you for sending us the site plan and sensitive areas study for the proposed Firwood Lane project referenced above. We have reviewed this information and the NOA materials and offer the following questions and initial comments:

1. More information is needed regarding the extent of invasive plant species on this site that will be removed as part of the proposed buffer enhancement. The Sensitive Areas Study notes species such as knotweed and Himalayan blackberry but there are no details. Please note both of these species are extremely difficult to eradicate and may require more than the proposed 5 year maintenance and monitoring mitigation effort.

2. The site plan shows an existing rockery along portions of both sides of the stream on the project site. What is the purpose of this rockery? Can it be removed and replaced with bioengineering methods to better support salmon habitat?

3. With respect to the LID provisions being applies to this project, what specific elements are proposed? From the information we reviewed, it appears the lots sizes were reduced by some amount (however an additional lot was added). There is a note about open space being added but it is not clear what this is referring to as the areas adjacent to the reduced stream buffer should be the required setback and not necessarily open space, particularly with infiltration trenches to be located in these areas. Please clarify.

4. Is the project proposing a treatment and detention pond for the interior road network (Sheet 2 suggests this)? If so, will this pond be discharging to the Juanita Creek tributary? A stormwater discharge to the stream will have its own impacts that will require mitigation as this is a fish-bearing water.

We appreciate the opportunity to review this Notice of Application and look forward to Kirkland's responses. We may have further comments subsequently.

Thank you,
Karen Walter
Watersheds and Land Use Team Leader

Muckleshoot Indian Tribe Fisheries Division
Habitat Program
39015 172nd Ave SE
Auburn, WA 98092
253-876-3116

From: Tony Leavitt [mailto:TLeavitt@kirklandwa.gov]
Sent: Wednesday, September 09, 2015 10:45 AM
To: Karen Walter
Subject: RE: Notice of Application - Firwood Lane LID Subdivision SUB15-01332 & SAR15-01336

Karen,
Attached is additional information for your review including prelimary engineering plans and the buffer enhancement plan. Let me know if you need anything else.

Tony Leavitt, Senior Planner
City of Kirkland Planning and Building Department
123 5th Avenue; Kirkland, WA 98033

CITY OF KIRKLAND
Planning and Building Department
123 Fifth Avenue, Kirkland, WA 98033
www.kirklandwa.gov ~ 425.587.3225

DETERMINATION OF NON-SIGNIFICANCE (DNS)

Case No.: SEP15-01333 **DATE ISSUED:** DECEMBER 3, 2015

Project Name: FIRWOOD LANE PRELIMINARY SUBDIVISION

Project Location: 12342 93RD LANE NE

Project Description: Preliminary subdivision to subdivide an existing parcel (totaling 3.4 acres) into 19 separate lots in RS 8.5 and 7.2 zones. Access to the lots will be provided via a new access road off of NE 124th Street. The project also involves 1) a stream buffer modification through enhancement and 2) the utilization of the Low Impact Development Zoning Code provisions to reduce the minimum lot size and increase the allowed density by 1 lot in exchange for increased open space on the site.

Proponent: Moira Haughian of the The Blueline Group

Project Planner: Tony Leavitt, Senior Planner

Lead agency is the City of Kirkland

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21.030 (2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public upon request.

This DNS is issued after using the Optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

Responsible official: December 3, 2016

Eric R. Shields, AICP, Planning Director Date
City of Kirkland
Planning & Building Department
123 Fifth Avenue, Kirkland, WA 98033 - (425) 587-3225

You may appeal this determination to the Planning & Building Department at City of Kirkland, 123 Fifth Avenue, Kirkland, WA 98033 no later than 5:00 PM on December 17, 2015 (date, 14 days from date issued) by a Written Notice of Appeal. You should be prepared to make specific factual objections and reference case number SEP15-01333. Contact Tony Leavitt, project planner in the Planning & Building Department at (425) 587-3253 to ask about the procedures for SEPA appeals. See also KMC 24.02.230 Administrative Appeals.

Publish in The Seattle Times on: December 8, 2015

Distribute this notice with a copy of the Environmental Checklist to:

GENERAL NOTICING Department of Ecology - Environmental Review

- Muckleshoot Tribal Council - Environmental Division, Tribal Archeologist
- Muckleshoot Tribal Council - Environmental Division, Fisheries Division Habitat
- Cascade Water Alliance – Director of Planning
- Juanita Neighborhood Association
- Lake Washington School District No. 414: Budget Manager and Director of Support Services

AGENCIES WITH JURISDICTION, AFFECTED AGENCIES, AND/OR INTERESTED PARTIES

- Eastside Audubon Society
- Northshore Utility District - Operations Department, Engineering Director, and Senior Civil Engineer
- Parties of Record

cc: Applicant
Planning Department File, Case No. SUB15-01332

Distributed by: _____ _____

(Angela Martin, Office Specialist) Date

CITY OF KIRKLAND
Planning and Community Development Department
123 Fifth Avenue, Kirkland, WA 98033
425.587.3225 - www.kirklandwa.gov

MEMORANDUM

To: Eric R. Shields, AICP, SEPA Responsible Official

From: Tony Leavitt, Senior Planner

Date: November 17, 2015

File: SEP15-01333, SUB15-01332

Subject: **ENVIRONMENTAL DETERMINATION FOR FIRWOOD LANE PRELIMINARY SUBDIVISION**

PROPOSAL

Moira Haughian of the The Blueline Group, the applicant representing Firwood Lane LP, is requesting approval of a preliminary subdivision to subdivide an existing parcel (totaling 3.4 acres) into 19 separate lots in RS 8.5 and 7.2 zones (see Enclosure 1 and 2). Access to the lots will be provided via a new access road off of NE 124th Street. The project also involves 1) a stream buffer modification through enhancement and 2) the utilization of the Low Impact Development Zoning Code provisions to reduce the minimum lot size and increase the allowed density by 1 lot in exchange for increased open space on the site.

ANALYSIS

The SEPA "threshold determination" is the formal decision as to whether the proposal is likely to cause a significant adverse environmental impact for which mitigation cannot be identified. If it is determined that a proposal may have a significant adverse impact that cannot be mitigated, an Environmental Impact Statement (EIS) would be required.

Many environmental impacts are mitigated by City codes and development regulations. For example, the Kirkland Zoning Code has regulations that protect sensitive areas, limit noise, provide setbacks, establish height limits, etc. Where City regulations have been adopted to address an environmental impact, it is presumed that such regulations are adequate to achieve sufficient mitigation [WAC 197-11-660(1)(e) and (g)].

I have had an opportunity to visit the subject property and review the following documents:

- Environmental Checklist dated June 23, 2015 (see Enclosure 3)
- Traffic Impact Analysis Review Memo from Thang Nguyen dated November 17, 2015 (see Enclosure 4)

Based on a review of these materials, the main environmental issue related to the project is potential traffic impacts.

Additionally, during the initial comment period for the SEPA determination and zoning permit application, Staff received a public comment letter from Allyson O'Malley Jones of Northwest Justice Project representing the Firwood Lane Mobile Home Park Homeowner's Association (see Enclosure 5). The letter expresses concerns about the loss of affordable housing with the redevelopment of the site and requests that the City issue a SEPA Determination of Significance. Staff addresses the issues raised in the letter below.

TRAFFIC IMPACTS

The Public Works Department has reviewed the Traffic Studies for the proposed development (see Enclosure 4) and concluded that the project will not have a significant adverse traffic impact on existing facilities. The project will be required to pay traffic impact fees as outlined in the memo.

AFFORDABLE HOUSING IMPACTS

In the comment letter, Ms. O'Malley Jones raises numerous issues related to the redevelopment of the site. Below is summary of the issues raised in the letter followed by a Staff response.

Comment: SEPA requires consideration of housing and the proposal will cause a significant adverse impact on affordable housing and no mitigation is identified. The proposal will adversely impact affordable housing and reduce the diversity of the City.

Staff Response: While housing is a SEPA element of the environment, it does not require the consideration of socioeconomic factors in determining impacts (as outlined in WAC 197.11.448). The project will result in a net decrease of 12 units, which is not a significant impact. The applicant's legal representative submitted a letter (see Enclosure 6) that also cites a Washington State Supreme Court Decision that found that placing relocation requirements on a mobile home park owner was unconstitutional and that the general unavailability of low income housing is not the burden of an individual property owner.

Comment: Approval of the project would be contrary to the goals of the City's Comprehensive Plan. The Comprehensive Plan includes goals for increasing housing for low and moderate income persons.

Staff Response: The City's Comprehensive Plan includes adopted goals and policies that recognize the importance, needs for and strategies for providing affordable housing. The Housing Section includes a goal which endeavors to promote the creation of affordable housing and provide for a range of housing types and opportunities to meet the needs of all segments of the population. To meet this goal, the City has adopted zoning regulations that require affordable housing units in commercial, high density residential, medium density

zones and continued support of regional efforts to retain affordable housing. The regulations do not require the replacement of affordable housing that is removed.

Comment: Insufficient land is identified for manufactured housing.

Staff Response: The City's Zoning Code, and State Law, requires that manufactured housing units be treated the same as single family residential units with respect to land use regulations. The City's most recent land capacity data identifies the potential for 2,193 units in single family zones and will be able to accommodate manufactured housing.

CONCLUSION

Based on my review of the submitted information, I have not identified any significant adverse environmental impacts. Therefore, I recommend that a Determination of Non-Significance be issued for this proposed action.

SEPA ENCLOSURES

1. Vicinity Map
2. Site Plan
3. Environmental Checklist
4. Traffic Impact Analysis Review Memo prepared by Thang Nguyen
5. Northwest Justice Project Comment Letter dated September 11, 2015
6. Comment Letter from Vicki Orrico dated October 20, 2015

Review by Responsible Official:

_____x_____ I concur _____ I do not concur

Comments:_____

_____

_____

December 3, 2016

_____

Eric R. Shields, Planning Director Date

Wetland Resources, Inc.
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
9505 19th Avenue S.E.
Suite 106
Everett, Washington 98208
(425) 337-3174
Fax (425) 337-3045

SENSITIVE AREA STUDY
AND
BUFFER ENHANCEMENT PLAN

PSW SEATTLE – FIRWOOD LANE
KIRKLAND, WA

Wetland Resources, Inc. Project #15057

Prepared By
Wetland Resources, Inc.
9505 19th Avenue SE, Suite 106
Everett, WA 98208
(425) 337-3174

Prepared For
PSW Seattle LLC
Attn: Ben Rutkowski
218 Main Street
Kirkland, WA 98033

June 10, 2015

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BOND QUANTITY WORKSHEET

EXISTING CONDITIONS MAP (SHEET 1/1)

SENSITIVE AREA STUDY AND BUFFER ENHANCEMENT PLAN MAP (SHEET 2/2)

LISIT OF FIGURES

FIGURE 1: AERIAL VIEW OF THE SUBJECT PROPERTY. 1

1.0 INTRODUCTION

Wetland Resources, Inc. (WRI) completed a site investigation on November 14, 2013 to locate jurisdictional wetlands and streams on and in the vicinity of King County Parcel # 9194100015. The subject property is located at 12342 94th Avenue NE in the City of Kirkland, Washington. The site is further located in Section 30, Township 26N, Range 05E, W.M.

The subject property is currently a mobile home park with multiple residences, access road, and children's play area. While the majority of the site is impervious surface, the eastern and western boundaries are vegetated by red alder (*Alnus rubra*), Sitka spruce (*Picea sitchensis*), willows (*Salix* spp.), and red-stem dogwood (*Cornus sericea*). Developed single-family residential lots surround the property. An undeveloped forested parcel/corridor is also located to the west. Along the east and west property lines are vegetated with native trees and shrubs, herbaceous vegetation, and ornamental plants. The topography of the subject property slopes slightly to the south. The subject site is located within the Juanita Creek Basin, which is a Primary Basin per the City of Kirkland Sensitive Areas Map.

No wetlands were found on the subject site. Two Class A streams are present on the subject site. Pursuant to Kirkland Zoning Code 90.90.1, Class A streams within primary basins receive 75-foot buffers.

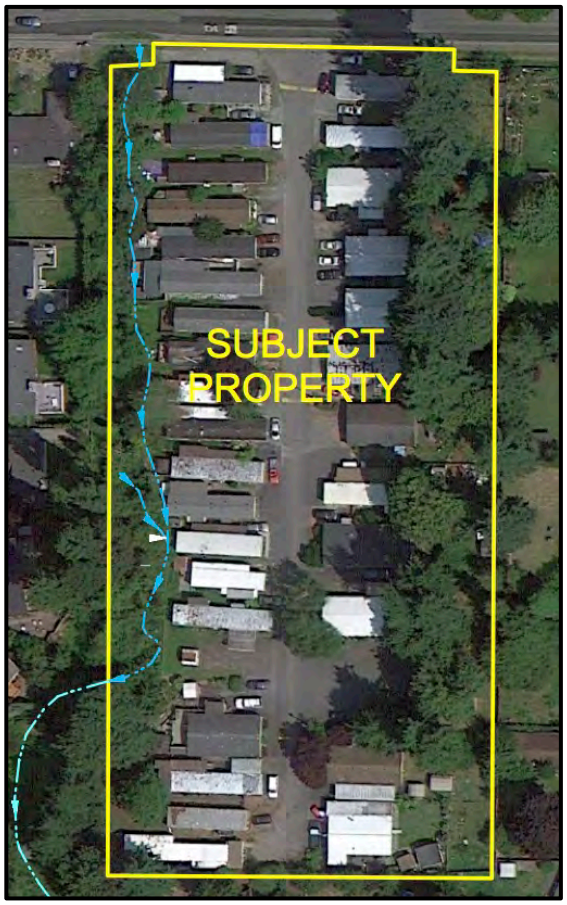


Figure 1: Aerial view of the subject property.

1.1 Project Description

The applicant is proposing a Low Impact Development subdivision containing 19 lots, an access road, and associated infrastructure. All existing mobile homes and the current access road will be removed from the site. As part of the development plan, the applicant is proposing to reduce the stream buffer as described in Kirkland Zoning Code (KZC) 90.100. This will reduce the buffer from 75 feet to 50 feet at the narrowest point. As part of the buffer reduction, invasive species, such as knotweed and Himalayan blackberry, will be removed and native plants will be installed across the buffer area.

There is an existing sewer line located within the buffer of Stream A in the southwest area of the site. The proposed development will connect to the existing sewer line outside of the stream buffer.

The streams and associated buffers will be placed in a Native Growth Protection Easement. The proposed plan provides the required 10-foot building setback from the perimeter of the reduced buffer.

1.2 Critical Areas Classification

1.2.1 Cowardin System Classification

According to the Cowardin System, as described in Classification of Wetlands and Deepwater Habitats of the United States, the classification for the on-site critical areas are as follows:

Stream A: Riverine, Lower Perennial, Unconsolidated, Cobble-Gravel.

Stream B: Riverine, Intermittent, Streambed, Cobble-Gravel.

1.2.2 City of Kirkland Classifications

Under the city of Kirkland Zoning Code (KZC), Chapter 90, the on-site critical areas are classified as follows:

Stream A
Class A Stream: This Stream is perennial, has documented salmonid presence, is unimpeded by fish barriers, and connects to Juanita Creek. The stream is therefore classified as Class A. Pursuant to KZC 90.90(1), Class A streams require 75-foot buffers.

Stream B
Class A Stream: This Stream is Intermittent, is unimpeded by fish barriers, and is hydrologically connected to Juanita Creek via Stream A. The stream is therefore classified as Class A. Pursuant to KZC 90.90(1), Class A streams require 75-foot buffers.

2.0 CRITICAL AREAS DETERMINATION REPORT

2.1 PUBLICALLY AVAILABLE DATA

Prior to conducting the site investigation, public resource information was reviewed to gather background information on the subject property and the surrounding area in regards to wetlands, streams, and other critical areas. These sources included the following:

USDA/NRCS Web Soil Survey
One soil map unit is predicted to occur on the subject parcel. Kitsap Silt Loam, 2 to 8 percent slopes is mapped throughout the site area. A more detailed soil map unit description is provided in the "2.2 Field Determination Methodology" section below.

USFWS National Wetlands Inventory (NWI)
No wetlands were identified in the immediate vicinity of the subject property. The nearest occurrence is Lake Washington, approximately 0.4 miles south.

King County iMap interactive mapping tool
No steep slopes with a gradient greater than 33% or other critical areas, such as streams or other water bodies, were identified on-site.

DNR ARCIMS Mapping Application for streams
One fish-bearing stream appears to be identified along the western portion of the subject site.

WDFW Priority Habitat and Species (PHS) Interactive Map
Identifies Juanita Creek over 900 feet southeast of the subject site. This stream is documented as providing habitat for Coho, Chinook, coastal cutthroat trout, sockeye, and steelhead.

WDFW Salmonscape Interactive Mapping System
Confirms the presence of the stream on the western boundary of the subject site, as well as Juanita Creek. Salmonid species using the stream identified on-site include Chinook, steelhead, Coho, and sockeye. It should be noted that all fish presence was modeled for this stream; not observed. These salmonid species have been observed in Juanita Creek.

StreamNet Mapper
Confirms the presence of Juanita Creek identified by the DNR ARCIMS, WDFW PHS, and Salmonscape mapping systems.

City of Kirkland Sensitive Areas Map
Confirms both Juanita Creek and the on-site stream, and that Juanita Creek has salmonid presence.

2.2 FIELD DETERMINATION METHODOLOGY

Wetland Resources' staff conducted a site visit on November 14, 2013 to locate wetlands and streams occurring within and near the project site. Wetland conditions were evaluated using routine methodology described in the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, (referred as 2010 Regional Supplement). The *Washington State Wetlands Identification and Delineation Manual* (Washington State Department of Ecology Publication #96-94, March 1997, or as amended) uses similar criteria for wetland delineation. Our findings are consistent with both manuals.

The following criteria descriptions were used in the boundary determination:

1.) Examination of the site for hydrophytic vegetation (species present and percent cover);

2.) Examination of the site for hydric soils;

3.) Determining the presence of wetland hydrology

The Ordinary High Water Mark (OHWM) of any on-site streams, when present, are identified using the methodology described in the Washington State Department of Ecology document *Determining the Ordinary High Water Mark on Streams in Washington State (Second Review Draft)* (Olson and Stockdale 2010). Streams are classified according to the water typing system provided in the Washington Administrative Code (WAC), section 222-16-030 and SCC 30.62A.230(1).

2.2.1 Hydrophytic Vegetation Criteria

The manuals define hydrophytic vegetation as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present. One of the most common indicators for hydrophytic vegetation is when more than 50 percent of a plant community consists of species rated "Facultative" and wetter on lists of plant species that occur in wetlands.

2.2.2 Soils Criteria and Mapped Description

The manuals define hydric soils as those that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Field indicators are used for determining whether a given soil meets the definition for hydric soils.

According to NRCS Web Soil Survey, the soil map unit Kitsap Silt Loam, 2 to 8 percent slopes, is predicted to occur on the subject property.

Kitsap silt loam, 2 to 8 percent slopes, is described as an undulating soil on low terraces of the major valleys of the area. The A horizon ranges from very dark brown to dark brown. The B horizon ranges from dark yellowish brown to dark brown and from silt loam to silty clay loam. Some areas are up to 10 percent included Alderwood gravelly sandy loam; some are up to 5 percent the very deep, sandy Indianola soils, and some are up to 5 percent the poorly drained Bellingham, Tukwila, and Seattle soils. Water flows on top of the substratum in winter.

Permeability is moderate above the substratum and very slow within it. Available water capacity is moderate to moderately high.

2.2.3 Hydrology Criteria

The Washington State Wetlands Identification and Delineation Manual, 1997 edition, states that "areas which are seasonally inundated and/or saturated to the surface for a consecutive number of days ≥12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met. Areas inundated or saturated between 5 and 12.5 percent of the growing season in most years may or may not be wetlands. Areas saturated to the surface for less than 5 percent of the growing season are non-wetlands." Field indicators are used for determining whether wetland hydrology parameters are met.

Based on the results of the site investigation, no wetlands were identified on the subject property.

2.3 Boundary Determination Findings

2.3.1 On-site Streams

Stream A enters the site from the north, flows from north to south along the west edge of the property and continues off-site to the southwest. It then appears to flow southeast and joins Juanita Creek after moving through a culvert/pipe.

Stream B is a tributary of Stream A. Stream B enters the site from a pipe on the west property boundary, flows southeast and joins Stream A. The pipe Stream B flows out of is most likely part of the stormwater system for the adjacent residential development.

2.3.2 Non-wetland Areas

The top six inches of the soil profile typically has a Munsell color of dark grayish brown (10YR 4/2). Beginning at inches below the surface, the soil typically has a color of very dark grayish brown (10YR 3/2). The entire profile has a silt loam texture and no redoximorphic features were observed. These soils do not meet any hydric indicators.

2.3.3 Wildlife

The on-site stream segments provide low to moderate habitat functions. The streams and their associated edges provide a potential movement corridor, which are extremely important as areas become more populated. The critical areas and the associated buffers contain resources such as food, water, thermal cover, and hiding cover in close proximity. However, these associated buffer areas have been largely developed, so the provided habitat area is greatly reduced. No mammalian species were detected during the on-site investigations, although several species, including gray squirrels (*Sciurus* spp) and raccoon (*Procyon lotor*), are expected to occur within the area. Avian activity was not strongly detected. However, given the habitat available, it is expected that the following avian species use the area: American Crow (*Corvus brachyrhynchos),* Steller's Jay (*Cyanocitta stelleri*), Ruby-crowned Kinglet (*Regulus calendula*), Golden-crowned Kiglet (Regulus satrapa), Black-capped Chickadee (*Poecile atricapilla)*, Dark-eyed Junco (*Junco hyemalis*), and Song Sparrow (*Melospiza melodia*). The stream channels provide habitat for several salmonid species including steelhead, Coho, Chinook, and sockeye.

3.0 STREAM BUFFER FUNCTIONS AND VALUES ASSESSMENT

3.1 EXISTING STREAM BUFFER FUNCTIONS AND VALUES

The current condition of the on-site buffer area associated with Stream A is primarily developed as impervious surface (mobile homes) and associated lawn/yard areas. The existing vegetation along the steam channel provides minimal habitat functions. These functions and values provided by the current buffer are significantly less than those provided by undisturbed buffer areas.

Water Quality
Vegetated stream buffers obstruct water flow, thereby decreasing water velocity, allowing infiltration into the soil, and reducing soil erosion potential. The buffer area east of Stream A on-site is primarily mobile homes and lawn/yard areas. The lawn allows for some surface water filtration. The on-site buffers do provide somewhat of a water quality benefit, but the benefit is limited by the degraded and altered conditions.

Hydrologic functions
Stream buffers help to moderate water level fluctuations. Buffer vegetation impedes the flow of runoff, increases the humus content of soil (greater adsorption capacity), and preserves soil composition as intense rainfall hits the ground. Buffers within the subject property do perform this function at a low level, limited by the lack of dense vegetation and amount of impervious surface present.

Wildlife Habitat
Many birds, mammals, and amphibians use atream buffers for some part of their life needs. Their use of these sites is dependent on the valuable edge habitat found at the wetland/upland border. The existing vegetation along the stream channel provides some habitat function, but at a minimal level.

