

## TECHNICAL MEMORANDUM

October 21, 2019

|      |   |
|------|---|
| To   | Mr. Jeff Peterson<br>Toll Brothers, Inc.                              |
| From | Kolten Kusters, PWS.<br>Wetland Scientist<br>Raedeke Associates, Inc. |
| RE:  | Floyd Property Buffer Averaging Plan<br>RAI Project No. 2018-063-004  |

Per your request, this technical memorandum provides analysis of a proposal to average buffers provided to Wetland B, Wetland C, and the Allen Lake outfall channel stream. The purpose of this memorandum is to demonstrate that the proposed buffer averaging meets criteria outlined under Section 21A.24.325 of the King County (2019a) code as vested for the project. Our analysis of the proposed buffer averaging plan is based on site plans prepared by D.R. Strong Consulting Engineers, Inc. received in our office on September 26, 2019.

### PROJECT LOCATION

The Floyd King County project site consists of an approximately 4.66-acre parcel located at 24649 NE 18<sup>th</sup> Street in unincorporated King County, Washington. The property is identified as King County Parcel No. 2625069029. This places the project site in a portion of Section 26, Township 25 North, Range 6 East, W.M. Parcel maps retrieved on-line from King County depict the property boundaries (Figure 1).

The project site is bordered to the north by NE 18<sup>th</sup> Street, and single-family residential developments, to the east and west by single-family homes, and to the south by a residential development. The project site is accessed from a private driveway located along NE 18<sup>th</sup> Street.

### PROJECT DESCRIPTION

The project proposed to create 17 single-family residential lots. Fifteen of the lots are located in the northwest corner of the site. The remaining two lots are located in the

southwest corner of the site. The existing house, located in the northeast area of the site, is going to remain. The existing house is not part of the project site.

Raedeke Associates (2019) submitted a Wetland Delineation report for this property. Two wetlands and one stream were identified on the property. The wetland boundaries, stream location, and ratings have been verified and approved by King County (2019b).

The project proposes buffer averaging to accommodate the seventeen lots by reducing the combined wetland buffers by 8,015 square feet. To compensate for the encroachment into the buffer, approximately 8,448 square feet of additional wetland and stream buffer will be provided adjacent to the surrounding development, between Lots 5 and 16, and east of Lot 4 (Figure 3).

Buffer enhancement is proposed for approximately 6,900 square feet of the wetland and stream buffer. Enhancement will occur in areas where structures will be removed within the buffer. Drawings are attached to this memo that illustrate the buffer averaging plan, provide a buffer enhancement plan, performance standards for the enhancement area, and a maintenance and monitoring plan (Figures 3-6).

#### **BUFFER AVERAGING PROPOSAL**

Per section 21A.24.325 of the King County (2019a), the standard wetland buffer widths for Wetlands B and C, and the Allen Lake Outfall are as follows:

| <b>Wetland/<br/>Stream</b> | <b>Category</b> | <b>Buffer Width</b> |
|----------------------------|-----------------|---------------------|
| B                          | III             | 75                  |
| C                          | III             | 125                 |
| Allen Lake<br>Outfall      | Type F          | 165                 |

Section 21A.24.325(C) of the King County (2019a) code allows wetland buffers to be averaged where the applicant demonstrates all of the following:

C. The department may approve a modification of the minimum buffer width required by this section by averaging the buffer width if:

1. The department determines that:
  - a. the ecological structure and function of the buffer after averaging is equivalent to or greater than the structure and function before averaging; or
  - b. averaging includes the corridors of a wetland complex; and
2. The resulting buffer meets the following standards:

- a. the total area of the buffer after averaging is equivalent to or greater than the area of the buffer before averaging;
- b. the additional buffer is contiguous with the standard buffer; and
- c. if the buffer width averaging allows a structure or landscaped area to intrude into the area that was buffer area before averaging, the resulting landscaped area shall extend no more than fifteen feet from the edge of the structure's footprint toward the reduced buffer.