3.2 POST ENHANCEMENT FUNCTIONS AND VALUES

As part of a buffer reduction plan, the applicant is proposing to enhance the on-site buffer area east of Stream A. Buffer enhancement will include removal of all structures and non-native invasive plants, as well as installation of native plantings across enhancement area. The proposed buffer enhancement will provide a denser, more diverse native vegetation community. The increased vegetation density will provide screening between residences and the associated sensitive areas. Increased diversity of native plant species will provide a greater array of resources for native wildlife, and the increased density will create more opportunities for refuge. In addition to increased habitat quality for wildlife species, the increase in persistent woody stems will reduce surface stormwater flow; decreasing flood flow and improving water quality through reduction of sediment.

The primary functional lift that will be provided by enhancement is the protective ability of the buffer; maintaining and stabilizing the on-site stream corridor. Additional vegetation adjacent to the stream will provide added cover and assist in reducing water temperature. In conclusion, the

buffer enhancement is anticipated to significantly increase the level of functions and values currently being provided by the on-site buffer area associated with Stream A.

4.0 BUFFER REDUCTION AND ENHANCEMENT

4.1 KIRKLAND ZONING CODE BUFFER MODIFICATION REQUIREMENTS

KZC 90.100(2) enumerates a list of requirements associated with buffer reduction. Portions of the city of Kirkland code are in italics below, with responses provided in normal text underneath:

An improvement or land surface modification shall be approved in a wetland buffer only if:

a. It is consistent with Kirkland's Streams, Wetlands and Wildlife Study (The Watershed Company, 1998) and the Kirkland Sensitive Areas Regulatory Recommendations Report (Adolfson Associates, Inc., 1998);

The objective of Kirkland's Streams, Wetlands and Wildlife Study is to "provide the foundation for development of policies, regulations and incentives that will maintain, and to the degree possible, improve the quality of Kirkland's streams, wetlands and natural areas." This study provides a list of opportunities for enhancement and restoration of critical areas within the Juanita Creek Basin. The majority of these opportunities are outside of the scope for this project, given that they concern wetlands specifically. However, the primary ecological functional recommendation for stream buffers is enhancement to provide cover for wildlife movements. The area of standard stream buffer that is proposed for reduction is currently occupied by impervious surfaces and yards, which provide essentially no protection of the stream. Considering that the proposed buffer enhancement is expected to reduce food flows, improve water quality, and contribute to wildlife habitat, the proposed buffer enhancement plan is consistent with this study.

The Kirkland Sensitive Areas Regulatory Recommendations Report outlines recommendations for buffer width reductions. This report recommends that stream buffer modification only be allowed if buffer "averaging" or buffer enhancement is proposed. Additionally, this report recommends that buffers associated with Class A streams, which are only within a primary basin, should be limited to a 25-foot reduction. This recommendation is consistent with the maximum one-third reduction required by KZC 90.100(1). Therefore, as this project complies with the KZC, the proposed buffer enhancement plan is consistent with this report.

2) It will not adversely affect water quality;

Reducing the amount of impervious surface within the buffer area will allow for greater infiltration of stormwater on-site. Increased vegetation with persistent stems is also expected to reduce surface water velocity, causing sediment to settle out of the water column. Therefore, water quality is expected to increase.

3) It will not adversely affect fish, wildlife, or their habitat;

The on-site streams are completely surrounded by residential development. The buffer enhancement planting (described below) will increase the diversity of native plant species within

the buffer. Increased diversity of native plant species is expected to provide more habitat opportunities for terrestrial wildlife. Additional vegetation adjacent to the stream will provide added cover and assist in reducing water temperature. These benefits are anticipated to increase the quality of fish habitat within the stream.

4) It will not have an adverse effect on drainage and/or storm water detention capabilities;

The area of buffer being reduced does not currently provide any significant drainage and/or stormwater capabilities. Therefore, the proposed buffer reduction will not adversely affect these capabilities.

5) It will not lead to unstable earth conditions or create an erosion hazard;

The enhancement area will be planted with native trees and shrubs, and a significant portion will be covered in a layer of woodchips. Therefore, unstable earth conditions or erosion hazards are not anticipated as a result of this project.

6) It will not be materially detrimental to any other property or the City as a whole;

The area of buffer that will be reduced is primarily impervious surface (mobile homes) and maintained lawn/yard area. Reducing this area of the buffer in order to construct single-family residences, while subsequently enhancing the ecologic functions of the remaining buffer area, is expected to be materially beneficial to the surrounding area.

7) Fill material does not contain organic or inorganic material that would be detrimental to water quality or to fish, wildlife, or their habitat;

No fill material will be placed in the stream channels or buffer areas as part of the proposed project.

8) All exposed areas are stabilized with vegetation normally associated with native wetland buffers, as appropriate; and

All exposed areas will be stabilized with native trees or shrubs, and any remaining bare earth will be mulched to avoid erosion.

9) There is no practicable or feasible alternative development proposal that results in less impact to the buffer.

The proposed development will observe a minimum stream buffer of 50 feet, as well as a 10-foot building set back from the buffer. The mobile homes currently present on-site are located between 21 and 36 feet from Stream A. Therefore, the proposed development and buffer enhancement will actually reduce the amount of stream buffer impacted by residential development.

4.2 BUFFER ENHANCEMENT

To comply with the provisions in KZC 90.100.1b, all invasive species within the reduced buffer area will be removed before native plants are installed. Existing native vegetation will remain and additional native plants will be installed across the entire buffer area. In addition to native plantings, all existing structures, fences, and debris currently located within the wetland buffer area will be removed. All trees will be planted at least 10 feet west of the buffer edge, in an effort to avoid the need for removal due to potential damage to persons or property as they mature.

4.2.1 Planting Plan

Buffer Enhancement Planting Plan (Approximately 29,800 square feet)

Common Name	Latin Name	Size	Spacing	Quantity
Douglas fir	*Pseudotsuga menziesii*	1 gallon	10'	65
Big leaf maple	*Acer macrophyllum*	1 gallon	10'	65
Western red Cedar	*Thuja plicata*	1 gallon	10'	65
Cascara	*Rhamnus purshiana*	1 gallon	10'	65
Serviceberry	*Amelanchier alnifolia*	1 gallon	5'	133
Red osier dogwood	*Cornus sericea*	1 gallon	5'	133
Nootka rose	*Rosa nutkana*	1 gallon	5'	133
Red elderberry	*Sambucus racemosa*	1 gallon	5'	133
Salmonberry	*Rubus spectabilis*	1 gallon	5'	133
Snowberry	*Symphoricarpos albus*	1 gallon	5'	133
Sword fern	*Polystichum munitum*	1 gallon	5'	133

Grass Seeding

If any bare soil is present after enhancement plantings are installed, all areas of bare soil shall be seeded to the recommended grass seed mixture below, or similar approved mixture. This overseeding is to be used as an erosion control measure for exposed soil. It is not necessary to overseed the entire mitigation planting area. Any change in species or concentration shall be approved by a city biologist. Fertilizer shall only be used if absolutely necessary due to potential runoff into adjacent waters. If deemed absolutely necessary by the consulting biologist and/or the city biologist an appropriate fertilizer will be recommended for the particular situation.

Buffer Seed Mix

Common Name	Latin Name	lbs/1,000 s.f.
Tall fescue	*Festuca arundinacea*	0.4
Colonial bentgrass	*Agrostis tenuis*	0.4
Annual ryegrass	*Lolium multiflorum*	0.5

4.2.2 Large Woody Debris

In addition to the enhancement plantings, at least two pieces of woody debris will be added to the buffer area. If possible, material removed from the site for development will be salvaged for use as woody debris within the buffer enhancement area. Minimum size of the woody debris will be 10-inch diameter and 15 feet in length, or 10-foot diameter root-wads.

5.0 Project Notes

Pre-construction Meeting
Mitigation projects are typically more complex to install than to describe in plans. Careful monitoring by a wetland professional for all portions of this project is strongly recommended. Construction timing and sequencing is important to the success of this type of project. There will be a pre-construction meeting on this site between the Permittee, the consulting wetland professional, and laborers. The objective will be to verify the location of erosion control facilities, verify the location of mitigation areas, and to discuss project sequencing.

Inspections
A wetland professional shall be contracted to periodically inspect the mitigation installation described in this plan. Minor adjustments to the original design may be necessary prior to and during construction due to unusual or hidden site conditions. A City of Kirkland representative and/or the consulting professional will make these decisions during construction.

6.0 Planting Notes

Plant in the early spring or late fall and obtain all plants from a reputable nursery. Care and handling of all plant materials is extremely important to the overall success of the project. The origin of all plant materials specified in this plan shall be native plants, nursery grown in the Puget Sound region of Washington. Some limited species substitution may be allowed, only with the agreement of the landscape designer, wetland biologist, and/or City staff.

Pre-Planting Meeting
Prior to control of invasive species or installation of mitigation plantings, a site meeting between the contracted landscaper and the consulting wetland professional shall occur to resolve any questions that may arise. During this meeting a discussion regarding plant spacing and locations of plant species including wetland verses buffer species shall occur between the landscape contractor and the consulting wetland professional.

Compost/Cultivation
During the pre-planting meeting, the condition of the soils in the enhancement area will be evaluated. If soils appear extremely compacted or of poor quality, a plan for cultivating and/or adding compost will be created. If compost is deemed necessary, all areas denuded of vegetation and soil surface surrounding all planting pit areas shall receive no less than 2 inches of organic compost after planting. Compost shall be kept well away (at least 2 inches) from the trunks and stems of woody plants.

Handling
Plants shall be handled so as to avoid all damage, including: breaking, bruising, root damage, sunburn, drying, freezing or other injury. Plants must be covered during transport. Plants shall not be bound with wire or rope in a manner that could damage branches. Protect plant roots

with shade and wet soil in the time period between delivery and installation. Do not lift container stock by trunks, stems, or tops. Do not remove from containers until ready to plant. Water all plants as necessary to keep moisture levels appropriate to the species horticultural requirements. Plants shall not be allowed to dry out. All plants shall be watered thoroughly immediately upon installation. Soak all containerized plants thoroughly prior to installation. Plants whose roots have dried out from exposure will not be accepted at installation inspection.

Storage
Plants stored by the Permittee for longer than one month prior to planting shall be planted in nursery rows and treated in a manner suitable to those species' horticultural requirements. Plants must be re-inspected by the wetland biologist and/or landscape designer prior to installation.

Damaged plants
Damaged, dried out, or otherwise mishandled plants will be rejected at installation inspection. All rejected plants shall be immediately removed from the site.

Plant Names
Plant names shall comply with those generally accepted in the native plant nursery trade. Any question regarding plant species or variety shall be referred to the landscape designer, wetland professional, or City staff. All plant materials shall be true to species and variety and legibly tagged.

Quality and condition
Plants shall be normal in pattern of growth, healthy, well-branched, vigorous, with well-developed root systems, and free of pests and diseases. Damaged, diseased, pest-infested, scraped, bruised, dried out, burned, broken, or defective plants will be rejected. Plants with pruning wounds over 1" in diameter will be rejected.

Roots
All plants shall be balled and burlapped or containerized, unless explicitly authorized by the landscape designer and/or wetland professional. Rootbound plants or B&B plants with damaged, cracked, or loose rootballs (major damage) will be rejected. Immediately before installation, plants with minor root damage (some broken and / or twisted roots) must be root-pruned. Matted or circling roots of containerized plantings must be pruned or straightened and the sides of the root ball must be roughened from top to bottom to a depth of approximately half an inch in two to four places. Bare root plantings of woody material are allowed only with permission from the landscape designer, wetland professional and/or City staff.

Sizes
Plant sizes shall be the size indicated in the plant schedule in approved plans. Larger stock may be acceptable provided that it has not been cut back to the size specified, and that the root ball is proportionate to the size of the plant. Smaller stock may be acceptable, and preferable under some circumstances, based on site-specific conditions. Measurements, caliper, branching, and balling and burlapping shall conform to the American Standard of Nursery Stock by the American Association of Nurserymen (latest edition).

Form
Evergreen trees shall have single trunks and symmetrical, well-developed form. Deciduous trees shall be single trunked unless specified as multi-stem in the plant schedule. Shrubs shall have multiple stems and be well-branched.

Timing of Planting
Unless otherwise approved by City staff, all planting shall occur between November 1 and March 1. Overall, the earlier plants go into the ground during the dormant period, the more time they have to adapt to the site and extend their root systems before the water demands of spring and summer.

Weeding
Existing and exotic vegetation in the mitigation areas will be hand-weeded from around all newly installed plants at the time of installation and on a routine basis throughout the monitoring period. No chemical control of vegetation on any portion of the site is recommended.

Site conditions
The contractor shall immediately notify the landscape designer and/or wetland professional of drainage or soil conditions likely to be detrimental to the growth or survival of plants. Planting operations shall not be conducted under the following conditions: freezing weather, when the ground is frozen, excessively wet weather, excessively windy weather, or in excessive heat.

Planting Pits
Planting pits shall be circular or square with vertical sides, and shall be 6" deeper and 12" larger in diameter than the root ball of the plant. Break up the sides of the pit in compacted soils. Set plants upright in pits. Burlap shall be removed from the planting pit. Backfill shall be worked back into holes such that air pockets are removed without adversely compacting down soils.

Fertilizer
Slow release fertilizer may be used if pre-approved by Snohomish County. Fertilizers shall be applied only at the base of plantings underneath the required covering of mulch (that does not make contact with stems of the plants). No soil amendment or fertilizers will be placed in planting holes.

Staking
Most shrubs and many trees DO NOT require any staking. If the plant can stand alone without staking in a moderate wind, do not use a stake. If the plant needs support, then strapping or webbing should be used as low as possible on the trunk to loosely brace the tree with two stakes. Do not brace the tree tightly or too high on the trunk. If the tree is unable to sway, it will further lose the ability to support itself. Do not use wire in a rubber hose for strapping as it exerts too much pressure on the bark. As soon as supporting the plant becomes unnecessary, remove the stakes. All stakes must be removed within two (2) years of installation.

Plant Location
Colored surveyors ribbon or other appropriate marking shall be attached to the installed plants to assist in locating the plants while removing the competing non-native vegetation and during the monitoring period.

Arrangement and Spacing
The plants shall be arranged in a pattern with the appropriate numbers, sizes, species, and distribution that are required in accordance with the approved plans. The actual placement of individual plants shall mimic natural, asymmetric vegetation patterns found on similar undisturbed sites in the area. Spacing of the plantings may be adjusted to maintain existing vegetation with the agreement of the landscape designer, wetland biologist, and/or City staff.

Inspection(s)
A wetland biologist shall be present on site to inspect the plants prior to planting. Minor adjustments to the original design may be required prior to and during construction.

Woodchip Mulch
After buffer enhancement plant installation, a 36" circle of no less than 2 to 4 inches of organic/untreated woodchips shall be placed around the base of each plant. Woodchips shall be kept well away (at least 2 inches) from the trunks and stems of woody plants.

7.0 PROJECT MONITORING PROGRAM

Requirements for monitoring project:
1. Initial compliance/as-built report
2. Site inspection (twice per year) for five years
3. Annual reports (one report submitted during each monitored year)

Purpose for Monitoring
The purpose for monitoring this mitigation project shall be to evaluate its success. Success will be determined if monitoring shows at the end of five years that the definitions of success stated below are met. The property owner shall grant access to the mitigation area for inspection and maintenance to the contracted landscape and/or wetland specialist and City of Kirkland during the monitoring period or until the project is evaluated as successful.

Monitoring
Monitoring shall be conducted annually for five years in accordance with the approved Mitigation Plan. The monitoring period will begin once the City receives written notification confirming the mitigation plan has been implemented and City staff inspects the site and issues approval of the installation.

Vegetation Monitoring
Sampling points or transects will be established for vegetation monitoring and photo points will be established from which photos will be taken throughout the monitoring period. Permanent sampling points must be identified on the mitigation site plans in the first monitoring report (they

may be drawn on approved plans by hand). Each sampling point shall detail herbaceous, shrub, and tree coverage. Monitoring of vegetation sampling points shall occur twice per monitored year.

Photo points
No less than three permanent photo points will be established within the mitigation areas. Photographs will be taken from these points to visually record condition of the enhancement area. Photos shall be taken annually between May 15 and September 30 (prior to leaf drop), unless otherwise specified.

Monitoring Report Contents
Monitoring reports shall be submitted by December 31 of each year during the monitoring period. As applicable, monitoring reports must include descriptions / data for:

1. Site plan and vicinity map
2. Historic description of project, including date of installation, current year of monitoring, restatement of mitigation / restoration goals, and performance standards
3. Plant survival, vigor, and areal coverage for every plant community (transect or sampling point data), and explanation of monitoring methodology in the context of assessing performance standards
4. Slope condition, site stability, any structures or special features
5. Stream and buffer conditions, e.g., surrounding land use, use by humans, and/or wild and domestic creatures
6. Observed wildlife, including amphibians, avians, and others
7. Assessment of nuisance / exotic biota and recommendations for management
8. Color photographs taken from permanent photo-points that shall be depicted on the monitoring report map

8.0 Project Success & Compliance

Criteria for Success
Upon completion of the proposed mitigation project, an inspection by a qualified biologist will be made to determine plan compliance. A compliance report will be supplied to the City of Kirkland within 30 days after the completion of planting. A landscape professional or wetland biologist will perform condition monitoring of the plantings annually in the fall. A written report describing the monitoring results will be submitted to the City after each site inspection of each monitored year. Final inspection will occur five years after completion of this project. The contracted consultant will prepare a report as to the success of the project.

Performance Standards
Performance Standard 1: There shall be 100 percent survival of all the plantings after Year 1 or the permittee shall replace the material. At least 80 percent of the plant material installed shall survive in Year 5 after installation.

Performance Standard 2: There shall be at least two native tree and four native shrub species present in enhancement area in Year 5. This includes existing plants and volunteer natives.

Performance Standard 3: There shall be less than 10 percent cover of weedy/invasive cover in the buffer surrounding the planting area for all five years post-installation.

The species mix should resemble that proposed in the planting plans, but strict adherence to obtaining all of the species shall not be a criterion for success.

9.0 MAINTENANCE

The mitigation areas will require periodic maintenance to remove undesirable species and replace vegetation mortality. Maintenance shall occur in accordance with the approved plans. Maintenance may include, but will not be limited to: removal of competing grasses (by hand if necessary), irrigation, fertilization (if necessary), replacement of plant mortality, and the replacement of mulch for each maintenance period. Chemical control, only if approved by City staff, shall be applied by a licensed applicator following all label instructions.

Duration and Extent
In order to achieve performance standards, the permittee shall have the mitigation area maintained for the duration of the five-year monitoring period. Maintenance will include: watering, weeding around the base of installed plants, pruning, replacement, re-staking, removal of all classes of noxious weeds (see Washington State Noxious Weeds List, WAC 16-750-005) as well as Himalayan blackberry, and any other measures needed to ensure plant survival. The landscape designer and/or wetland biologist shall direct all maintenance.

Survival
The permittee shall be responsible for the health of 100% of all newly installed plants for *one growing season* after installation has been accepted by the City of Kirkland. A growing season for these purposes is defined as occurring from spring to spring (March 15 to March 15 of the following year). For fall installation (often required), the growing season will begin the following spring. The permittee shall replace any plants that are: failing, weak, defective in manner of growth, or dead during this growing season, as directed by the landscape designer, wetland biologist, and/or City of Kirkland staff.

Installation Timing for Replacement Plants
Replacement plants shall be installed between September 15 and January 15, unless otherwise determined by the landscape designer, wetland professional, and/or City of Kirkland staff.

Standards for Replacement Plants
Replacement plants shall meet the same standards for size and type as those specified for the original installation, unless otherwise directed by the landscape designer, wetland professional, and/or City of Kirkland staff.

Replanting
Plants that have settled in their planting pits too deep, too shallow, loose, or crooked shall be replanted as directed by the landscape designer, wetland professional, and/or City of Kirkland staff.

Herbicides / Pesticides
Chemical controls shall not be used in the mitigation area, sensitive areas, or their buffers. However, limited use of herbicides may be approved depending on site-specific conditions, only if approved by City of Kirkland staff.

Irrigation / Watering
Water should be provided during the dry season (July 1 through October 15) for the first two years after installation to ensure plant survival and establishment. A temporary above ground irrigation system and/or water truck should provide water. Water should be applied at a rate of 1" of water twice per week for year one and 1" per week during year two.

General
The permittee shall include in general maintenance activities the replacement of any vandalized or damaged signs, habitat features, fences, or other structural components of this mitigation site.

10.0 CONTINGENCY PLAN

If 20% of the plants are severely stressed during any of the inspections, or it appears 20% may not survive, additional plantings of the same species may be added to the planting area. Elements of a contingency plan may include, but will not be limited to: more aggressive weed control, pest control, mulching, replanting with larger plant material, species substitution, fertilization, soil amendments, and/or irrigation.

11.0 USE OF THIS REPORT

This Sensitive Area Study and Buffer Enhancement Plan is supplied to PSW Seattle, LLC as a means of determining on-site critical area conditions as required by the City of Kirkland during the permitting process. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions.

The laws applicable to wetlands are subject to varying interpretations and may be changed at any time by the courts or legislative bodies. This report is intended to provide information deemed relevant in the applicant's attempt to comply with the laws now in effect.

The work for this report has conformed to the standard of care employed by wetland ecologists. No other representation or warranty is made concerning the work or this report, and any implied representation or warranty is disclaimed.

Wetland Resources, Inc.

Meryl Kamowski
Associate Ecologist

12.0 References

City of Kirkland. *Kirkland Zoning Code, Chapter 90*. Kirkland, WA. December 9, 2003.

Cowardin, et al., 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Department of the Interior. FWS/OBS-79/31. December 1979.

Department of Ecology. 1997. *Washington State Wetlands Identification and Delineation Manual*. Publication #96-94. March 1997.

Hruby, T. 2014. *Washington State Wetland Rating System for Western Washington: 2014 Update*. Publication #14-06-029. Olympia, WA. Washington Department of Ecology.

King County. 2014. *iMap Interactive Mapping Tool*. http://gismaps.kingcounty.gov/iMap/.

Lichvar, Tobert W. and J.T. Kartesz, 2012. *National Wetland Plant List, Version 3.0*, (http://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers Engineer Research and Development Center Cold Regions Research and Engineering Laboratory, Hanover NH and BONAP, Chapel Hill, NC.

NRCS. 2014. *Web Soil Survey*. United States Department of Agriculture. http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

StreamNet. 2014. *StreamNet Mapper*. http://www.streamnet.org/data/interactive-maps-and-gis-data/.

Soil Conservation Service. 1973. *Soil Survey of King County Area Washington*. November 1973.

US Army COE. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*. Vicksburg, MS

USFWS. 2014. *National Wetlands Inventory (NWI) Online Mapper*. http://www.fws.gov/wetlands/Data/Mapper.html.

WDFW. 2014a. *Priority Habitat and Species (PHS) Interactive Map*. http://apps.wdfw.wa.gov/phsontheweb/.

WDFW. 2014b. *SalmonScape Online Mapping Application*. http://apps.wdfw.wa.gov/salmonscape/map.html.

King County
Department of Permitting
and Environmental Review
35030 SE Douglas Street, Suite 210
Snoqualmie, WA 98065-9266
206-296-6600 TTY Relay: 711

Critical Areas Mitigation
Bond Quantity Worksheet

C24 Web date: 11/30/2012

For alternate formats, call 206-296-6600.
Print on legal-size (8 1/2 x 14") paper only.

Project Name: PSW - Firwood Lane Date: 6/10/2015 Prepared by: M.Kamowski
Project Number: Project Description: Buffer Enhancement
Location: Kirkland, WA Applicant: PSW Seattle, LLC Phone: (425) 337-3174

PLANT MATERIALS*

Type	Unit Price	Unit	Quantity	Description	Cost
PLANTS: Potted, 4" diameter, medium	$5.00	Each			$ -
PLANTS: Container, 1 gallon, medium soil	$11.50	Each	1191		$ 13,696.50
PLANTS: Container, 2 gallon, medium soil	$20.00	Each			$ -
PLANTS: Container, 5 gallon, medium soil	$36.00	Each			$ -
PLANTS: Seeding, by hand	$0.50	SY			$ -
PLANTS: Slips (willow, red-osier)	$2.00	Each			$ -
PLANTS: Stakes (willow)	$2.00	Each			$ -
PLANTS: Stakes (willow)	$2.00	Each			$ -
PLANTS: Flats/plugs	$2.00	Each			$ -
* All costs include installation				TOTAL	$ 13,696.50

INSTALLATION COSTS (LABOR, EQUIPMENT, & OVERHEAD)

Type	Unit Price	Unit			Cost
Compost, vegetable, delivered and spread	$37.88	CY			$ -
Decompacting till/hardpan, medium, to 6" depth	$1.57	CY			$ -
Decompacting till/hardpan, medium, to 12" depth	$1.57	CY			$ -
Hydroseeding	$0.51	SY			$ -
Labor, general (landscaping)	$40.00	HR			$ -
Labor, general (construction)	$40.00	HR			$ -
Labor: Consultant, supervising	$55.00	HR			$ -
Labor: Consultant, on-site re-design	$95.00	HR			$ -
Rental of decompacting machinery & operator	$70.00	HR			$ -
Sand, coarse builder's, delivered and spread	$42.00	CY			$ -
Staking material (set per tree)	$7.00	Each			$ -
Surveying, line & grade	$250.00	HR			$ -
Surveying, topographical	$250.00	HR			$ -
Watering, 1" of water, 50' soaker hose	$3.62	MSF			$ -
Irrigation - temporary	$3,000.00	Acre			$ -
Irrigation - buried	$4,500.00	Acre			$ -
Tilling topsoil, disk harrow, 20hp tractor, 4"-6" deep	$1.02	SY			$ -
	$25.00	HR			$ -
					$ -
				TOTAL	$ -

HABITAT STRUCTURES*

ITEMS	Unit Cost	Unit			Cost
Fascines (willow)	$ 2.00	Each			$ -
Logs, (cedar), w/ root wads, 16"-24" diam., 30' long	$1,000.00	Each			$ -
Logs (cedar) w/o root wads, 16"-24" diam., 30'	$400.00	Each			$ -
Logs, w/o root wads, 16"-24" diam., 30' long	$245.00	Each			$ -
Logs w/ root wads, 16"-24" diam., 30' long	$460.00	Each			$ -
Rocks, one-man	$60.00	Each			$ -
Rocks, two-man	$120.00	Each			$ -
Root wads	$163.00	Each			$ -
Spawning gravel, type A	$22.00	CY			$ -
Weir - log	$1,500.00	Each			$ -
Weir - adjustable	$2,000.00	Each			$ -
Woody debris, large	$163.00	Each			$ -
Snags - anchored	$400.00	Each			$ -
Snags - on site	$50.00	Each			$ -
Snags - imported	$800.00	Each			$ -
					$ -
					$ -
* All costs include delivery and installation				TOTAL	$ -

EROSION CONTROL

ITEMS	Unit Cost	Unit			Cost
Backfill and Compaction-embankment	$ 4.89	CY			$ -
Crushed surfacing, 1 1/4" minus	$30.00	CY			$ -
Ditching	$7.03	CY			$ -
Excavation, bulk	$4.00	CY			$ -
Fence, silt	$1.60	LF			$ -
Jute Mesh	$1.26	SY			$ -
Mulch, by hand, straw, 2" deep	$1.27	SY			$ -
Mulch, by hand, wood chips, 2" deep	$3.25	SY	926.00		$ 3,009.50
Mulch, by machine, straw, 1" deep	$0.32	SY			$ -
Piping, temporary, CPP, 6"	$9.30	LF			$ -
Piping, temporary, CPP, 8"	$14.00	LF			$ -
Piping, temporary, CPP, 12"	$18.00	LF			$ -
Plastic covering, 6mm thick, sandbagged	$2.00	SY			$ -
Rip Rap, machine placed, slopes	$33.98	CY			$ -
Rock Constr. Entrance 100'x15'x1'	$3,000.00	Each			$ -
Rock Constr. Entrance 50'x15'x1'	$1,500.00	Each			$ -
Sediment pond riser assembly	$1,695.11	Each			$ -
Sediment trap, 5' high berm	$15.57	LF			$ -
Sediment trap, 5' high berm w/spillway incl. riprap	$59.60	LF			$ -
Sodding, 1" deep, level ground	$5.24	SY			$ -
Sodding, 1" deep, sloped ground	$6.48	SY			$ -
Straw bales, place and remove	$600.00	TON			$ -
Hauling and disposal	$20.00	CY			$ -
Topsoil, delivered and spread	$35.73	CY			$ -
	$17.00	CY			$ -
					$ -
				TOTAL	$ 3,009.50

GENERAL ITEMS

ITEMS	Unit Cost	Unit			Cost
Fencing, chain link, 6' high	$18.89	LF			$ -
Fencing, chain link, corner posts	$111.17	Each			$ -
Fencing, chain link, gate	$277.63	Each			$ -
Fencing, split rail, 3' high (2-rail)	$10.54	LF	595.00		$ 6,271.30
Fencing, temporary (NGPE)	$1.20	LF			$ -
Signs, sensitive area boundary (inc. backing, post, install)	$28.50	Each	8.00		$ 228.00
					$ -
					$
					$ -
				TOTAL	**$ 6,499.30**
				(Construction Cost Subtotal)	**$ 23,205.30**

OTHER

ITEMS	Percentage of Construction	Unit			Cost
Mobilization	10%				$ 2,320.53
Contingency	30%				$ 6,961.59
				TOTAL	**$ 9,282.12**

MAINTENANCE AND MONITORING

NOTE: Projects with multiple permit requirements may be required to have longer monitoring and maintenance terms. This will be evaluated on a case-by-case basis for development applications. Monitoring and maintance ranges may be assessed anywhere from 5 to 10 years.

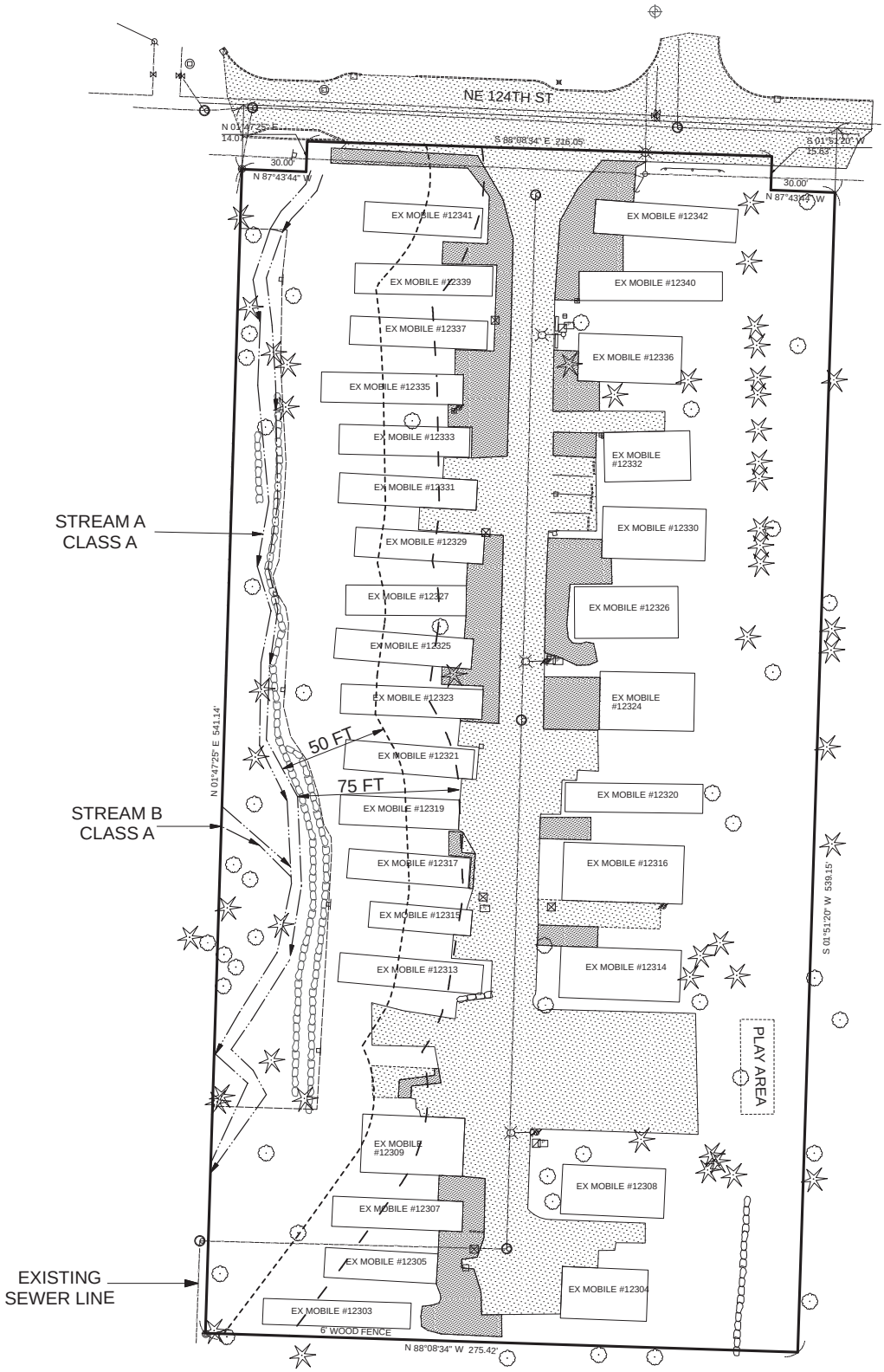
Maintenance, annual					
Less than 1,000 sq.ft. and buffer mitigation only	$ 1.08	SF		(total for 3 annual events; Includes monitoring)	$ -
Less than 1,000 sq.ft. with wetland or aquatic area mitigation	$ 1.35	SF		(3 X SF total for 3 annual events; Includes monitoring)	$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of buffer mitigation	$ 180.00	EACH		(4hr @$45/hr)	$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of wetland or aquatic area mitigation	$ 270.00	EACH		(6hr @$45/hr)	$ -
Larger than 5,000 sq.ft. but < 1 acre -buffer mitigation only	$ 360.00	EACH	5.00	(8 hrs @ 45/hr)	$ 1,800.00
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area mitigation	$ 450.00	EACH		(10 hrs @ $45/hr)	$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area mitigation	$ 1,600.00	DAY		(WEC crew)	$ -
Larger than 5 acres - buffer and / or wetland or aquatic area mitigation	$ 2,000.00	DAY		(1.25 X WEC crew)	$ -
Monitoring, annual					
Larger than 1,000 sq.ft. but less than 5,000 wetland or buffer mitigation	$ 720.00	EACH		(8 hrs @ 90/hr)	$ -
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area impacts	$ 900.00	EACH	5.00	(10 hrs @ $90/hr)	$ 4,500.00
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area impacts	$ 1,440.00	DAY		(16 hrs @ $90/hr)	$ -
Larger than5 acres - buffer and / or wetland or aquatic area impacts	$ 2,160.00	DAY		(24 hrs @ $90/hr)	$ -
Maintenance and Monitoring Inspection (DDES), annual	$350.00	EACH		(2.5 hrs @ $140/hr)	$ -
Maintenance and Monitoring Inspection (DDES), final	$560.00	EACH		(4 hrs @ $140/hr)	$ -
				TOTAL	**$ 6,300.00**

Total	$38,787.42

EXISTING CONDITIONS MAP

PSW SEATTLE - FIRWOOD LANE

PORTION OF SECTION 30, TOWNSHIP 26, RANGE 05E, W.M.



LEGEND

- STREAM
- STANDARD 75-FOOT BUFFER
- REDUCED 50-FOOT BUFFER

Scale 1" = 50'

0 25 50 75 100

Wetland Resources, Inc.
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
9505 19th Avenue S.E. Suite 106 Everett, Washington 98208
Phone: (425) 337-3174
Fax: (425) 337-3045
Email: mailbox@wetlandresources.com

EXISTING CONDITIONS MAP
PSW SEATTLE - FIRWOOD LANE

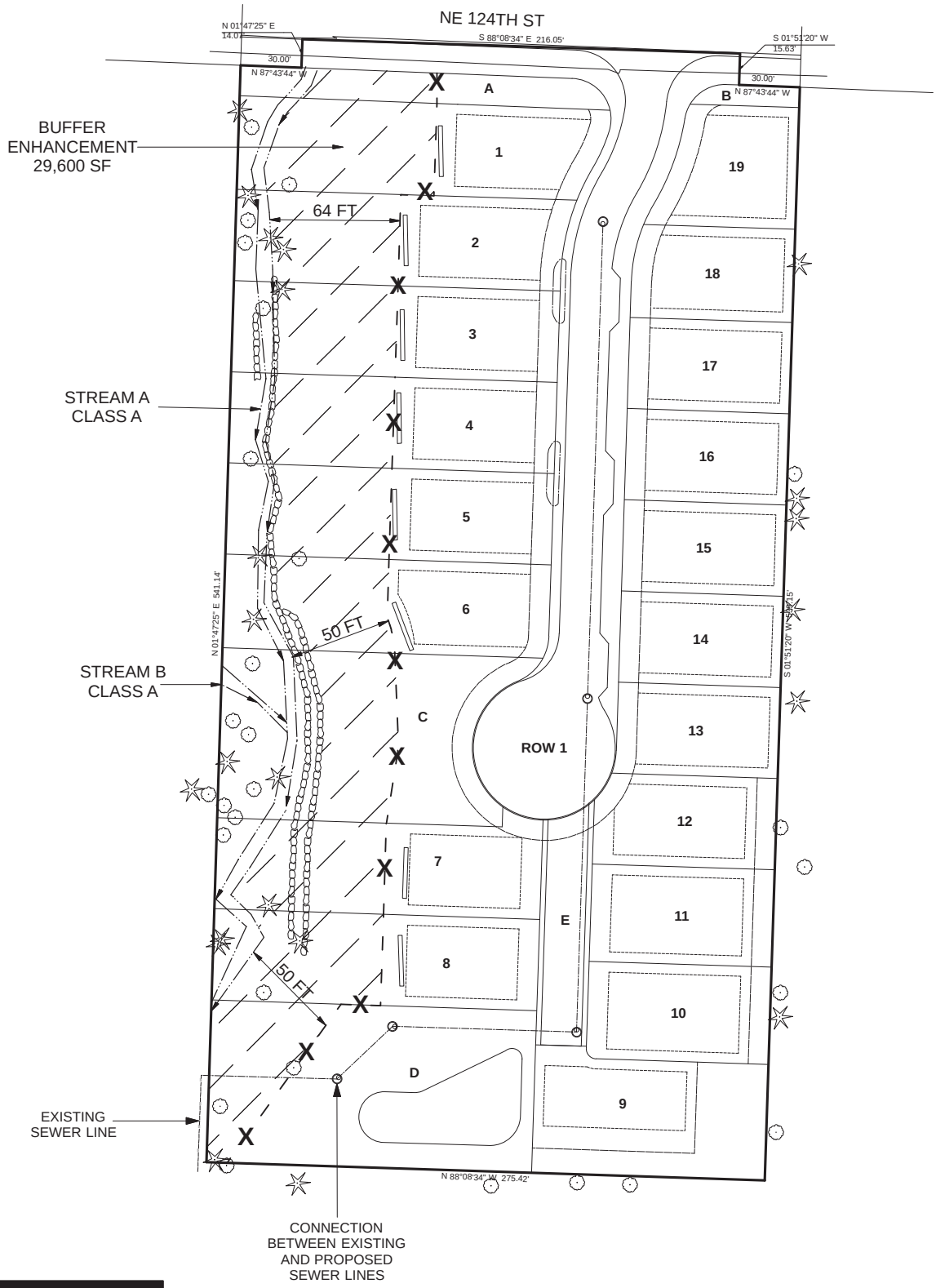
PSW Seattle, LLC
Ben Rutkowski
218 Main Street #109
Kirkland WA 98033

Sheet 1/2
WRI Job # 15057
Drawn by: MK
Date: 06.10.2015

SENSITIVE AREA STUDY AND BUFFER ENHANCEMENT PLAN

PSW SEATTLE - FIRWOOD LANE

PORTION OF SECTION 30, TOWNSHIP 26, RANGE 05E, W.M.



LEGEND

- STREAM
- BUFFER
- BUILDING SET BACK LINE
- BUFFER ENHANCEMENT
- X FENCE

Scale 1" = 50'

0 25 50 75 100

Wetland Resources, Inc.
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
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SENSITIVE AREAS AND BUFFER ENHANCEMENT PLAN
PSW SEATTLE - FIRWOOD LANE

PSW Seattle, LLC
Ben Rutkowski
218 Main Street #109
Kirkland WA 98033

Sheet 2/2
WRI Job # 15057
Drawn by: MK
Date: 06.10.2015

THE WATERSHED COMPANY

SCIENCE & DESIGN

September 16, 2015

Tony Leavitt
City of Kirkland
Planning & Community Development
123 Fifth Avenue
Kirkland, WA 98033

Re: Firwood Lane Short Plat Project – Stream Buffer Modification Plan Review
The Watershed Company Reference Number: 140622.47

Dear Tony:

On September 9, 2015 I visited the Firwood Lane short plat project, located on off of NE 124th Street (parcel # 9194100015). The site is a subject of a past clearing violation and subsequent stream buffer restoration project. The purpose of the site visit and this review letter is to evaluate the proposed Juantia Creek buffer modification for the short plat.

The following documents were provided for this review:

- *Sensitive Areas Study and Buffer Enhancement Plan. PSW Seattle – Firwood Lane, Kirkland, WA. Prepared by Wetland Resources, Inc. June 2014.* (WRI Report)
- *Firwood Lane LID Subdivision Preliminary Plat/IDP. Blueline Group, June 2014.*

Findings

Buffer modification

The proposed buffer modification represents an improvement over the current condition and satisfies the nine criteria required for successful modifications, except for the last provision requiring a demonstration there is no alternative with less impact. It appears the full buffer width could be accommodated on the detention tract D and possibly the open space tract C as well.

The Blueline plans seem to show sidewalk improvements will be constructed as part of this project. Sidewalks within the buffer need to be constructed of pervious materials such that there is no increase in the imperious areas or reduced flood storage capacity (KZC 90.20 #4).

750 Sixth Street South | Kirkland, WA 98033
p 425.822.5242 | f 425.827.8136 | watershedco.com

Stormwater outfall

Infiltration trenches, one per stream-side home, are proposed. A performance standard is needed to ensure these trenches are installed correctly, do not lead to point-discharge of stormwater and do not cause erosion within the buffer areas. Trenches should be inspected as part of the mitigation monitoring schedule (twice/year for 5 year duration).

A detention pond is shown in the southwest property corner. No outfall for this pond is shown. If this pond has an outfall to Juanita Creek, it must be designed and constructed per the requirements in KZC 90.90 #3.

Mitigation plan

The plan proposes to remove "all structures, fences and debris" from the buffer. Directly west of mobile home #12341There are a series of pavers along the stream bank leading to a shed and in the form of a patio within the ROW. The removal of these pavers should be specifically called out in the mitigation plan

The plan proposes to remove "all invasive species within the reduced buffer." There are extensive patches of Himalayan blackberry and English ivy within on-site areas west of the stream, which are not indicated as being restored in sheet 2/2 of the mitigation plan. Also, as noted in the plan, the area contains a mix of land uses including formerly functionally-restored buffer, poorly-restored buffer and area currently occupied by the mobile homes, their outbuilding and yards. The plan should show each of these zones and their proposed treatments in greater detail than using one simple hatch and one plant schedule to cover all restored buffer areas. The proposed planting density and species selection cannot be reviewed without this information.

Compost soil amendment is mentioned; however, areas currently paved or supporting the mobile homes will need to be de-compacted as well in preparation for successful planting.

Seeding bare soil areas is proposed but not recommended. Seeding tends to compete with native woody species. A more cost efficient and effective soil stabilizing method is to use a blanket application of woodchip mulch. This has consistently improved mitigation success on Kirkland mitigation sites.

The plant species selected are appropriate and the overall quantity seems adequate given the existing native species. The spacing column on the plant schedule (page 9) should reflect triangular spacing of 9-feet for trees and 6-feet for shrubs.

The bond estimate is missing line items for several mitigation plan components such as compost amendment, soil decompaction, consultant supervision (mentioned in the planting notes), general labor (for weeding, woody debris and trash cleanup), temporary irrigation, and large woody debris. Only five maintenance site visits are included but

maintenance on this site is likely to require two or three visits per year. Also, Kirkland requires two monitoring visits per year but only five are included in the estimate.

There is no performance standard for native species cover. Consistent with past successful mitigation sites in Kirkland, the site should achieve at least 80% native woody species cover by Year 5.

The WRI report mentions annual monitoring inspections and mentions vegetation sampling occurring during both annual monitoring visit. Consistent with past monitoring efforts, the first site visit (spring) is just a maintenance inspection with a memo to the owner; the second site visit (summer/fall) contains the bulk of the monitoring, including vegetation sampling and the annual reporting.

Recommendations

The following are recommended to bring the project into compliance with the Kirkland Zoning Code.

1. Revise the buffer reduction to expand up to the full standard buffer on the detention pond and open space tracts if possible. If not possible, provide justification for needed buffer modification at these locations.

2. Propose pervious sidewalk paving within the standard buffer.

3. Include an infiltration trench performance standard and inspections during mitigation monitoring site visits.

4. Provide more information on the detention pond outfall and compliance with applicable code sections.

5. Include details regarding the removal of pavers within the buffer.

6. Provide a plan-view planting plan showing weed removal and replanting west of the stream and include a variety of weed removal, site preparation and planting layouts that reflects the current and proposed buffer conditions.

7. Include provisions for decompaction of soils in currently developed buffer areas.

8. Replace seeding with blanket wood chip mulch for better plant survival and growth.

9. Revise plant schedule spacing column to reflect the variety of plant spacing needs at the site given the existing native species in the buffer. Use triangular 9-foot tree and 6-foot shrub spacing for areas currently lacking native species.

10. Adjust the bond estimate based on the revisions and including missing line items.

11. Revise the performance standards to include native woody species percent cover minimum target.

12. Clarify spring versus summer/fall monitoring requirements.

Please call if you have any questions or if we can provide you with any additional information.

Sincerely,

Hugh Mortensen, PWS
Principal

Wetland Resources, Inc.
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
9505 19th Avenue S.E.
Suite 106
Everett, Washington 98208
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Fax (425) 337-3045

SENSITIVE AREA STUDY
AND
BUFFER ENHANCEMENT PLAN

PSW SEATTLE – FIRWOOD LANE
KIRKLAND, WA

Wetland Resources, Inc. Project #15057

Prepared By
Wetland Resources, Inc.
9505 19th Avenue SE, Suite 106
Everett, WA 98208
(425) 337-3174

Prepared For
PSW Seattle LLC
Attn: Ben Rutkowski
218 Main Street
Kirkland, WA 98033

June 10, 2015
Revision #1: October 14, 2015
Revision #2: December 8, 2015

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LIST OF FIGURES

FIGURE 1: AERIAL VIEW OF THE SUBJECT PROPERTY. 1

FIGURE 2: EXISTING RIGHT-OF-WAY CONDITIONS 3

List of Attachments

Bond Quantity Worksheet

Existing Conditions Map (Sheet 1/4)

Sensitive Area Study and Buffer Enhancement Plan Map (Sheet 2/4)

Enhancement Preparation Plan (Sheet 3/4)

Buffer Enhancement Planting Plan (Sheet 4/4)

1.0 INTRODUCTION

Wetland Resources, Inc. (WRI) completed a site investigation on November 14, 2013 to locate jurisdictional wetlands and streams on and in the vicinity of King County Parcel # 9194100015. The subject property is located at 12342 94th Avenue NE in the City of Kirkland, Washington. The site is further located in Section 30, Township 26N, Range 05E, W.M.

The subject property is currently a mobile home park with multiple residences, access road, and children's play area. While the majority of the site is impervious surface, the eastern and western boundaries are vegetated by red alder (*Alnus rubra*), Sitka spruce (*Picea sitchensis*), willows (*Salix* spp.), and red-stem dogwood (*Cornus sericea*). Developed single-family residential lots surround the property. An undeveloped forested parcel/corridor is also located to the west. Along the east and west property lines are vegetated with native trees and shrubs, herbaceous vegetation, and ornamental plants. The topography of the subject property slopes slightly to the south. The subject site is located within the Juanita Creek Basin, which is a Primary Basin per the City of Kirkland Sensitive Areas Map.

No wetlands were found on the subject site. Two Class A streams are present on the subject site. Pursuant to Kirkland Zoning Code 90.90.1, Class A streams within primary basins receive 75-foot buffers.

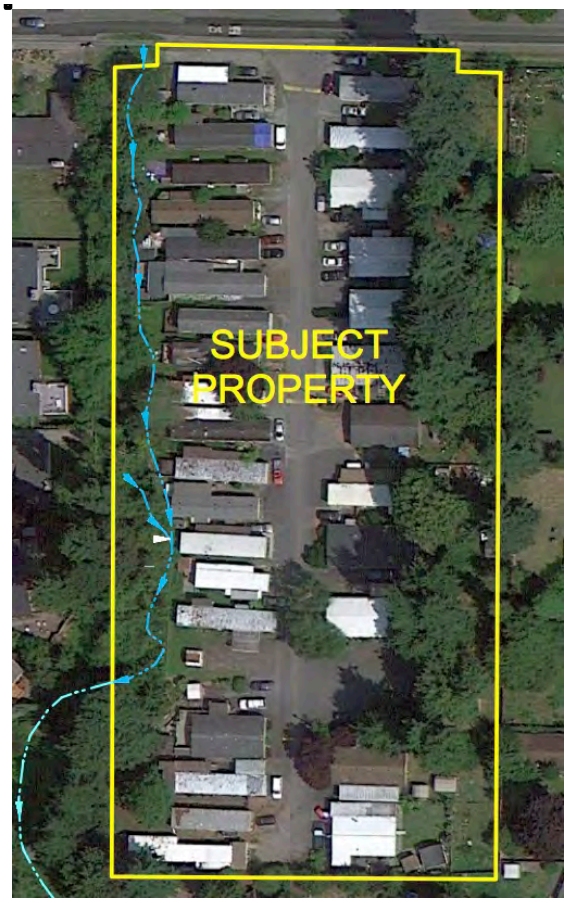


Figure 1: Aerial view of the subject property.

1.1 PROJECT DESCRIPTION

The applicant is proposing a Low Impact Development subdivision containing 19 lots, an access road, and associated infrastructure. All existing mobile homes and the current access road will be removed from the site. As part of the development plan, the applicant is proposing to reduce the stream buffer as described in Kirkland Zoning Code (KZC) 90.100. This will reduce the buffer from 75 feet to 50 feet at the narrowest point. The standard 75-foot buffer will be observed in the southern end of the site and several areas adjacent to the development will observe a buffer greater than 50 feet. As part of the buffer reduction plan, invasive species, such as Himalayan blackberry and English ivy, will be removed and native plants will be installed across the buffer area.

There is an existing sewer line located within the buffer of Stream A in the southwest area of the site. The proposed development will connect to the existing sewer line outside of the stream buffer. Additionally, a stormwater pond is proposed in the southwest corner of the site, and will be connected to the stormwater system. While the majority of the water collected will enter the stormwater system, there is an emergency overflow on the northwest edge of the pond. This overflow consists of a riprap dissipation feature, which ends at the edge of the stream buffer.

The streams and associated buffers will be placed in a Native Growth Protection Easement. The proposed plan provides the required 10-foot building setback from the perimeter of the reduced buffer.

1.1.1 Right-of-way Improvements

As part of the proposed development, a new section of sidewalk will be installed. The majority of the proposed sidewalk located within the standard 75-foot buffer will be located within an area that is currently impervious surface. This area currently contains asphalt, gravel, and cement pavers (see Figure 2 below). The proposed development plan will reduce the amount of impervious surface adjacent to NE 124th Street within the standard buffer by 290 square feet. The section of proposed sidewalk outside of the existing impervious surfaces is 206 square feet. The total amount of impervious surface within the buffer adjacent to NE 124th Street will be reduced by 84 square feet. Therefore, the installation of the sidewalk will not increase the amount of impervious surface or reduce the flood storage capacity of this area.

Figure 2: Existing right-of-way conditions
Area where proposed sidewalk will be located. (Photo from Google Earth).

1.2 CRITICAL AREAS CLASSIFICATION

1.2.1 Cowardin System Classification

According to the Cowardin System, as described in Classification of Wetlands and Deepwater Habitats of the United States, the classification for the on-site critical areas are as follows:

Stream A: Riverine, Lower Perennial, Unconsolidated, Cobble-Gravel.

Stream B: Riverine, Intermittent, Streambed, Cobble-Gravel.

1.2.2 City of Kirkland Classifications

Under the city of Kirkland Zoning Code (KZC), Chapter 90, the on-site critical areas are classified as follows:

Stream A
Class A Stream: This Stream is perennial, has documented salmonid presence, is unimpeded by fish barriers, and connects to Juanita Creek. The stream is therefore classified as Class A. Pursuant to KZC 90.90(1), Class A streams require 75-foot buffers.

Stream B

Class A Stream: This Stream is Intermittent, is unimpeded by fish barriers, and is hydrologically connected to Juanita Creek via Stream A. The stream is therefore classified as Class A. Pursuant to KZC 90.90(1), Class A streams require 75-foot buffers.

2.0 Critical Areas Determination Report

2.1 Publically Available data

Prior to conducting the site investigation, public resource information was reviewed to gather background information on the subject property and the surrounding area in regards to wetlands, streams, and other critical areas. These sources included the following:

USDA/NRCS Web Soil Survey
One soil map unit is predicted to occur on the subject parcel. Kitsap Silt Loam, 2 to 8 percent slopes is mapped throughout the site area. A more detailed soil map unit description is provided in the "2.2 Field Determination Methodology" section below.

USFWS National Wetlands Inventory (NWI)
No wetlands were identified in the immediate vicinity of the subject property. The nearest occurrence is Lake Washington, approximately 0.4 miles south.

King County iMap interactive mapping tool
No steep slopes with a gradient greater than 33% or other critical areas, such as streams or other water bodies, were identified on-site.

DNR ARCIMS Mapping Application for streams
One fish-bearing stream appears to be identified along the western portion of the subject site.

WDFW Priority Habitat and Species (PHS) Interactive Map
Identifies Juanita Creek over 900 feet southeast of the subject site. This stream is documented as providing habitat for Coho, Chinook, coastal cutthroat trout, sockeye, and steelhead.

WDFW Salmonscape Interactive Mapping System
Confirms the presence of the stream on the western boundary of the subject site, as well as Juanita Creek. Salmonid species using the stream identified on-site include Chinook, steelhead, Coho, and sockeye. It should be noted that all fish presence was modeled for this stream; not observed. These salmonid species have been observed in Juanita Creek.

StreamNet Mapper
Confirms the presence of Juanita Creek identified by the DNR ARCIMS, WDFW PHS, and Salmonscape mapping systems.

City of Kirkland Sensitive Areas Map
Confirms both Juanita Creek and the on-site stream, and that Juanita Creek has salmonid presence.

2.2 Field Determination Methodology

Wetland Resources' staff conducted a site visit on November 14, 2013 to locate wetlands and streams occurring within and near the project site. Wetland conditions were evaluated using routine methodology described in the *2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*, (referred as 2010 Regional Supplement). The *Washington State Wetlands Identification and Delineation Manual* (Washington State Department of Ecology Publication #96-94, March 1997, or as amended) uses similar criteria for wetland delineation. Our findings are consistent with both manuals.

The following criteria descriptions were used in the boundary determination:

1.) Examination of the site for hydrophytic vegetation (species present and percent cover);

2.) Examination of the site for hydric soils;

3.) Determining the presence of wetland hydrology

The Ordinary High Water Mark (OHWM) of any on-site streams, when present, are identified using the methodology described in the Washington State Department of Ecology document *Determining the Ordinary High Water Mark on Streams in Washington State (Second Review Draft)* (Olson and Stockdale 2010). Streams are classified according to the water typing system provided in the Washington Administrative Code (WAC), section 222-16-030 and SCC 30.62A.230(1).

2.2.1 Hydrophytic Vegetation Criteria

The manuals define hydrophytic vegetation as the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present. One of the most common indicators for hydrophytic vegetation is when more than 50 percent of a plant community consists of species rated "Facultative" and wetter on lists of plant species that occur in wetlands.

2.2.2 Soils Criteria and Mapped Description

The manuals define hydric soils as those that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Field indicators are used for determining whether a given soil meets the definition for hydric soils.

According to NRCS Web Soil Survey, the soil map unit Kitsap Silt Loam, 2 to 8 percent slopes, is predicted to occur on the subject property.

Kitsap silt loam, 2 to 8 percent slopes, is described as an undulating soil on low terraces of the major valleys of the area. The A horizon ranges from very dark brown to dark brown. The B horizon ranges from dark yellowish brown to dark brown and from silt loam to silty clay loam. Some areas are up to 10 percent included Alderwood gravelly sandy loam; some are up to 5 percent the very deep, sandy Indianola soils, and some are up to 5 percent the poorly drained Bellingham, Tukwila, and Seattle soils. Water flows on top of the substratum in winter. Permeability is moderate above the substratum and very slow within it. Available water capacity is moderate to moderately high.

2.2.3 Hydrology Criteria

The Washington State Wetlands Identification and Delineation Manual, 1997 edition, states that "areas which are seasonally inundated and/or saturated to the surface for a consecutive number of days ≥12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met. Areas inundated or saturated between 5 and 12.5 percent of the growing season in most years may or may not be wetlands. Areas saturated to the surface for less than 5 percent of the growing season are non-wetlands." Field indicators are used for determining whether wetland hydrology parameters are met.

Based on the results of the site investigation, no wetlands were identified on the subject property.

2.3 Boundary Determination Findings

2.3.1 On-site Streams

Stream A enters the site from the north, flows from north to south along the west edge of the property and continues off-site to the southwest. It then appears to flow southeast and joins Juanita Creek after moving through a culvert/pipe.

Stream B is a tributary of Stream A. Stream B enters the site from a pipe on the west property boundary, flows southeast and joins Stream A. The pipe Stream B flows out of is most likely part of the stormwater system for the adjacent residential development.

2.3.2 Non-wetland Areas

The top six inches of the soil profile typically has a Munsell color of dark grayish brown (10YR 4/2). Beginning at inches below the surface, the soil typically has a color of very dark grayish brown (10YR 3/2). The entire profile has a silt loam texture and no redoximorphic features were observed. These soils do not meet any hydric indicators.

2.3.3 Wildlife

The on-site stream segments provide low to moderate habitat functions. The streams and their associated edges provide a potential movement corridor, which are extremely important as areas become more populated. The critical areas and the associated buffers contain resources such as food, water, thermal cover, and hiding cover in close proximity. However, these associated buffer areas have been largely developed, so the provided habitat area is greatly reduced. No mammalian species were detected during the on-site investigations, although several species, including gray squirrels (*Sciurus* spp) and raccoon (*Procyon lotor*), are expected to occur within the

area. Avian activity was not strongly detected. However, given the habitat available, it is expected that the following avian species use the area: American Crow (*Corvus brachyrhynchos),* Steller's Jay (*Cyanocitta stelleri*), Ruby-crowned Kinglet (*Regulus calendula*), Golden-crowned Kiglet (*Regulus satrapa*), Black-capped Chickadee (*Poecile atricapilla)*, Dark-eyed Junco (*Junco hyemalis*), and Song Sparrow (*Melospiza melodia*). The stream channels provide habitat for several salmonid species including steelhead, Coho, Chinook, and sockeye.

3.0 STREAM BUFFER FUNCTIONS AND VALUES ASSESSMENT

3.1 EXISTING STREAM BUFFER FUNCTIONS AND VALUES

The current condition of the on-site buffer area associated with Stream A is primarily developed as impervious surface (mobile homes) and associated lawn/yard areas. The existing vegetation along the steam channel provides low to moderate habitat functions, which are limited by the number of invasive species present. These functions and values provided by the current buffer are significantly less than those provided by undisturbed buffer areas.

Water Quality
Vegetated stream buffers obstruct water flow, thereby decreasing water velocity, allowing infiltration into the soil, and reducing soil erosion potential. The buffer area east of Stream A on-site is primarily mobile homes and lawn/yard areas. The lawn allows for some surface water filtration. The on-site buffers do provide somewhat of a water quality benefit, but the benefit is limited by the degraded and altered conditions.

Hydrologic functions
Stream buffers help to moderate water level fluctuations. Buffer vegetation impedes the flow of runoff, increases the humus content of soil (greater adsorption capacity), and preserves soil composition as intense rainfall hits the ground. Buffers within the subject property do perform this function at a low level, limited by the lack of dense vegetation and amount of impervious surface present.

Wildlife Habitat
Many birds, mammals, and amphibians use stream buffers for some part of their life needs. Their use of these sites is dependent on the valuable edge habitat found at the wetland/upland border. The existing vegetation along the stream channel provides some habitat function, but at a minimal level.

3.2 POST ENHANCEMENT FUNCTIONS AND VALUES

As part of a buffer reduction plan, the applicant is proposing to enhance the on-site buffer area adjacent to Stream A. Buffer enhancement will include removal of all structures, fences, pavers, lawn, and non-native invasive plants. After removal, the areas previously covered with impervious surfaces will be tilled to de-compact the soil. Once site preparation is completed, native plantings will be installed across enhancement areas. The proposed buffer enhancement will provide a denser, more diverse native vegetation community. The increased vegetation density will provide screening between residences and the associated sensitive areas. Increased

diversity of native plant species will provide a greater array of resources for native wildlife, and the increased density will create more opportunities for refuge. In addition to increased habitat quality for wildlife species, the increase in persistent woody stems will reduce surface stormwater flow; decreasing flood flow and improving water quality through reduction of sediment.

The primary functional lift that will be provided by enhancement is the protective ability of the buffer; maintaining and stabilizing the on-site stream corridor. Additional vegetation adjacent to the stream will provide added cover and assist in reducing water temperature. In conclusion, the buffer enhancement is anticipated to significantly increase the level of functions and values currently being provided by the on-site buffer area associated with Stream A.

4.0 Buffer Reduction and Enhancement

4.1 Kirkland Zoning Code Buffer Modification Requirements

KZC 90.100(2) enumerates a list of requirements associated with buffer reduction. Portions of the city of Kirkland code are in italics below, with responses provided in normal text underneath:

An improvement or land surface modification shall be approved in a wetland buffer only if:

a. It is consistent with Kirkland's Streams, Wetlands and Wildlife Study (The Watershed Company, 1998) and the Kirkland Sensitive Areas Regulatory Recommendations Report (Adolfson Associates, Inc., 1998);

The objective of Kirkland's Streams, Wetlands and Wildlife Study is to "provide the foundation for development of policies, regulations and incentives that will maintain, and to the degree possible, improve the quality of Kirkland's streams, wetlands and natural areas." This study provides a list of opportunities for enhancement and restoration of critical areas within the Juanita Creek Basin. The majority of these opportunities are outside of the scope for this project, given that they concern wetlands specifically. However, the primary ecological functional recommendation for stream buffers is enhancement to provide cover for wildlife movements. The area of standard stream buffer that is proposed for reduction is currently occupied by impervious surfaces and yards, which provide essentially no protection of the stream. Considering that the proposed buffer enhancement is expected to reduce food flows, improve water quality, and contribute to wildlife habitat, the proposed buffer enhancement plan is consistent with this study.

The Kirkland Sensitive Areas Regulatory Recommendations Report outlines recommendations for buffer width reductions. This report recommends that stream buffer modification only be allowed if buffer "averaging" or buffer enhancement is proposed. Additionally, this report recommends that buffers associated with Class A streams, which are only within a primary basin, should be limited to a 25-foot reduction. This recommendation is consistent with the maximum one-third reduction required by KZC 90.100(1). Therefore, as this project complies with the KZC, the proposed buffer enhancement plan is consistent with this report.

2) It will not adversely affect water quality;

Reducing the amount of impervious surface within the buffer area will allow for greater infiltration of stormwater on-site. Increased vegetation with persistent stems is also expected to reduce surface water velocity, causing sediment to settle out of the water column. Therefore, water quality is expected to increase.

3) It will not adversely affect fish, wildlife, or their habitat;

The on-site streams are completely surrounded by residential development. The buffer enhancement planting (described below) will increase the diversity of native plant species within the buffer. Increased diversity of native plant species is expected to provide more habitat opportunities for terrestrial wildlife. Additional vegetation adjacent to the stream will provide added cover and assist in reducing water temperature. These benefits are anticipated to increase the quality of fish habitat within the stream.

4) It will not have an adverse effect on drainage and/or storm water detention capabilities;

The area of buffer being reduced does not currently provide any significant drainage and/or stormwater capabilities. Therefore, the proposed buffer reduction will not adversely affect these capabilities.

5) It will not lead to unstable earth conditions or create an erosion hazard;

The enhancement area will be planted with native trees and shrubs, and will be covered in a layer of woodchips. Therefore, unstable earth conditions or erosion hazards are not anticipated as a result of this project.

6) It will not be materially detrimental to any other property or the City as a whole;

The area of buffer that will be reduced is primarily impervious surface (mobile homes) and maintained lawn/yard area. Reducing this area of the buffer in order to construct single-family residences, while subsequently enhancing the ecologic functions of the remaining buffer area, is expected to be materially beneficial to the surrounding area.

7) Fill material does not contain organic or inorganic material that would be detrimental to water quality or to fish, wildlife, or their habitat;

No fill material will be placed in the stream channels or buffer areas as part of the proposed project.

8) All exposed areas are stabilized with vegetation normally associated with native wetland buffers, as appropriate; and

All exposed areas will be stabilized with native trees or shrubs, and any remaining bare earth will be mulched to avoid erosion.

9) There is no practicable or feasible alternative development proposal that results in less impact to the buffer.

The proposed development will observe a minimum stream buffer of 50 feet, as well as a 10-foot building set back from the buffer. The mobile homes currently present on-site are located between 21 and 36 feet from Stream A. Existing impervious surfaces within the reduced 50-foot buffer is approximately 4,200 square feet. The proposed impervious surface within this area is 580 square feet. Therefore, the proposed development and buffer enhancement will actually reduce the amount of stream buffer impacted by residential development.

4.2 BUFFER ENHANCEMENT

Buffer enhancement will include removal of all structures, fences, pavers, lawn, and non-native invasive plants within the modified buffer area. Non-native and invasive plants to be removed include: Himalayan blackberry, bittersweet nightshade, English ivy, and bindweed (morning glory). After removal, the areas previously covered with impervious surfaces will be tilled to de-compact the soil. Once site preparation is completed, native plantings will be installed across enhancement areas. Existing native vegetation will remain and additional native plants will be installed across the entire buffer area. All trees will be planted at least 10 feet west of the buffer edge, in an effort to avoid the need for removal due to potential damage to persons or property as they mature.

4.2.1 Planting Plan

Buffer Enhancement Planting Plan – Area A (Approximately 23,340 square feet)

Common Name	Latin Name	Size	Spacing	Quantity
Douglas fir	*Pseudotsuga menziesii*	1 gallon	10’	60
Big leaf maple	*Acer macrophyllum*	1 gallon	10’	60
Western red Cedar	*Thuja plicata*	1 gallon	10’	58
Cascara	*Rhamnus purshiana*	1 gallon	10’	58
Serviceberry	*Amelanchier alnifolia*	1 gallon	5’	97
Thimbleberry	*Rubus parviflorus*	1 gallon	5’	97
Nootka rose	*Rosa nutkana*	1 gallon	5’	97
Red elderberry	*Sambucus racemosa*	1 gallon	5’	97
Salmonberry	*Rubus spectabilis*	1 gallon	5’	97
Snowberry	*Symphoricarpos albus*	1 gallon	5’	97
Sword fern	*Polystichum munitum*	1 gallon	5’	97

Buffer Enhancement Planting Plan – Area B (Approximately 3,630 square feet)

Common Name	Latin Name	Size	Spacing	Quantity
Douglas fir	*Pseudotsuga menziesii*	1 gallon	10’	9
Big leaf maple	*Acer macrophyllum*	1 gallon	10’	9
Western red Cedar	*Thuja plicata*	1 gallon	10’	9
Cascara	*Rhamnus purshiana*	1 gallon	10’	9
Serviceberry	*Amelanchier alnifolia*	1 gallon	5’	16

Red osier dogwood	*Cornus sericea*	1 gallon	5'	16
Nootka rose	*Rosa nutkana*	1 gallon	5'	16
Red elderberry	*Sambucus racemosa*	1 gallon	5'	16
Salmonberry	*Rubus spectabilis*	1 gallon	5'	15
Snowberry	*Symphoricarpos albus*	1 gallon	5'	15
Sword fern	*Polystichum munitum*	1 gallon	5'	15

Buffer Enhancement Planting Area C (2,580 square feet)

Common Name	Latin Name	Size	Spacing	Quantity
Vine maple	*Acer circinatum*	1 gallon	5'	13
Indian plum	*Oemleria cerasiformis*	1 gallon	5'	13
Red elderberry	*Sambucus racemosa*	1 gallon	5'	13
Serviceberry	*Amelanchier alnifolia*	1 gallon	5'	13
Red osier dogwood	*Cornus sericea*	1 gallon	5'	13
Bald-hip rose	*Rosa gymnocarpa*	1 gallon	5'	13
Salmonberry	*Rubus spectabilis*	1 gallon	5'	13
Sword fern	*Polystichum munitum*	1 gallon	5'	13

Buffer Enhancement Planting Area D (3,900 square feet)

Common Name	Latin Name	Size	Spacing	Quantity
Vine maple	*Acer circinatum*	1 gallon	5'	20
Indian plum	*Oemleria cerasiformis*	1 gallon	5'	20
Red elderberry	*Sambucus racemosa*	1 gallon	5'	20
Serviceberry	*Amelanchier alnifolia*	1 gallon	5'	20
Red osier dogwood	*Cornus sericea*	1 gallon	5'	19
Bald-hip rose	*Rosa gymnocarpa*	1 gallon	5'	19
Salmonberry	*Rubus spectabilis*	1 gallon	5'	19
Sword fern	*Polystichum munitum*	1 gallon	5'	19

Buffer Enhancement Planting Area E (7,040 square feet)

Common Name	Latin Name	Size	Spacing	Quantity
Red elderberry	*Sambucus racemosa*	1 gallon	5'	41
Serviceberry	*Amelanchier alnifolia*	1 gallon	5'	41
Thimbleberry	*Rubus parviflorus*	1 gallon	5'	41
Nootka rose	*Rosa nutkana*	1 gallon	5'	40
Bald-hip rose	*Rosa gymnocarpa*	1 gallon	5'	40
Snowberry	*Symphoricarpos albus*	1 gallon	5'	40
Sword fern	*Polystichum munitum*	1 gallon	5'	40

4.2.2 Large Woody Debris

In addition to the enhancement plantings, at least two pieces of woody debris will be added to the buffer area. If possible, material removed from the site for development will be salvaged for use as woody debris within the buffer enhancement area. Minimum size of the woody debris will be 10-inch diameter and 15 feet in length, or 10-foot diameter root-wads.

5.0 Project Notes

Pre-construction Meeting
Mitigation projects are typically more complex to install than to describe in plans. Careful monitoring by a wetland professional for all portions of this project is strongly recommended. Construction timing and sequencing is important to the success of this type of project. There will be a pre-construction meeting on this site between the Permittee, the consulting wetland professional, and laborers. The objective will be to verify the location of erosion control facilities, verify the location of mitigation areas, and to discuss project sequencing.

Inspections
A wetland professional shall be contracted to periodically inspect the mitigation installation described in this plan. Minor adjustments to the original design may be necessary prior to and during construction due to unusual or hidden site conditions. A City of Kirkland representative and/or the consulting professional will make these decisions during construction.

6.0 Planting Notes

Plant in the early spring or late fall and obtain all plants from a reputable nursery. Care and handling of all plant materials is extremely important to the overall success of the project. The origin of all plant materials specified in this plan shall be native plants, nursery grown in the Puget Sound region of Washington. Some limited species substitution may be allowed, only with the agreement of the landscape designer, wetland biologist, and/or City staff.

Pre-Planting Meeting
Prior to control of invasive species or installation of mitigation plantings, a site meeting between the contracted landscaper and the consulting wetland professional shall occur to resolve any questions that may arise. During this meeting a discussion regarding plant spacing and locations of plant species including wetland verses buffer species shall occur between the landscape contractor and the consulting wetland professional.

Compost/Cultivation
Areas of the buffer where buildings, fences, lawns, and other impervious surfaces were removed will have the underlying soil cultivated/de-compacted prior to planting. All areas denuded of vegetation and soil surface surrounding all planting pit areas shall receive no less than 2 inches of organic compost after planting. Compost shall be kept well away (at least 2 inches) from the trunks and stems of woody plants.

Handling
Plants shall be handled so as to avoid all damage, including: breaking, bruising, root damage, sunburn, drying, freezing or other injury. Plants must be covered during transport. Plants shall not be bound with wire or rope in a manner that could damage branches. Protect plant roots with shade and wet soil in the time period between delivery and installation. Do not lift container stock by trunks, stems, or tops. Do not remove from containers until ready to plant.

Water all plants as necessary to keep moisture levels appropriate to the species horticultural requirements. Plants shall not be allowed to dry out. All plants shall be watered thoroughly immediately upon installation. Soak all containerized plants thoroughly prior to installation. Plants whose roots have dried out from exposure will not be accepted at installation inspection.

Storage
Plants stored by the Permittee for longer than one month prior to planting shall be planted in nursery rows and treated in a manner suitable to those species' horticultural requirements. Plants must be re-inspected by the wetland biologist and/or landscape designer prior to installation.

Damaged plants
Damaged, dried out, or otherwise mishandled plants will be rejected at installation inspection. All rejected plants shall be immediately removed from the site.

Plant Names
Plant names shall comply with those generally accepted in the native plant nursery trade. Any question regarding plant species or variety shall be referred to the landscape designer, wetland professional, or City staff. All plant materials shall be true to species and variety and legibly tagged.

Quality and condition
Plants shall be normal in pattern of growth, healthy, well-branched, vigorous, with well-developed root systems, and free of pests and diseases. Damaged, diseased, pest-infested, scraped, bruised, dried out, burned, broken, or defective plants will be rejected. Plants with pruning wounds over 1" in diameter will be rejected.

Roots
All plants shall be balled and burlapped or containerized, unless explicitly authorized by the landscape designer and/or wetland professional. Rootbound plants or B&B plants with damaged, cracked, or loose rootballs (major damage) will be rejected. Immediately before installation, plants with minor root damage (some broken and / or twisted roots) must be root-pruned. Matted or circling roots of containerized plantings must be pruned or straightened and the sides of the root ball must be roughened from top to bottom to a depth of approximately half an inch in two to four places. Bare root plantings of woody material are allowed only with permission from the landscape designer, wetland professional and/or City staff.

Sizes
Plant sizes shall be the size indicated in the plant schedule in approved plans. Larger stock may be acceptable provided that it has not been cut back to the size specified, and that the root ball is proportionate to the size of the plant. Smaller stock may be acceptable, and preferable under some circumstances, based on site-specific conditions. Measurements, caliper, branching, and balling and burlapping shall conform to the American Standard of Nursery Stock by the American Association of Nurserymen (latest edition).

Form
Evergreen trees shall have single trunks and symmetrical, well-developed form. Deciduous trees shall be single trunked unless specified as multi-stem in the plant schedule. Shrubs shall have multiple stems and be well-branched.

Timing of Planting
Unless otherwise approved by City staff, all planting shall occur between November 1 and March 1. Overall, the earlier plants go into the ground during the dormant period, the more time they have to adapt to the site and extend their root systems before the water demands of spring and summer.

Weeding
Non-native and invasive vegetation in the buffer enhancement area will be hand-weeded from around all newly installed plants at the time of installation and on a routine basis throughout the monitoring period. No chemical control of vegetation on any portion of the site is recommended.

Site conditions
The contractor shall immediately notify the landscape designer and/or wetland professional of drainage or soil conditions likely to be detrimental to the growth or survival of plants. Planting operations shall not be conducted under the following conditions: freezing weather, when the ground is frozen, excessively wet weather, excessively windy weather, or in excessive heat.

Planting Pits
Planting pits shall be circular or square with vertical sides, and shall be 6" deeper and 12" larger in diameter than the root ball of the plant. Break up the sides of the pit in compacted soils. Set plants upright in pits. Burlap shall be removed from the planting pit. Backfill shall be worked back into holes such that air pockets are removed without adversely compacting down soils.

Fertilizer
Slow release fertilizer may be used if pre-approved by Snohomish County. Fertilizers shall be applied only at the base of plantings underneath the required covering of mulch (that does not make contact with stems of the plants). No soil amendment or fertilizers will be placed in planting holes.

Staking
Most shrubs and many trees DO NOT require any staking. If the plant can stand alone without staking in a moderate wind, do not use a stake. If the plant needs support, then strapping or webbing should be used as low as possible on the trunk to loosely brace the tree with two stakes. Do not brace the tree tightly or too high on the trunk. If the tree is unable to sway, it will further lose the ability to support itself. Do not use wire in a rubber hose for strapping as it exerts too much pressure on the bark. As soon as supporting the plant becomes unnecessary, remove the stakes. All stakes must be removed within two (2) years of installation.

Plant Location
Colored surveyors ribbon or other appropriate marking shall be attached to the installed plants to assist in locating the plants while removing the competing non-native vegetation and during the monitoring period.

Arrangement and Spacing
The plants shall be arranged in a pattern with the appropriate numbers, sizes, species, and distribution that are required in accordance with the approved plans. The actual placement of individual plants shall mimic natural, asymmetric vegetation patterns found on similar undisturbed sites in the area. Spacing of the plantings may be adjusted to maintain existing vegetation with the agreement of the landscape designer, wetland biologist, and/or City staff.

Inspection(s)
A wetland biologist shall be present on site to inspect the plants prior to planting. Minor adjustments to the original design may be required prior to and during construction.

Woodchip Mulch
After buffer enhancement plant installation, no less than 2 to 4 inches of organic/untreated woodchips shall be placed across the planting areas. Woodchips shall be kept well away (at least 2 inches) from the trunks and stems of woody plants. Woodchips will be kept at least four feet away from the edge of the stream banks in order to prevent unnecessary debris entering the stream.

7.0 PROJECT MONITORING PROGRAM

Requirements for monitoring project:
1. Initial compliance/as-built report.
2. Site inspection (twice per year) for five years, conducted in the spring and fall of each year.
3. Annual reports (one report submitted in the fall of each monitored year).

Purpose for Monitoring
The purpose for monitoring this mitigation project shall be to evaluate its success. Success will be determined if monitoring shows at the end of five years that the definitions of success stated below are met. The property owner shall grant access to the mitigation area for inspection and maintenance to the contracted landscape and/or wetland specialist and City of Kirkland during the monitoring period or until the project is evaluated as successful.

Monitoring
Monitoring shall be conducted for five years in accordance with the approved Mitigation Plan. The monitoring period will begin once the City receives written notification confirming the mitigation plan has been implemented and City staff inspects the site and issues approval of the installation. Site inspections will occur twice during each monitoring year. The spring inspection will entail a general assessment of the mitigation areas and providing maintenance

recommendations for the growing season. The fall inspection will entail review of the established sampling points/transects and photo points and data collected at these areas.

Vegetation Monitoring
Sampling points or transects will be established for vegetation monitoring and photo points will be established from which photos will be taken throughout the monitoring period. Permanent sampling points must be identified on the mitigation site plans in the first monitoring report (they may be drawn on approved plans by hand). Each sampling point shall detail herbaceous, shrub, and tree coverage. Monitoring of vegetation sampling points shall occur twice per monitored year.

Infiltration Trench Monitoring
During each monitoring visit, the infiltration trenches adjacent to the buffer will be visually inspected. The general condition of the trenches will be included in the annual monitoring reports submitted to the City of Kirkland. If scour, erosion, sediment deposition, and/or other localized or buffer impacts occur within the buffer area, temporary erosion and sediment control measures will be installed until the necessary repairs can be made. Prior to any repairs, the project engineers shall be notified of the situation; they will assist with the repair/rehabilitation process and will coordinate with the City of Kirkland engineers to determine a solution.

Photo points
No less than three permanent photo points will be established within the mitigation areas. Photographs will be taken from these points to visually record condition of the enhancement area. Photos shall be taken annually between May 15 and September 30 (prior to leaf drop), unless otherwise specified.

Monitoring Report Contents
Monitoring reports shall be submitted by December 31 of each year during the monitoring period. As applicable, monitoring reports must include descriptions / data for:

1. Site plan and vicinity map
2. Historic description of project, including date of installation, current year of monitoring, restatement of mitigation / restoration goals, and performance standards
3. Plant survival, vigor, and areal coverage for every plant community (transect or sampling point data), and explanation of monitoring methodology in the context of assessing performance standards
4. Slope condition, site stability, any structures or special features
5. Stream and buffer conditions, e.g., surrounding land use, use by humans, and/or wild and domestic creatures
6. General observations of infiltration trench conditions
7. Observed wildlife, including amphibians, avians, and others
8. Assessment of nuisance / exotic biota and recommendations for management
9. Color photographs taken from permanent photo-points that shall be depicted on the monitoring report map

8.0 PROJECT SUCCESS & COMPLIANCE

Criteria for Success
Upon completion of the proposed mitigation project, an inspection by a qualified biologist will be made to determine plan compliance. A compliance report will be supplied to the City of Kirkland within 30 days after the completion of planting. A landscape professional or wetland biologist will perform condition monitoring of the plantings annually in the fall. A written report describing the monitoring results will be submitted to the City after the fall site inspection of each monitored year. Final inspection will occur five years after completion of this project. The contracted consultant will prepare a report as to the success of the project.

Definition of Success – Planting Areas
The planting areas shall meet the following performance standards:

a) End of Year 1: 100 percent survival of newly planted species and less than 10 percent cover of weedy/invasive species,
b) End of Year 3: 80 percent survival of newly planted species and less than 10 percent cover of weedy/invasive species,
c) End of Year 5: at least 80 percent aerial cover of native woody plant species, mitigation plantings must contain at least 8 native tree/shrub species, and less than 10 percent cover of weedy/invasive species. Volunteering native species will be included in the aerial cover calculation.

The species mix should resemble that proposed in the planting plans, but strict adherence to obtaining all of the species shall not be a criterion for success.

Definition of Success – Infiltration Trenches
The infiltration trenches shall meet the following performance standards:

a) Buffer areas adjacent to the infiltration trenches are free from scour, erosion, sediment deposition, and/or other buffer impacts

9.0 MAINTENANCE

The mitigation areas will require periodic maintenance to remove undesirable species and replace vegetation mortality. Maintenance shall occur in accordance with the approved plans. Maintenance may include, but will not be limited to: removal of competing grasses (by hand if necessary), irrigation, fertilization (if necessary), replacement of plant mortality, and the replacement of mulch for each maintenance period. Chemical control, only if approved by City staff, shall be applied by a licensed applicator following all label instructions.

Duration and Extent
In order to achieve performance standards, the permittee shall have the mitigation area maintained for the duration of the five-year monitoring period. Maintenance will include:

watering, weeding around the base of installed plants, pruning, replacement, re-staking, removal of all classes of noxious weeds (see Washington State Noxious Weeds List, WAC 16-750-005) as well as Himalayan blackberry, and any other measures needed to ensure plant survival. The landscape designer and/or wetland biologist shall direct all maintenance.

Survival
The permittee shall be responsible for the health of 100% of all newly installed plants for *one growing season* after installation has been accepted by the City of Kirkland. A growing season for these purposes is defined as occurring from spring to spring (March 15 to March 15 of the following year). For fall installation (often required), the growing season will begin the following spring. The permittee shall replace any plants that are: failing, weak, defective in manner of growth, or dead during this growing season, as directed by the landscape designer, wetland biologist, and/or City of Kirkland staff.

Installation Timing for Replacement Plants
Replacement plants shall be installed between September 15 and January 15, unless otherwise determined by the landscape designer, wetland professional, and/or City of Kirkland staff.

Standards for Replacement Plants
Replacement plants shall meet the same standards for size and type as those specified for the original installation, unless otherwise directed by the landscape designer, wetland professional, and/or City of Kirkland staff.

Replanting
Plants that have settled in their planting pits too deep, too shallow, loose, or crooked shall be replanted as directed by the landscape designer, wetland professional, and/or City of Kirkland staff.

Herbicides / Pesticides
Chemical controls shall not be used in the mitigation area, sensitive areas, or their buffers. However, limited use of herbicides may be approved depending on site-specific conditions, only if approved by City of Kirkland staff.

Irrigation / Watering
Water should be provided during the dry season (July 1 through October 15) for the first two years after installation to ensure plant survival and establishment. A temporary above ground irrigation system and/or water truck should provide water. Water should be applied at a rate of 1" of water twice per week for year one and 1" per week during year two.

General
The permittee shall include in general maintenance activities the replacement of any vandalized or damaged signs, habitat features, fences, or other structural components of this mitigation site.

10.0 CONTINGENCY PLAN

If 20% of the plants are severely stressed during any of the inspections, or it appears 20% may not survive, additional plantings of the same species may be added to the planting area. Elements of a contingency plan may include, but will not be limited to: more aggressive weed control, pest control, mulching, replanting with larger plant material, species substitution, fertilization, soil amendments, and/or irrigation.

11.0 USE OF THIS REPORT

This Sensitive Area Study and Buffer Enhancement Plan is supplied to PSW Seattle, LLC as a means of determining on-site critical area conditions as required by the City of Kirkland during the permitting process. This report is based largely on readily observable conditions and, to a lesser extent, on readily ascertainable conditions. No attempt has been made to determine hidden or concealed conditions.

The laws applicable to wetlands are subject to varying interpretations and may be changed at any time by the courts or legislative bodies. This report is intended to provide information deemed relevant in the applicant's attempt to comply with the laws now in effect.

The work for this report has conformed to the standard of care employed by wetland ecologists. No other representation or warranty is made concerning the work or this report, and any implied representation or warranty is disclaimed.

Wetland Resources, Inc.

Meryl Kamowski
Senior Ecologist

12.0 References

City of Kirkland. *Kirkland Zoning Code, Chapter 90*. Kirkland, WA. December 9, 2003.

Cowardin, et al., 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Department of the Interior. FWS/OBS-79/31. December 1979.

Department of Ecology. 1997. *Washington State Wetlands Identification and Delineation Manual*. Publication #96-94. March 1997.

Hruby, T. 2014. *Washington State Wetland Rating System for Western Washington: 2014 Update*. Publication #14-06-029. Olympia, WA. Washington Department of Ecology.

King County. 2014. *iMap Interactive Mapping Tool*. http://gismaps.kingcounty.gov/iMap/.

Lichvar, Tobert W. and J.T. Kartesz, 2012. *National Wetland Plant List, Version 3.0*, (http://wetland_plants.usace.army.mil). U.S. Army Corps of Engineers Engineer Research and Development Center Cold Regions Research and Engineering Laboratory, Hanover NH and BONAP, Chapel Hill, NC.

NRCS. 2014. *Web Soil Survey*. United States Department of Agriculture. http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

StreamNet. 2014. *StreamNet Mapper*. http://www.streamnet.org/data/interactive-maps-and-gis-data/.

Soil Conservation Service. 1973. *Soil Survey of King County Area Washington*. November 1973.

US Army COE. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*. Vicksburg, MS

USFWS. 2014. *National Wetlands Inventory (NWI) Online Mapper*. http://www.fws.gov/wetlands/Data/Mapper.html.

WDFW. 2014a. *Priority Habitat and Species (PHS) Interactive Map*. http://apps.wdfw.wa.gov/phsontheweb/.

WDFW. 2014b. *SalmonScape Online Mapping Application*. http://apps.wdfw.wa.gov/salmonscape/map.html.

King County
Department of Permitting
and Environmental Review
35030 SE Douglas Street, Suite 210
Snoqualmie, WA 98065-9266
206-296-6600 TTY Relay: 711

Critical Areas Mitigation
Bond Quantity Worksheet

C24 Web date: 11/30/2012

For alternate formats, call 206-296-6600.
Print on legal-size (8 1/2 x 14") paper only.

Project Name: PSW - Firwood Lane Date: 12/8/2015 Prepared by: M.Kamowski
Project Number: Project Description: Buffer Enhancement
Location: Kirkland, WA Applicant: PSW Seattle, LLC Phone: (425) 337-3174

PLANT MATERIALS*

Type	Unit Price	Unit	Quantity	Description	Cost
PLANTS: Potted, 4" diameter, medium	$5.00	Each			$ -
PLANTS: Container, 1 gallon, medium soil	$11.50	Each	1603		$ 18,434.50
PLANTS: Container, 2 gallon, medium soil	$20.00	Each			$ -
PLANTS: Container, 5 gallon, medium soil	$36.00	Each			$ -
PLANTS: Seeding, by hand	$0.50	SY			$ -
PLANTS: Slips (willow, red-osier)	$2.00	Each			$ -
PLANTS: Stakes (willow)	$2.00	Each			$ -
PLANTS: Stakes (willow)	$2.00	Each			$ -
PLANTS: Flats/plugs	$2.00	Each			$ -
* All costs include installation				TOTAL	$ 18,434.50

INSTALLATION COSTS (LABOR, EQUIPMENT, & OVERHEAD)

Type	Unit Price	Unit			Cost
Compost, vegetable, delivered and spread	$37.88	CY			$ -
Decompacting till/hardpan, medium, to 6" depth	$1.57	CY	283.00		$ 444.31
Decompacting till/hardpan, medium, to 12" depth	$1.57	CY			$ -
Hydroseeding	$0.51	SY			$ -
Labor, general (landscaping)	$40.00	HR	10.00		$ 400.00
Labor, general (construction)	$40.00	HR			$ -
Labor: Consultant, supervising	$55.00	HR	4.00		$ 220.00
Labor: Consultant, on-site re-design	$95.00	HR			$ -
Rental of decompacting machinery & operator	$70.00	HR			$ -
Sand, coarse builder's, delivered and spread	$42.00	CY			$ -
Staking material (set per tree)	$7.00	Each			$ -
Surveying, line & grade	$250.00	HR			$ -
Surveying, topographical	$250.00	HR			$ -
Watering, 1" of water, 50' soaker hose	$3.62	MSF			$ -
Irrigation - temporary	$3,000.00	Acre	0.88		$ 2,640.00
Irrigation - buried	$4,500.00	Acre			$ -
Tilling topsoil, disk harrow, 20hp tractor, 4"-6" deep	$1.02	SY			$ -
	$25.00	HR			$ -
					$ -
				TOTAL	$ 3,704.31

HABITAT STRUCTURES*

ITEMS	Unit Cost	Unit			Cost
Fascines (willow)	$ 2.00	Each			$ -
Logs, (cedar), w/ root wads, 16"-24" diam., 30' long	$1,000.00	Each			$ -
Logs (cedar) w/o root wads, 16"-24" diam., 30'	$400.00	Each			$ -
Logs, w/o root wads, 16"-24" diam., 30' long	$245.00	Each			$ -
Logs w/ root wads, 16"-24" diam., 30' long	$460.00	Each			$ -
Rocks, one-man	$60.00	Each			$ -
Rocks, two-man	$120.00	Each			$ -
Root wads	$163.00	Each			$ -
Spawning gravel, type A	$22.00	CY			$ -
Weir - log	$1,500.00	Each			$ -
Weir - adjustable	$2,000.00	Each			$ -
Woody debris, large	$163.00	Each	2.00		$ 326.00
Snags - anchored	$400.00	Each			$ -
Snags - on site	$50.00	Each			$ -
Snags - imported	$800.00	Each			$ -
					$ -
					$ -
* All costs include delivery and installation				TOTAL	$ 326.00

EROSION CONTROL

ITEMS	Unit Cost	Unit			Cost
Backfill and Compaction-embankment	$ 4.89	CY			$ -
Crushed surfacing, 1 1/4" minus	$30.00	CY			$ -
Ditching	$7.03	CY			$ -
Excavation, bulk	$4.00	CY			$ -
Fence, silt	$1.60	LF			$ -
Jute Mesh	$1.26	SY			$ -
Mulch, by hand, straw, 2" deep	$1.27	SY			$ -
Mulch, by hand, wood chips, 2" deep	$3.25	SY	1258.00		$ 4,088.50
Mulch, by machine, straw, 1" deep	$0.32	SY			$ -
Piping, temporary, CPP, 6"	$9.30	LF			$ -
Piping, temporary, CPP, 8"	$14.00	LF			$ -
Piping, temporary, CPP, 12"	$18.00	LF			$ -
Plastic covering, 6mm thick, sandbagged	$2.00	SY			$ -
Rip Rap, machine placed, slopes	$33.98	CY			$ -
Rock Constr. Entrance 100'x15'x1'	$3,000.00	Each			$ -
Rock Constr. Entrance 50'x15'x1'	$1,500.00	Each			$ -
Sediment pond riser assembly	$1,695.11	Each			$ -
Sediment trap, 5' high berm	$15.57	LF			$ -
Sediment trap, 5' high berm w/spillway incl. riprap	$59.60	LF			$ -
Sodding, 1" deep, level ground	$5.24	SY			$ -
Sodding, 1" deep, sloped ground	$6.48	SY			$ -
Straw bales, place and remove	$600.00	TON			$ -
Hauling and disposal	$20.00	CY			$ -
Topsoil, delivered and spread	$35.73	CY			$ -
	$17.00	CY			$ -
					$ -
				TOTAL	$ 4,088.50

GENERAL ITEMS

ITEMS	Unit Cost	Unit			Cost
Fencing, chain link, 6' high	$18.89	LF			$ -
Fencing, chain link, corner posts	$111.17	Each			$ -
Fencing, chain link, gate	$277.63	Each			$ -
Fencing, split rail, 3' high (2-rail)	$10.54	LF	690.00		$ 7,272.60
Fencing, temporary (NGPE)	$1.20	LF			$ -
Signs, sensitive area boundary (inc. backing, post, install)	$28.50	Each	10.00		$ 285.00
					$ -
					$
					$ -
				TOTAL	**$ 7,557.60**
				(Construction Cost Subtotal)	**$ 34,110.91**

OTHER

ITEMS	Percentage of Construction	Unit			Cost
Mobilization	10%				$ 3,411.09
Contingency	30%				$ 10,233.27
				TOTAL	**$ 13,644.36**

MAINTENANCE AND MONITORING

NOTE: Projects with multiple permit requirements may be required to have longer monitoring and maintenance terms. This will be evaluated on a case-by-case basis for development applications. Monitoring and maintance ranges may be assessed anywhere from 5 to 10 years.

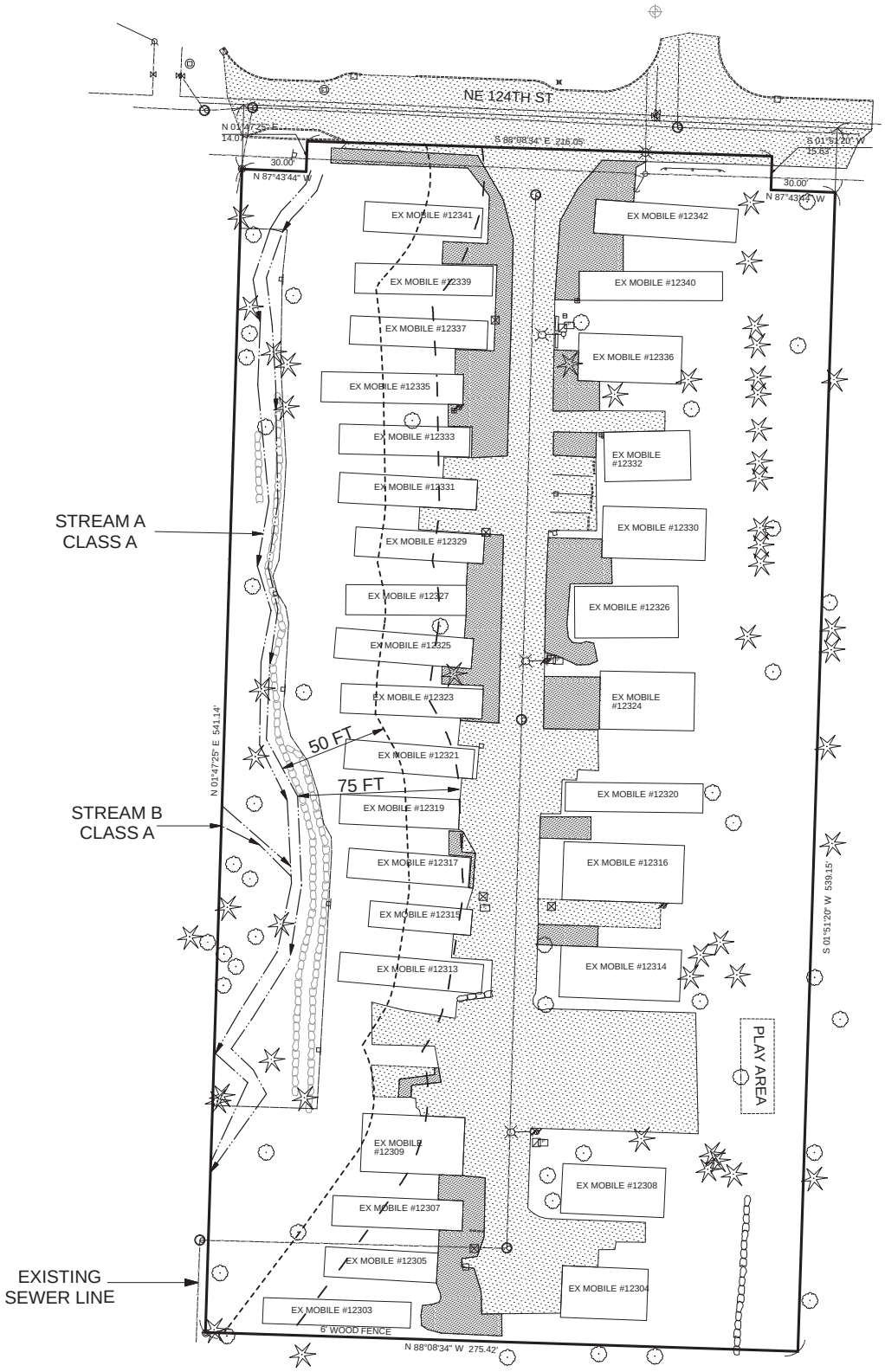
Maintenance, annual					
Less than 1,000 sq.ft. and buffer mitigation only	$ 1.08	SF		(total for 3 annual events, Includes monitoring)	$ -
Less than 1,000 sq.ft. with wetland or aquatic area mitigation	$ 1.35	SF		(3 X SF total for 3 annual events; Includes monitoring)	$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of buffer mitigation	$ 180.00	EACH		(4hr @$45/hr)	$ -
Larger than 1,000 sq. ft. but less than 5,000 sq.ft. of wetland or aquatic area mitigation	$ 270.00	EACH		(6hr @$45/hr)	$ -
Larger than 5,000 sq.ft. but < 1 acre -buffer mitigation only	$ 360.00	EACH	10.00	(8 hrs @ 45/hr)	$ 3,600.00
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area mitigation	$ 450.00	EACH		(10 hrs @ $45/hr)	$ -
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area mitigation	$ 1,600.00	DAY		(WEC crew)	$ -
Larger than 5 acres - buffer and / or wetland or aquatic area mitigation	$ 2,000.00	DAY		(1.25 X WEC crew)	$ -
Monitoring, annual					
Larger than 1,000 sq.ft. but less than 5,000 wetland or buffer mitigation	$ 720.00	EACH		(8 hrs @ 90/hr)	$ -
Larger than 5,000 sq.ft. but < 1 acre with wetland or aquatic area impacts	$ 900.00	EACH	10.00	(10 hrs @ $90/hr)	$ 9,000.00
Larger than 1 acre but < 5 acres - buffer and / or wetland or aquatic area impacts	$ 1,440.00	DAY		(16 hrs @ $90/hr)	$ -
Larger than5 acres - buffer and / or wetland or aquatic area impacts	$ 2,160.00	DAY		(24 hrs @ $90/hr)	$ -
Maintenance and Monitoring Inspection (DDES), annual	$350.00	EACH		(2.5 hrs @ $140/hr)	$ -
Maintenance and Monitoring Inspection (DDES), final	$560.00	EACH		(4 hrs @ $140/hr)	$ -
				TOTAL	**$ 12,600.00**

Total	$60,355.27

EXISTING CONDITIONS MAP

PSW SEATTLE - FIRWOOD LANE

PORTION OF SECTION 30, TOWNSHIP 26, RANGE 05E, W.M.



LEGEND

- STREAM
- STANDARD 75-FOOT BUFFER
- REDUCED 50-FOOT BUFFER

Scale 1" = 50'

0 25 50 75 100

Wetland Resources, Inc.
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
9505 19th Avenue S.E. Suite 106 Everett, Washington 98208
Phone: (425) 337-3174
Fax: (425) 337-3045
Email: mailbox@wetlandresources.com

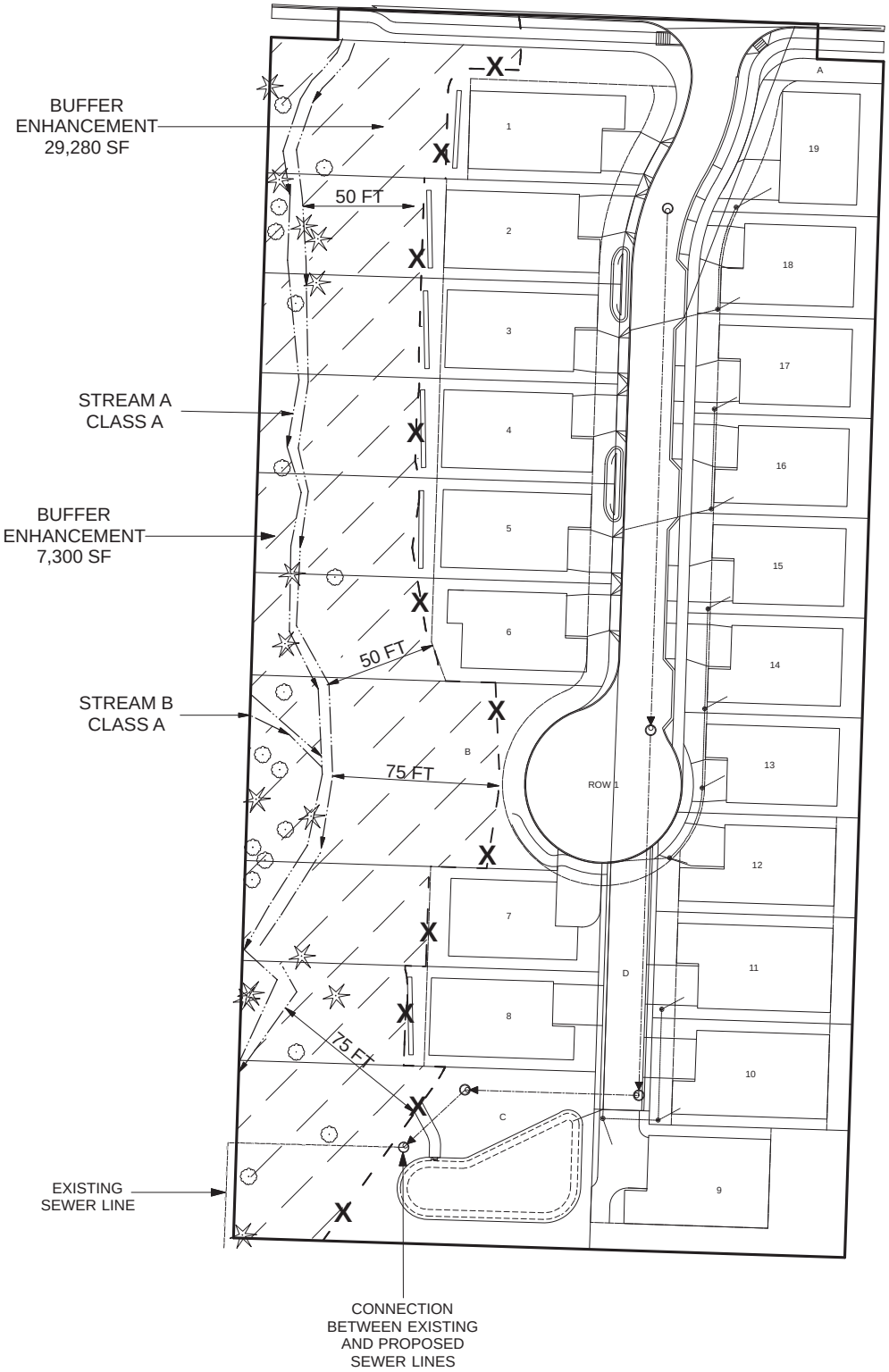
EXISTING CONDITIONS MAP
PSW SEATTLE - FIRWOOD LANE

Sheet 1/4
WRI Job # 15057
PSW Seattle, LLC — Drawn by: MK
Ben Rutkowski — Date: 06.10.2015
218 Main Street #109 — Revision #1: 10.14.2015
Kirkland WA 98033 — Revision #2: 12.08.2015

SENSITIVE AREA STUDY AND BUFFER ENHANCEMENT PLAN

PSW SEATTLE - FIRWOOD LANE

PORTION OF SECTION 30, TOWNSHIP 26, RANGE 05E, W.M.



LEGEND

- STREAM
- BUFFER
- BUFFER ENHANCEMENT
- X FENCE

Scale 1" = 50'

0 25 50 75 100

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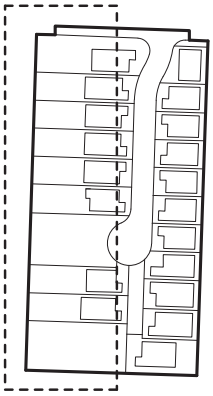
Email: mailbox@wetlandresources.com

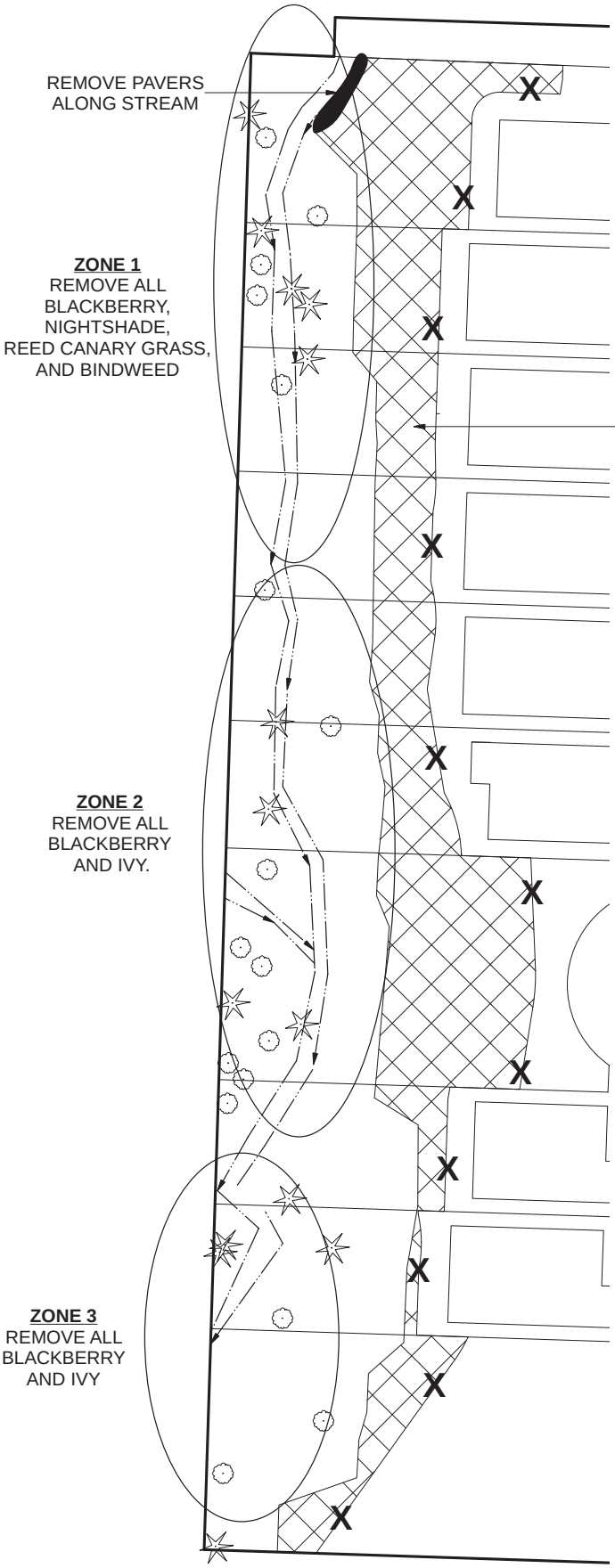
SENSITIVE AREAS AND BUFFER ENHANCEMENT PLAN
PSW SEATTLE - FIRWOOD LANE

Sheet 2/4
WRI Job # 15057
Drawn by: MK
Date: 06.10.2015
Revision #1: 10.14.2015
Revision #2: 12.08.2015

PSW Seattle, LLC
Ben Rutkowski
218 Main Street #109
Kirkland WA 98033

ENHANCEMENT PREPARATION PLAN
PSW SEATTLE - FIRWOOD LANE
PORTION OF SECTION 30, TOWNSHIP 26, RANGE 05E, W.M.





LEGEND

STREAM

CULTIVATION/ SOIL DECOMPACTION

X FENCE

Scale 1" = 40'

0 20 40 60 80

Wetland Resources, Inc.
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance
9505 19th Avenue S.E. Suite 106 Everett, Washington 98208
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Email: mailbox@wetlandresources.com

ENHANCEMENT PREPARATION PLAN
PSW SEATTLE - FIRWOOD LANE

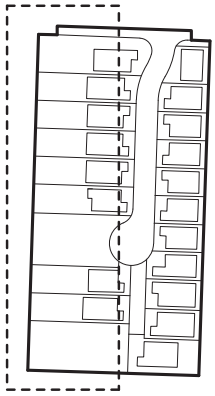
Sheet 3/4
WRI Job # 15057
Drawn by: MK
Date: 06.10.2015
Revision #1: 10.14.2015
Revision #2: 12.08.2015

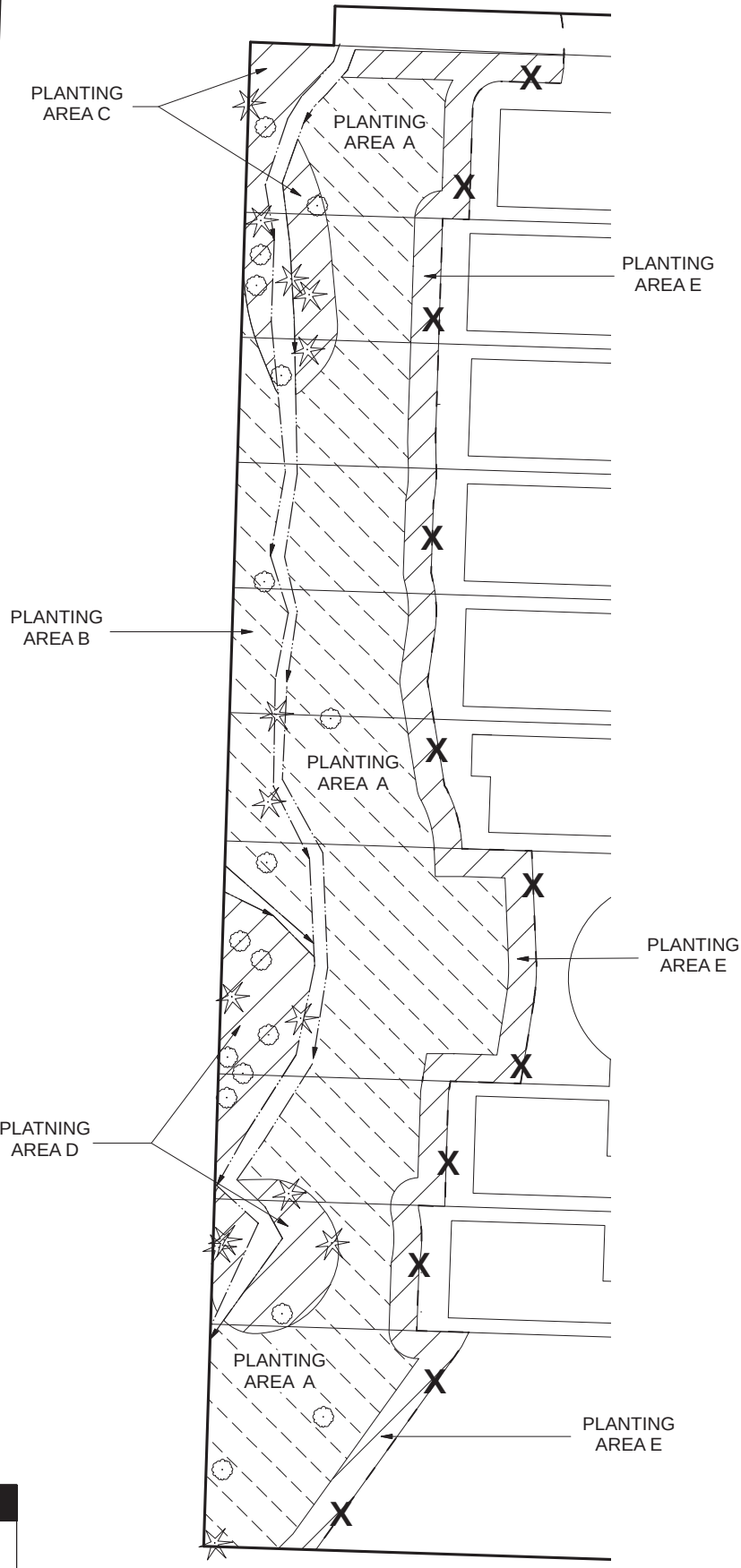
PSW Seattle, LLC
Ben Rutkowski
218 Main Street #109
Kirkland WA 98033

BUFFER ENHANCEMENT PLANTING PLAN

PSW SEATTLE - FIRWOOD LANE

PORTION OF SECTION 30, TOWNSHIP 26, RANGE 05E, W.M.





LEGEND

- STREAM
- SHRUBS AND HERBACEOUS PLANTS
- TREES, SHRUBS, AND HERBACOUS PLANTS
- X FENCE

Scale 1" = 40'

0 20 40 60 80

Wetland Resources, Inc.
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BUFFER ENHANCEMENT PLANTING PLAN
PSW SEATTLE - FIRWOOD LANE

Sheet 4/4
WRI Job # 15057
Drawn by: MK
Date: 06.10.2015
Revision #1: 10.14.2015
Revision #2: 12.08.2015

PSW Seattle, LLC
Ben Rutkowski
218 Main Street #109
Kirkland WA 98033

Tree Solutions Inc
Consulting Arborists

Project No. TS - 4796

Arborist Report

TO:	PSW Real Estate, c/o Ben Rutowski
SITE:	12342 93rd Lane NE Kirkland, WA 98034
RE:	Firwood Lane LP Report
DATE:	May 19, 2015
PREPARED BY:	Chris Madison , ISA Certified Arborist #PN- 7671A ISA Qualified Tree Risk Assessor
	J. Casey Clapp, ISA Certified Arborist #PN- 7475A ISA Qualified Tree Risk Assessor

Summary
We have identified seventy-four (74) trees that exist on site; thirty-one (31) of them are proposed to be retained and protected throughout all phases of site work activities. Three (3) trees are not viable due to their form, or species.

None of the trees designated to remain should be negatively impacted by the removal of non-viable trees. For this 152,140 square foot site, the Kirkland Zoning Code (95.33) requires a minimum tree density of one-hundred and five (105) credits; if the proposed thirty-one (31) trees are retained and protected, the total tree credits for the site would equal one-hundred and forty (140).

Nineteen (19) trees on adjacent properties have canopies that slightly overhang the site. In my opinion, these trees will not be negatively impacted by the activities necessary for the removal of the proposed trees on site.

Assignment & Scope of Report
This report outlines the site inspection of 12342 93rd Lane NE by Chris Madison and Casey Clapp of Tree Solutions, Inc., on May 7, 2015. We were asked to perform a limited visual assessment of the significant trees on site, with reference to a topographical survey dated November 25, 2014 provided to us by Ben Rutkowski of PSW Real Estate. We were asked to document the species, size, health condition, viability, and limits of disturbance for each tree, as well as produce an Arborist Report addressing tree retention possibilities for the site throughout construction. Ben Rutkowski of PSW Real Estate requested these services to acquire information for project planning in accord with requirements set by the City of Kirkland.

We spoke to Moira of the Blue Line group, the current planning coordinator for this project on May 11, 2015. She requested that we write the report with retention requirements for the site as a whole. It's our understanding that the site will later be sub-divided.

Specific details on each tree can be found in the Attached: Table of Trees. A site map with tree locations can be found in the Attached: Topographic Survey with Mark ups. Photographs, Glossary and References follow this report. Limits of assignment can be found in Appendix A. Methods can be found in Appendix B. Additional assumptions and limiting conditions can be found in Appendix C.

Observations

Site

The 152,140 square foot site fronts 124th St in Kirkland. The site is currently occupied by thirty one mobile units. These mobile units vary in size and condition. Many of the mobile units have fences marking their area. Landscape care of the surrounding trees and shrubs varied from owner to owner.

To the west of the site is a riparian corridor. This area was set back from the mobile structures to the east, and had numerous single family homes located to the west. This area had numerous invasive species including invasive English ivy (*Hedera helix*), Himalayan blackberry (*Rubus bifrons*), among others.

Near the 12309 mobile unit we noted that the land was subsiding, most likely due to erosion caused by the creek below.

Trees

Seventy-four significant trees currently exist on site. The tree species ranged from native evergreens to ornamental deciduous trees.

A grove of exceptionally large Douglas-fir (*Pseudotsuga menziesii*) tree existed on site along the northeast corner (Photo 1). These trees made a continuous grove, with a heights over one hundred feet.

Most of the ornamental trees located around the mobile units were too close, and as a result many were heavily pruned for clearance.

The western portion of this site is a riparian corridor with numerous native species typical to this biome. These species include Scouler's willow (*Salix scouleriana*) and red alder (*Alnus rubra*). This area also contained numerous non-native species, indicating this area is heavily impacted by the surrounding urban environment. Non-native significant trees found in this area include white cedar (*Thuja occidentalis*), red maple (*Acer rubrum*), and Lawson cypress (*Chamaecyparis lawsoniana*).

There was a small collection of six Douglas fir in the Northwest corner that were adjacent to the site. We did not measure the overhanging drip lines of these trees because they will be in a protected area, and therefore will not have construction planned near their critical root zone.

Discussion

We noted a few heavily pruned English holly trees (*Ilex aquifolium*)- trees 11 and 13. We marked these trees as 'not viable', as they have a tendency to become invasive in our native forest areas and in our professional opinion should not be kept.

We marked tree 9, a European birch (*Betula pendula*), as 'not viable' due to its structural condition.

The grove of large Douglas-firs currently offers tremendous value to the landscape due to their size. Removal of any one of these trees would negatively affect the rest of the trees, as they all have a shared canopy. The nearby trees create a dampening and buffering effect during windy conditions or gusts. Currently these trees are scheduled for removal. If these trees could be retained, they would continue to offer significant benefit to site and region. Additional testing may be required to assess them for internal decay.

We noted all of the trees in the riparian area to be viable trees despite some of the structural conditions to be fair to poor. There were no targets in this area, and the trees were all of relatively small size. These trees also offer significant habitat to wildlife species in this buffer area.

We do not have plans currently that show building footprint, so we are unable to comment on possible additional tree retention after construction activities begin.

Recommendations

- Acquire the proper permitting for all tree removal activity on site.
- Plant native evergreen trees if additional tree credit requirements are needed.
- Seek additional advice if any of the large Douglas-firs are to be retained.

Photographs

Photo 1- Grove of large Douglas-fir to the northeast.

Glossary

co-dominant stems: stems or branches of nearly equal diameter, often weakly attached (Matheny *et al.* 1998)
crown/canopy: the aboveground portions of a tree (Lilly 2001)
DSH: diameter at standard height; the diameter of the trunk measured 54 inches (4.5 feet) above grade (Matheny *et al.* 1998)
ISA: International Society of Arboriculture
included bark: bark that becomes embedded in a crotch between branch and trunk or between codominant stems and causes a weak structure (Lilly 2001)
significant size: a tree measuring 6" DSH or greater
structural defects: flaws, decay, or other faults in the trunk, branches, or root collar of a tree, which may lead to failure (Lilly 2001)

References

ANSI A300 (Part 1) – 2008 American National Standards Institute. American National Standard for Tree Care Operations: Tree, Shrub, and Other Woody Plant Maintenance: Standard Practices (Pruning). New York: Tree Care Industry Association, 2008.

Dunster & Associates Environmental Consultants Ltd. Assessing Trees in Urban Areas and the Urban-Rural Interface, US Release 1.0. Silverton: Pacific Northwest Chapter ISA, 2006.

Kirkland Zoning Code Chapter 95.

Lilly, Sharon. Arborists' Certification Study Guide. Champaign, IL: The International Society of Arboriculture, 2001.

Matheny, Nelda and James R. Clark. Trees and Development: A Technical Guide to Preservation of Trees During Land Development. Champaign, IL: International Society of Arboriculture, 1998.

Mattheck, Claus and Helge Breloer, The Body Language of Trees.: A Handbook for Failure Analysis. London: HMSO, 1994.

Appendix A - Limits of Assignment

Unless stated otherwise: 1) information contained in this report covers only those trees that were examined and reflects the condition of those trees at the time of inspection; and 2) the inspection is limited to visual examination of the subject trees without dissection, excavation, probing, climbing, or coring unless explicitly specified. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.

Tree Solutions did not review any reports or perform any tests related to the soil located on the subject property unless outlined in the scope of services. Tree Solutions staff are not and do not claim to be soils experts. An independent inventory and evaluation of the site's soil should be obtained by a qualified professional if an additional understanding of the site's characteristics is needed to make an informed decision.

Appendix B - Methods

We evaluated tree health and structure utilizing **visual tree assessment (VTA)** methods. The basis behind VTA is the identification of symptoms, which the tree produces in reaction to a weak spot or area of mechanical stress. A tree reacts to mechanical and physiological stresses by growing more vigorously to re-enforce weak areas, while depriving less stressed parts (Mattheck & Breloer 1994). An understanding of the uniform stress allows me to make informed judgments about the condition of a tree.

We measured the diameter of each tree at 54 inches above grade, **diameter at standard height (DSH)**. If a tree has multiple stems, we measured each stem individually at standard height and determined a single-stem equivalent diameter by using the method outlined in the Guide for Plant Appraisal, 9th Edition, published by the Council of Tree and Landscape Appraisers.

For the limits of disturbance of each tree we used forty percent of the average drip line distance. Drip lines were measured using a laser range finder from the outer part of the trunk to the furthest part of the branch. Each cardinal direction was captured, and can be found in the Attached: Table of Trees.

Appendix C - Assumptions & Limiting Conditions

1. Consultant assumes that any legal description provided to Consultant is correct and that title to property is good and marketable. Consultant assumes no responsibility for legal matters. Consultant assumes all property appraised or evaluated is free and clear, and is under responsible ownership and competent management.

2. Consultant assumes that the property and its use do not violate applicable codes, ordinances, statutes or regulations.

3. Although Consultant has taken care to obtain all information from reliable sources and to verify the data insofar as possible, Consultant does not guarantee and is not responsible for the accuracy of information provided by others.

4. Client may not require Consultant to testify or attend court by reason of any report unless mutually satisfactory contractual arrangements are made, including payment of an additional fee for such Services as described in the Consulting Arborist Agreement.

5. Unless otherwise required by law, possession of this report does not imply right of publication or use for any purpose by any person other than the person to whom it is addressed, without the prior express written consent of the Consultant.

6. Unless otherwise required by law, no part of this report shall be conveyed by any person, including the Client, the public through advertising, public relations, news, sales or other media without the Consultant's prior express written consent.

7. This report and any values expressed herein represent the opinion of the Consultant, and the Consultant's fee is in no way contingent upon the reporting of a specific value, a stipulated result, the occurrence of a subsequent event or upon any finding to be reported.

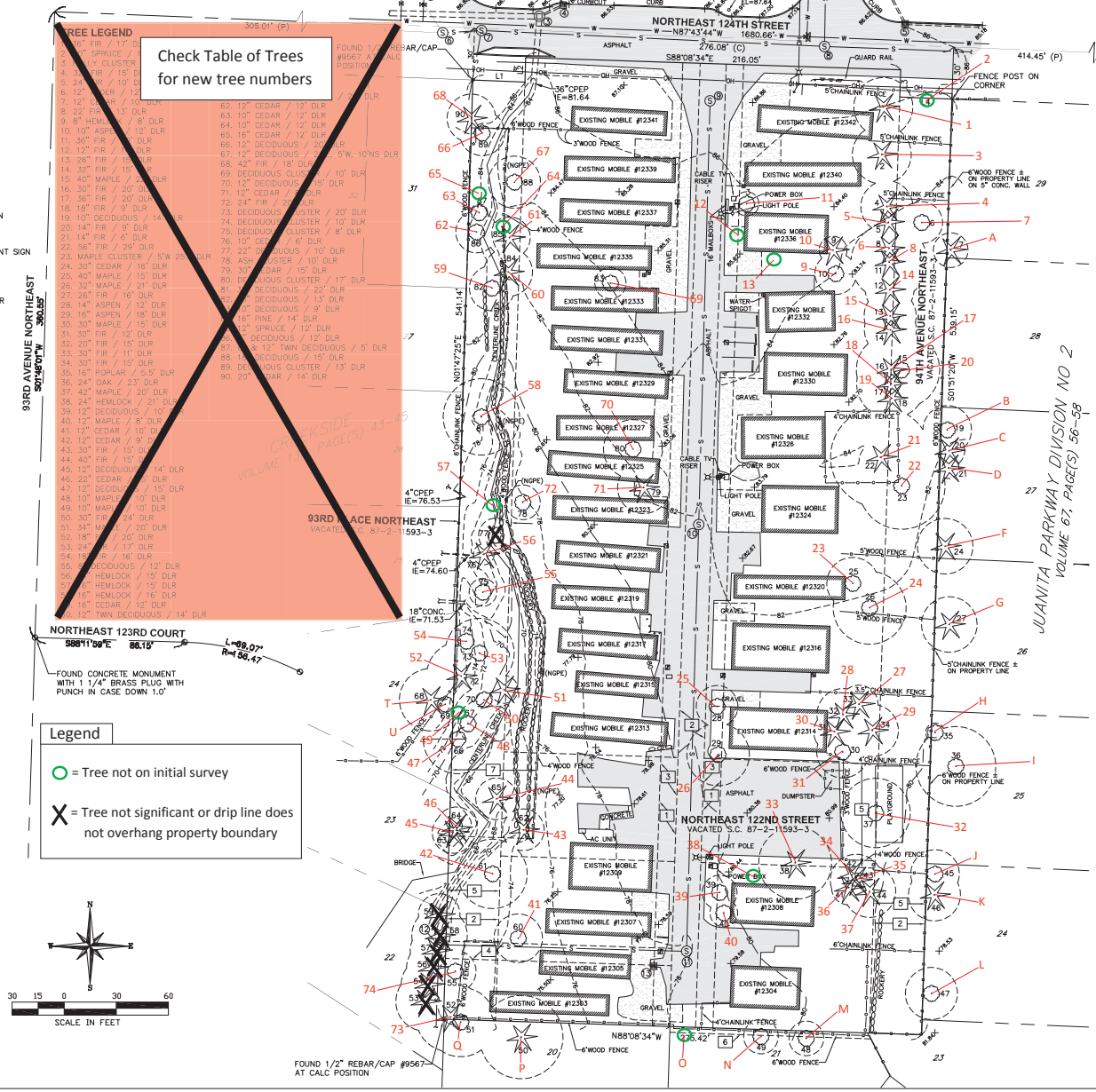
8. All photographs included in this report were taken by Tree Solutions Inc. during the documented site visit, unless otherwise noted.

9. Sketches, drawings and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys. The reproduction of any information generated by architects, engineers or other consultants and any sketches, drawings or photographs is for the express purpose of coordination and ease of reference only. Inclusion of such information on any drawings or other documents does not constitute a representation by Consultant as to the sufficiency or accuracy of the information.

10. Unless otherwise agreed, (1) information contained in this report covers only the items examined and reflects the condition of the those items at the time of inspection; and (2) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, climbing, or coring. Consultant makes no warranty or guarantee, express or implied, that the problems or deficiencies of the plans or property in question may not arise in the future.

11. Loss or alteration of any part of this Agreement invalidates the entire report.

PORTION OF SE 1/4 OF SECTION 30, TOWNSHIP 26N, RANGE 5E, WM



LEGEND

- FOUND CONCRETE MONUMENT
- SET 1/2" REBAR/CAP #40524
- FOUND 1/2" REBAR/CAP AS NOTED
- SET LINE STAKE
- SET TACK WITH SHINER #40524
- UTILITY POLE
- YARD LIGHT
- UTILITY POLE WITH LUMINARE
- GUY ANCHOR
- POWER METER
- POWER RISER
- CABLE TV BOX
- WATER METER
- HYDRANT
- WATER VALVE
- CATCH BASIN
- STORM DRAIN MANHOLE
- SANITARY SEWER MANHOLE
- GAS VALVE
- GAS METER
- TELEPHONE BOX
- SIGN AS NOTED
- G - APPROX. GAS LINE LOCATION
- W - APPROX. WATER LINE LOCATION
- S - APPROX. SANITARY SEWER LINE LOCATION
- OH - APPROX. OVERHEAD UTILITY LINE LOCATION
- (M) MEASURED DIMENSION
- (P) PLAT DIMENSION
- (C) CALCULATED DIMENSION
- (NGPE) NATURAL GREENBELT PROTECTIVE EASEMENT SIGN
- DLR DRIP LINE RADIUS

BASIS OF BEARINGS

N87°43'44"W ALONG THE MONUMENTED CENTER LINE OF NORTHEAST 124TH STREET

REFERENCES

–WEST PROPERTY LINE SURVEY RECORDED IN VOLUME 120, PAGE(S) 135

–PLAT OF JUANITA PARKWAY DIVISION NO. 2 RECORDED IN VOLUME 67, PAGE(S) 56–58

–PLAT OF CREEKSIDE RECORDED IN VOLUME 130, PAGE(S) 43–45

STRUCTURE LEGEND

1. STORM DRAIN MANHOLE
   RIM = 87.47
   IE(NE) 8"CMP = 84.24
2. CATCH BASIN
   RIM = 86.87
   IE(SW) 8"CMP = 84.47
   IE(NE) 6"PVC = 84.27
3. STORM DRAIN MANHOLE
   RIM = 86.62
   IE(NE) 12"CPEP = 83.42
   IE(S,W) 36"CPEP = 82.02
4. CATCH BASIN
   RIM = 86.29
   IE(SW) 12"CPEP = 84.39
   IE(NW) 6"PVC = 84.69
5. CATCH BASIN
   RIM = 85.94
   IE(N,E) 12"CPEP = 81.94
6. SANITARY SEWER MANHOLE
   RIM = 87.71
   IE(N,E,W) 79.76
7. SANITARY SEWER MANHOLE
   RIM = 87.21
   IE(E,W,S) 79.01
8. SANITARY SEWER MANHOLE
   RIM = 87.44
   IE(E,W,N) 77.77
9. SANITARY SEWER MANHOLE
   RIM = 86.58
   IE(N) BEGIN OF CHANNEL
   IE(S) 79.83
10. SANITARY SEWER MANHOLE
    RIM = 81.75
    IE(N,S) 74.50
11. SANITARY SEWER MANHOLE
    RIM = 77.83
    IE(N,W) 71.51
12. SANITARY SEWER MANHOLE
    RIM = 71.51
    IE(N) BEGIN OF CHANNEL
    IE(E,S) 65.46
13. CATCH BASIN
    OIL/WATER SEPARATOR
    RIM = 77.12
    IE(TO TOP) 76.12
    IE(TO WATER) 75.67

TOTAL AREA

152,140 S.F.
3.49 ACRES

EASEMENT LEGEND

1. PUGET SOUND POWER AND LIGHT COMPANY EASEMENT RECORDING NO. 7610210557
2. ACCESS AND OPEN SPACE EASEMENT RECORDING NO. 7807240859
3. GENERAL TELEPHONE COMPANY OF THE NORTHWEST EASEMENT RECORDING NO. 8004280546
4. NORTHEAST LAKE WASHINGTON SEWER AND WATER DISTRICT EASEMENT RECORDING NO. 8510110720
5. EASEMENT PER SUPERIOR COURT CAUSE NO. 87–2–11593–3 RECORDING NO. 8710300617
6. CONCRETE RETAINING WALL AND FENCE EASEMENT RECORDING NO. 9304211187
7. NATURAL GREENBELT PROTECTIVE EASEMENT RECORDING NO. 20030321000386

LEGAL DESCRIPTION

LOTS 1 THROUGH 26, INCLUSIVE, BLOCK 3, ALSO LOTS 1 AND 2 AND THE NORTH 7.5 FEET OF LOT 3, AND THE NORTH 20 FEET OF LOT 21 AND ALL OF LOTS 22, 23 AND 24, BLOCK 18, WATERFRONT ADDITION TO KIRKLAND, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 6 OF PLATS, PAGES 92 THROUGH 94, INCLUSIVE, IN KING COUNTY, WASHINGTON;

TOGETHER WITH THOSE PORTIONS OF STREETS AND ALLEYS VACATED BY ORDER ENTERED OCTOBER 3, 1987, UNDER KING COUNTY SUPERIOR COURT CAUSE NO. 87–2–11593–3, DESCRIBED AS FOLLOWS:

ALL OF NORTHEAST 122ND STREET (4TH STREET) LYING EAST OF THE PLAT OF CREEKSIDE, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 130 OF PLATS, PAGES 43 THROUGH 45, INCLUSIVE, IN KING COUNTY, WASHINGTON, AND LYING WEST OF LOTS 24 AND 25, BLOCK 1, JUANITA PARKWAY DIVISION NO. 2, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 67 OF PLATS, PAGES 56 THROUGH 58, INCLUSIVE, IN KING COUNTY, WASHINGTON;

ALSO THE EAST HALF OF 93RD PLACE NORTHEAST (KIRKLAND AVENUE), AND THE WEST HALF OF 94TH AVENUE NORTHEAST (MANCHESTER STREET), AND ALL ALLEYWAYS WITHIN BLOCKS 3 AND 18, WATERFRONT ADDITION TO KIRKLAND, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 6 OF PLATS, PAGES 92 THROUGH 94, INCLUSIVE, IN KING COUNTY, WASHINGTON, LYING NORTH OF LOTS 20 AND 21, BLOCK 1, JUANITA PARKWAY DIVISION NO. 2, AND SOUTH OF A LINE LOCATED 30 FEET SOUTH OF AND PARALLEL WITH THE CENTERLINE OF NORTHEAST 124TH STREET.

(PER CHICAGO TITLE COMPANY OF WASHINGTON, ORDER NO. 0026279–06, DATED: OCTOBER 13, 2014)

NOTES

INSTRUMENTATION FOR THIS SURVEY WAS A SOKKIA 530R TOTAL STATION.

PROCEDURES USED WERE FIELD TRAVERSE, MEETING OR EXCEEDING STANDARDS SET BY WAC 332–130–090

ALL UTILITIES SHOWN WERE DERIVED FROM PHYSICAL LOCATIONS ON THE GROUND SURFACE AT TIME OF SURVEY. CONTRACTOR TO VERIFY PRIOR TO ANY EXCAVATION.

THIS SURVEY HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF PARTIES WHOSE NAMES APPEAR HEREON ONLY, AND DOES NOT EXTEND TO ANY UNNAMED THIRD PARTIES WITHOUT EXPRESS RECERTIFICATION BY THE LAND SURVEYOR.

BOUNDARY LINES SHOWN REPRESENT DEED LOCATIONS, OWNERSHIP LINES MAY VARY. NO GUARANTEE OF OWNERSHIP IS EXPRESSED OR IMPLIED.

DATUM

NAVD88
DESIGNATION: 51
DB ID: 46517
DESCRIPTION: CONCRETE MONUMENT IN CASE WITH BRASS PIN SET IN LEAD 0.75' BELOW SURFACE.
LOCATION: AT THE INTERSECTION OF NORTHEAST 124TH STREET AND 100TH AVENUE NORTHEAST.
ELEVATION: 77.82

11/25/2014

DWN BY	CHKD BY	DATE	NOTES
MRW/RJW	JRW	11/25/2014	

Allied Land Surveying, Inc.
2312 168th Street Southeast
Bothell, WA 98012
(P) 425-482-9223

TOPOGRAPHIC SURVEY FOR PSW SEATTLE

218 MAIN STREET, #109
KIRKLAND, WA. 98033

SHEET 1 of 1

JOB No. 14071

Tree Solutions Inc
Consulting Arborists

Table of Trees
12342 93rd Lane NE
Kirkland, WA

Date of Inventory: 05.07.2015
Table Prepared: 05.11.2015
Table Revised: 05.19.2015

Tree ID	Scientific Name	Common Name	DSH (inches)	Health Condition	Structural Condition	Limits of Disturbance	Drip line Radius (feet)				Viable	Proposed Action	Credits	Notes
							North	East	South	West				
1	*Pseudotsuga menziesii*	Douglas-fir	37.1	Good	Good	10	15	20	15	18	Yes	Remove	-	*Phaelous schweinitzii* fruiting body found near the base. Recommend additional testing if retained. History of utility purnign to North. Grove tree.
2	*Prunus* sp.	Cherry	9*	Good	Good	8	14	13	14	13	Yes	Remove	-	*Multiple stemmed tree: 5.4, 4, 3.9, 4.5. Fruiting variety.
3	*Pseudotsuga menziesii*	Douglas-fir	45	Good	Good	15	21	23.5	13	39.5	Yes	Remove	-	Crown raised. Grove tree.
4	*Pseudotsuga menziesii*	Douglas-fir	29.2	Good	Good	11	20	20.5	15.5	20	Yes	Remove	-	Galls on lower branches in canopy. Few hangers in canopy. Grove tree.
5	*Pseudotsuga menziesii*	Douglas-fir	27.4	Good	Good	9	10	20.5	10	20	Yes	Remove	-	Closed wound on west side. Grove tree.
6	*Pseudotsuga menziesii*	Douglas-fir	24.5	Good	Good	8	13	13	7	20	Yes	Remove	-	Grove tree.
7	*Alnus rubra*	Red alder	12.8	Good	Fair	9	17	18	13	12	Yes	Remove	-	Wound on southern side. Good wound wood development. Bow form due to phototropic lean. Past top failure. Grove tree.
8	*Pseudotsuga menziesii*	Douglas-fir	40.4	Good	Good	12	14	27.5	13	25	Yes	Remove	-	English Ivy (*Hedera helix*) on trunk. Possible top failure. Grove tree.
9	*Betula pendula*	European birch	10.5	Good	Fair	8	18	3	13	17	No	Remove	-	Suppressed tree. Heavy English ivy growth on trunk. Grove tree.
10	*Pseudotsuga menziesii*	Douglas-fir	8.4	Good	Poor	7	12	11	9	12	Yes	Remove	-	Topped. Near foundation of 12336. Root damage to east. 2 feet from base. Grove tree.
11	*Ilex aquifolium*	English holly	11.8*	Good	Good	4	7	7	7	8	No	Remove	-	*Multiple stemmed tree: 5.9, 7.1, 7.4. Shares canopy with nearby large shrubs.
12	*Abies nordmaniana*	Caucasian fir	6.1	Good	Fair	2	4	1	4	4	Yes	Remove	-	Planted too close tobuilding. Clearance pruned.
13	*Ilex aquifolium*	English holly	9.8*	Fair	Poor	1	0	3	3	3	No	Remove	-	Topped heavily. Close to home.
14	*Pseudotsuga menziesii*	Douglas-fir	13.1	Good	Good	8	9	17	9	20	Yes	Remove	-	Suppressed. Grove tree.
15	*Pseudotsuga menziesii*	Douglas-fir	24.2	Good	Good	8	9.5	14	9.5	19	Yes	Remove	-	Crown raised. Grove tree.
16	*Pseudotsuga menziesii*	Douglas-fir	33.1	Good	Good	9	10	21	10	19	Yes	Remove	-	Crown raised. Grove tree.
17	*Pseudotsuga menziesii*	Douglas-fir	29.5	Good	Fair	12	20	18	8	34	Yes	Remove	-	Co-dominant top. Crown raised. Grove tree.
18	*Pseudotsuga menziesii*	Douglas-fir	36	Good	Good	14	12	32	18	34	Yes	Remove	-	Crown raised. Grove tree. Nearby evidence of recent branch failure.

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Tree ID	Scientific Name	Common Name	DSH (inches)	Health Condition	Structural Condition	Limits of Disturbance	Drip line Radius (feet)				Viable	Proposed Action	Credits	Notes
							North	East	South	West				
19	*Pseudotsuga menziesii*	Douglas-fir	18	Good	Fair	10	8	14	8	34	Yes	Remove	-	Suppressed top. Grove tree.
20	*Acer macrophyllum*	Bigleaf maple	33.3	Good	Fair	13	21	28.5	25	10	Yes	Remove	-	Measurement taken from below union. Few large dead woody parts in canopy. Basal wound with *Kretzschmaria deusta.* Asymmetrical canopy to east.
21	*Pseudotsuga menziesii*	Douglas-fir	53.6	Good	Good	14	24	25	21	23.5	Yes	Remove	-	Large basal flare. Recommend basal testing if retained. Vigorous epicormic growth. Grove tree.
22	*Acer macrophyllum*	Bigleaf maple	32.3*	Good	Fair	13	23	31	27	8	Yes	Remove	-	*Multi stemmed tree: 17.7, 17.2, 16.9, 12.2. Shares canopy with 21. Medium dead wood parts in canopy. Narrow angle of attachment on middle stem. Asymmetrical canopy. Grove tree.
23	*Acer macrophyllum*	Bigleaf maple	28.4*	Good	Good	11	14	19	11	30	Yes	Remove	-	*Multi stemmed tree: 17, 22.8. Board nailed above union- could obstruct in future. Soil compaction around base of tree.
24	*Acer macrophyllum*	Bigleaf maple	31.6	Good	Fair	15	15	32	28	23	Yes	Remove	-	Minor wound on base. Multipl branch attachments at same union. Soil compaction at base.
25	*Betula pendula*	European birch	14	Fair	Good	8	16	16	10	14	Yes	Remove	-	Old vandalism wounds. Dead top, possibly bronze birch borer.
26	*Betula pendula*	European birch	14.1	Fair	Poor	12	13	21	21	22	Yes	Remove	-	Old topped form. Top dieback, possibly bronze birch borer.
27	*Pseudotsuga menziesii*	Douglas-fir	29	Good	Good	9	13	18	15	16	Yes	Remove	-	Old trunk wound closed on west side. Slight bow to north. Grove tree.
28	*Pseudotsuga menziesii*	Douglas-fir	19.9	Good	Fair	7	14	8	8	17	Yes	Remove	-	Slight bow to north. Slightly suppressed. Grove tree.
29	*Pseudotsuga menziesii*	Douglas-fir	31	Good	Fair	8	12	23	10	9	Yes	Remove	-	Torsional crack on east side. Grove tree.
30	*Pseudotsuga menziesii*	Douglas-fir	26.1	Fair	Good	8	14	12	10	14	Yes	Remove	-	Deformed branching. Grove tree.
31	*Acer macrophyllum*	Bigleaf maple	28	Fair	Fair	12	17	23	21	19	Yes	Remove	-	Multiple wounds- good response growth. Fungal fruiting bodies. Grove tree.
32	*Acer macrophyllum*	Bigleaf maple	45.1	Fair	Fair	16	26	28.5	27	23	Yes	Remove	-	*Kretzschmaria* seen. Numerous basal wounds. Targets currently located under tree to east. Grove tree.
33	*Tsuga heterophylla*	Western hemlock	23.6	Good	Fair	14	26	23.5	22	24	Yes	Remove	-	Co-dominant top. Narrow angle of attachment. English ivy on trunk. Crown raised. Grove tree.
34	*Thuja plicata*	Wester red cedar	10.6*	Good	Fair	6	10	10	10	10	Yes	Remove	-	*Multi stemmed tree: 6.4, 5.9, 4, 4.5. Topped in past.
35	*Pseudotsuga menziesii*	Douglas-fir	24.1	Good	Good	10	23	8	18	18	Yes	Remove	-	Grove tree.

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							North	East	South	West				
36	*Thuja plicata*	Western red cedar	11.5*	Good	Fair	6	10	10	10	10	Yes	Remove	-	*Multi stemmed tree: 7.6, 8.7.
37	*Pseudotsuga menziesii*	Douglas-fir	34.7	Good	Fair	12	20.5	27	20	15	Yes	Remove	-	Crack on north side of trunk- sealed. Crack on south side- sealed. Pole installed on southeast side of trunk. Grove tree.
38	*Acer palmatum*	Japanese maple	8.5	Good	Good	8	13	13	13	13	Yes	Remove	-	Specimen tree. Measured below union.
39	*Prunus cerasifera* 'Thundercloud'	Purple leaf plum	12.3	Good	Fair	10	16	16	16	16	Yes	Remove	-	Measured below union. Reverting sprouts arising from base.
40	*Acer palmatum*	Japanese maple	10.4*	Good	Good	8	14	14	14	14	Yes	Remove	-	*Multiple stemmed tree: 4.6, 3.6, 5.7, 4.9, 4.1. Some crossing branches. Specimen tree.
41	*Prunus emarginata*	Bitter cherry	17.4*	Good	Fair	10	17	15	18.5	19	Yes	Retain	4	*Multiple stemmed tree: 12.8, 11.8. Large wound on northern trunk. Multiple flush cut wounds from crown raising.
42	*Acer macrophyllum*	Bigleaf maple	40.4*	Good	Good	16	33	24	21	28	Yes	Retain	16	*Multiple stemmed tree: 26.6, 30.4. Hanger in canopy. Past failure seen in canopy. *Kretzschmaria* seen in union. Grove tree.
43	*Chamaecyparis lawsoniana*	Lawson-cypress	12*	Good	Good	6	10	9	14	9	Yes	Retain	2	*Multiple stemmed tree: 11.3, 4.2. Grove tree.
44	*Chamaecyparis lawsoniana*	Lawson-cypress	14.7*	Good	Fair	9	15	15	15	15	Yes	Retain	3	*Multiple stemmed tree: 13.5, 3.5, 4.7. Creek 5 feet to west.
45	*Thuja plicata*	Western redcedar	9.1	Good	Fair	3	5	5	5	5	Yes	Retain	1	Co-dominant top. Shares canopy with 46.
46	*Thuja plicata*	Western redcedar	10.4	Good	Fair	3	5	5	5	5	Yes	Retain	1	Root obstruction to north. Old damn/retaining wall. Shares canopy with 45.
47	*Alnus rubra*	Red alder	11	Poor	Poor	6	3	20	19	0	Yes	Retain	1	Heavy English ivy infestation. Lean to east. Grove tree.
48	*Alnus rubra*	Red alder	6.9	Fair	Poor	2	4	4	4	4	Yes	Retain	1	Large wound on southern trunk. Poor wound response. Grove tree.
49	*Alnus rubra*	Red alder	12.5	Fair	Poor	7	15	19	10	3	Yes	Retain	2	Suppressed. Heavy English ivy coverage on trunk. Grove tree.
50	*Alnus rubra*	Red alder	10.8	Good	Good	8	16	17	9	10	Yes	Retain	1	
51	*Thuja plicata*	Western redcedar	7.3*	Good	Good	4	6	6	6	6	Yes	Retain	1	*Multiple stemmed tree: 5.8, 3.3, 2.9. Co-dominant union at the base. Narrow angle of attachment. Grove tree.
52	*Pseudotsuga menziesii*	Douglas-fir	30.5	Good	Good	9	12	17.5	12	17.5	Yes	Retain	11	Lots of English ivy on trunk. Grove tree.
53	*Acer macrophyllum*	Bigleaf maple	34.7*	Good	Fair	11	20	20	15	20	Yes	Retain	13	*Multi stemmed truck: 26, 23. Covered with English ivy. *Kretzschmaria* seen. Co-dominant form. Grove tree.

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Table Prepared: 05.11.2015
Table Revised: 05.19.2015

Tree ID	Scientific Name	Common Name	DSH (inches)	Health Condition	Structural Condition	Limits of Disturbance	Drip line Radius (feet)				Viable	Proposed Action	Credits	Notes
							North	East	South	West				
54	*Populus nigra* 'Italica'	Lombardy poplar	45	Good	Fair	12	20	20	20	20	Yes	Retain	18	Covered with English ivy. Grove tree.
55	*Populus nigra* 'Italica'	Lombardy poplar	42.4*	Good	Good	8	13	13	13	13	Yes	Retain	17	*Multi stemmed tree: 29, 31. Tree tag at the base. Heavy Himalayan blackberry (*Rubus bifrons*) surrounding base.
56	*Thuja plicata*	Western redcedar	8	Good	Good	5	9	9	9	9	Yes	Retain	1	Base located near creek.
57	*Thuja occidentalis*	White cedar	9*	Fair	Good	2	3	3	3	3	Yes	Retain	1	*Multi stem tree: 6.2, 6.6.
58	*Alnus rubra*	Red alder	31.8	Good	Good	17	27	25	30	30	Yes	Retain	11	Large thinning cuts on west side of tree.
59	*Salix scouleriana*	Scouler's willow	9.7	Good	Good	6	7	14	12	10	Yes	Retain	1	Base located in rockery. Grove tree.
60	*Pinus contorta* var. *contorta*	Shore pine	16.6	Fair	Good	8	10.5	20	9	17	Yes	Retain	4	Somewhat shaded to west.
61	*Pinus pungens*	Colorado spruce	11.7	Good	Good	7	14	11	12	12	Yes	Retain	1	Lots of lower branch dieback- shaded. Grove tree.
62	*Salix scouleriana*	Scouler's willow	8	Good	Good	5	8	8	8	8	Yes	Retain	1	Base next to creek. Grove tree.
63	*Salix scouleriana*	Scouler's willow	11.6*	Good	Fair	7	9	9	10	16	Yes	Retain	1	*Multiple stemmed tree: 9.6, 6.6. Co-dominant form. Adjacent to creek. Narrow angle of attachment with included bark. Grove tree.
64	*Salix scouleriana*	Scouler's willow	9.1*	Good	Fair	5	8	8	8	8	Yes	Retain	1	*Multiple stemmed creek: 5.5, 7.3. Some included bark in union. Narrow angle of attachment. Grove tree.
65	*Thuja plicata*	Western redcedar	6.3	Good	Good	4	7	7	7	7	Yes	Retain	1	Grove tree.
66	*Acer rubrum*	Red maple	18.2*	Fair	Poor	9	15	15	15	15	Yes	Retain	5	*Multi stemmed tree: 5.1, 6.4, 12.4, 7.7, 4, 6.1. Tip dieback in caopy. Few dead stems. *Ganodema applanatum* and *Kretzschmaria deusta* at base.
67	*Populus trichocarpa*	Black cottonwood	21	Good	Fair	11	18	16	24	17	Yes	Retain	6	Measured below union. Co-dominant form. Some English ivy on trunk.
68	*Thuja plicata*	Western redcedar	19.6	Good	Good	8	16.5	15	9	14.5	Yes	Retain	5	Shared tree. Clearance pruned to west for neighboring driveway.
69	*Prunus cerasifera* 'Thundercloud'	Purple leaf plum	10.3	Good	Fair	7	11.5	11.5	11.5	11.5	Yes	Remove	-	Co-dominant form with narrow angle of attachment. Included bark in union.
70	*Prunus cerasifera* 'Thundercloud'	Purple leaf plum	17.5*	Good	Good	11	15	21.5	15	22	Yes	Remove	-	*Multi stemmed tree: 10.6, 7.7, 11.6. Heavily pruned. Good response growth. Large crown.
71	*Thuja plicata*	Western redcedar	25.2	Good	Good	9	13	16	14	15	Yes	Remove	-	Trunk swelling. Candidate for testing if retained.

Tree Solutions Inc
Consulting Arborists

Table of Trees
12342 93rd Lane NE
Kirkland, WA

Date of Inventory: 05.07.2015
Table Prepared: 05.11.2015
Table Revised: 05.19.2015

Tree ID	Scientific Name	Common Name	DSH (inches)	Health Condition	Structural Condition	Limits of Disturbance	Drip line Radius (feet)				Viable	Proposed Action	Credits	Notes
							North	East	South	West				
72	*Sorbus aucuparia*	European mountain-ash	15.5*	Good	Poor	6	10	10	10	10	Yes	Retain	3	*Multi stemmed tree: 7.8, 7.5, 7.5, 8.2. Some trunks crossed, one starting to get girdled by two others.
73	*Pseudotsuga menziesii*	Douglas-fir	16	Good	Good		15				Yes	Retain	4	
74	*Prunus emarginata*	Bitter cherry	12.1*	Good	Good			11			Yes	Retain	2	*Multi stemmed tree: 7, 7, 7. Suppressed/shaded out. Adjacent to fence.
											Total Tree Credits:		140	
Tree on Neighboring Properties with Canopies Overhanging Subject Property (Diameters are estimated. Driplines taken fence/boundary to outer extent of canopy)														
A	*Thuja plicata*	Western redcedar	10.5	Good	Good				10		Yes	Retain	-	Shared tree.
B	*Cornus nutallii*	Pacific dogwood	16	Fair	Fair				10		Yes	Retain	-	*Multi stemmed tree: 8, 8, 8, 8. Tree base 10.5 feet from fence. Grove tree.
C	*Prunus cerasifera* 'Thundercloud'	Purple leaf plum	12	Good	Fair				10		Yes	Retain	-	Tree 8 feet to fence. Grove tree.
D	*Pseudotsuga menziesii*	Douglas-fir	14	Good	Good				10		Yes	Retain	-	Tree 4 feet past fence to east. Grove tree.
E	*Pseudotsuga menziesii*	Douglas-fir	14	Good	Good				10		Yes	Retain	-	Tree 4 feet past fence to east. Grove tree.
F	*Pseudotsuga menziesii*	Douglas-fir	29	Good	Good				13		Yes	Retain	-	Clearance pruned. Critical root zone likely past drip line. Grove tree.
G	*Pseudotsuga menziesii*	Douglas-fir	26	Good	Good				19.5		Yes	Retain	-	Tree house plank atached to trunk.
H	*Populus nigra* 'Italica'	Lombardy poplar	16	Good	Good				3		Yes	Retain	-	Located 1 foot from fence. Crown raised.
I	*Quercus palustris*	Pin oak	28	Good	Good				14		Yes	Retain	-	27 foot drip line to trunk.
J	*Prunus emarginata*	Bitter cherry	17*	Fair	Poor				14		Yes	Retain	-	*Multi stemmed tree: 12, 12. 5 feet from fence.
K	*Thuja plicata*	Western redcedar	18	Good	Good				13		Yes	Retain	-	4 feet from fence.
L	*Malus domestica*	Apple	7	Good	Good				6		Yes	Retain	-	4 feet from fence.
M	*Quercus palustris*	Pin oak	8	Good	Good		6				Yes	Retain	-	3 feet from fence.

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Tree ID	Scientific Name	Common Name	DSH (inches)	Health Condition	Structural Condition	Limits of Disturbance	Drip line Radius (feet)				Viable	Proposed Action	Credits	Notes
							North	East	South	West				
N	*Quercus palustris*	Pin oak	8	Good	Good		6				Yes	Retain	-	3 feet from fence.
O	*Juglans regia*	English walnut	8	Good	Good		6				Yes	Retain	-	3 feet from fence.
P	*Pseudotsuga menziesii*	Douglas-fir	26	Good	Good		15				Yes	Retain	-	Heavy English ivy infestation.
Q	*Acer macrophyllum*	Bigleaf maple	25	Good	Good		15				Yes	Retain	-	
T	*Pseudotsuga menziesii*	Douglas-fir	32	Good	Good			20			Yes	Retain	-	4.5 feet west of fence. Old English ivy on trunk.
U	*Acer macrophyllum*	Bigleaf maple	7	Fair	Fair			16			Yes	Retain	-	Heavy English ivy on trunk.

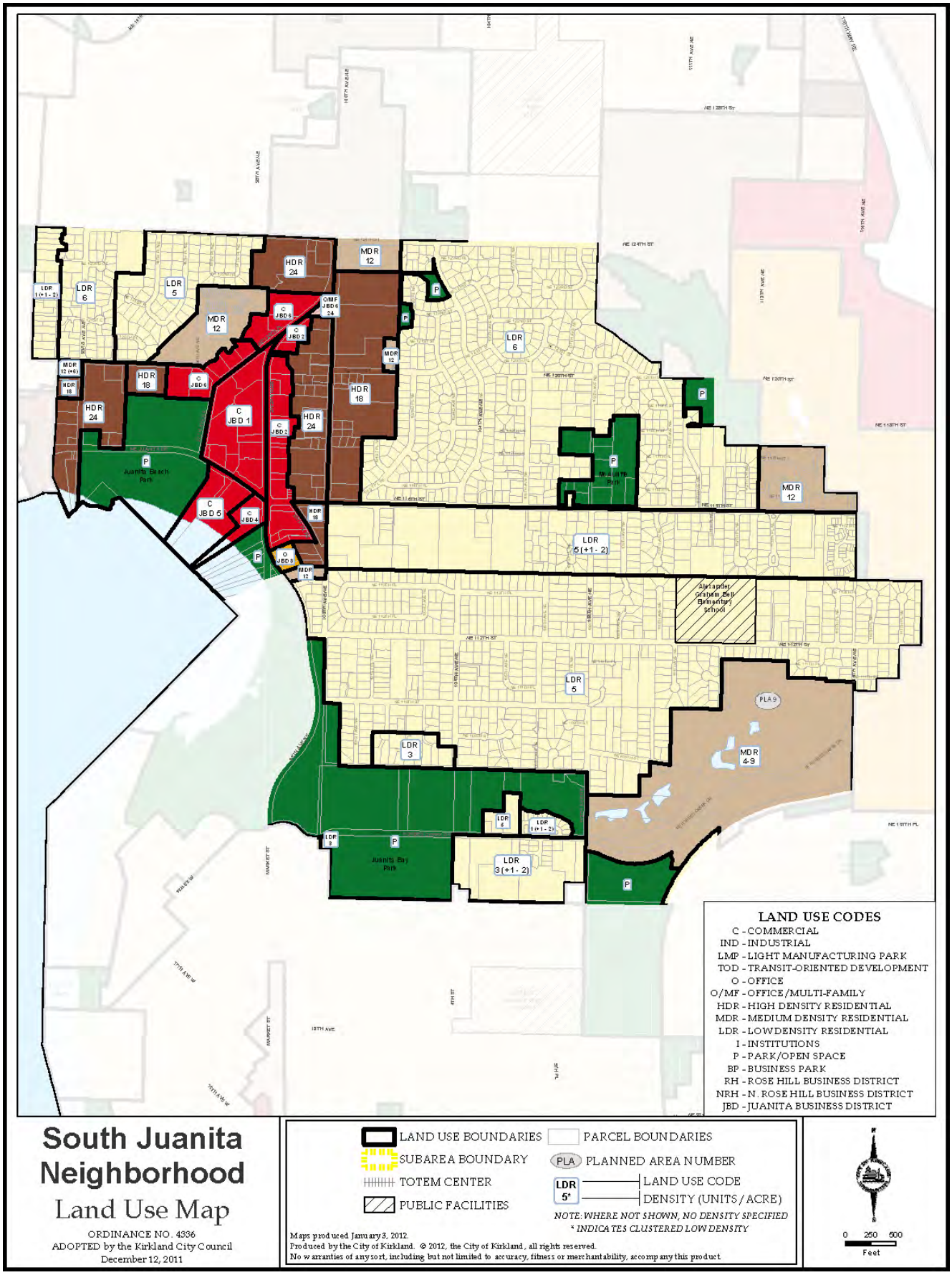

Figure J-2b: South Juanita Land Use