Specifically, the proposed buffer averaging plan meets the King County (2019a) Code requirements listed above for each requirement as follows:

*1a. The ecological structure and function of the buffer after averaging is equivalent to or greater than the structure and function before averaging;*

Overall, the area of compensatory buffer exceeds the area of proposed buffer reductions, and the proposal includes buffer enhancement plantings to improve buffer function over existing conditions. The proposed reduction of a portion of the Wetland C buffer for Lots 16 and 17 would remove an area of conifer forest, but the proposed area of expanded buffer for Wetland C along the west property boundary also consists of forested vegetation of similar structure and function (Figure 3). Many conifer trees will remain protected in the existing buffer to maintain functions of screening and habitat structure within the buffer of Wetland C and the stream. In addition, we do not expect the area of buffer reduction for Lots 16 and 17 to adversely affect the hydrology of Wetland C, as it is largely supported by the Allen Lake Outfall stream, as well as the existing buffer areas to the north and west that will be retained.

The proposal includes a small area (1,431 square feet) of reduction of the buffer of Wetland B to accommodate proposed residential Lot 5 (Figure 3). This area currently consists of lawn and bare ground, as does the existing buffer area between Wetland B and Lot 5, which is currently used as a bocce ball court for the adjacent home. The bocce ball court will be removed, and this portion of the buffer of Wetland B will be enhanced with native plants to improve buffer functions of screening and wildlife habitat over existing condition (Figures 3 and 4). Additional forested area would be provided to the west of Wetland B to widen the designated buffer, thereby providing improved buffer functions.

The buffer give area will provide a wider designated buffer to the Allen Lake Outfall stream. The Allen Lake Outfall is designated as high priority on the King County (2004) Basin and Shoreline Conditions map. The large area of buffer give that benefits Wetlands B and C will also effectively expand the buffer for the Type F stream and compensate for minimal reduction to the stream buffer west of Wetland C.

*2a. the total area of the buffer after averaging is equivalent to or greater than the area of the buffer before averaging;*

The buffer will be increased by 432 square feet for a total of 8,448 square feet.

*2b. the additional buffer is contiguous with the standard buffer; and*

The additional buffer is contiguous with the Wetland B and C buffer and the stream buffer.

*2c. if the buffer width averaging allows a structure or landscaped area to intrude into the area that was buffer area before averaging, the resulting landscaped area shall extend no more than fifteen feet from the edge of the structure's footprint toward the reduced buffer.*

Based on the proposed plan, no yards are larger than 15 feet in length in the proposed areas of reduced buffers.

#### **BUFFER ENHANCEMENT**

Buffer enhancement is proposed where structures, bare ground, and grass currently exist in the Wetland B and stream buffer. Approximately 6,900 square feet of buffer is proposed for enhancement. The structures, associated with the existing residence, will be demolished and removed from the buffer. The ground under the structures will be de-compacted and the soil amended as necessary. Native trees, shrubs, and groundcovers will be installed in the footprint of the structures and in areas of grass and bare ground. Due to the quantity of existing trees and natural recruitment of the trees, we proposed installing conifers at 15 feet on center and shrubs at 6 feet on center in the areas of enhancement (Figure 4).

A monitoring and maintenance program have been included (Figures 5 and 6) to ensure the success of the buffer enhancement. Performance standards for percent survival for years 1 through 3 and percent woody cover for all years are also included (Figure 4).

#### **LIMITATIONS**

We have prepared this report for the exclusive use of Toll Brothers, Inc. and their consultants. No other person or agency may rely upon the information, analysis, or conclusions contained herein without permission from Toll Brothers, Inc.

The determination of ecological system classifications, functions, values, and boundaries is an inexact science, and different individuals and agencies may reach different conclusions. With regard to wetlands, the final determination of their boundaries for regulatory purposes is the responsibility of the various agencies that regulate development activities in wetlands. We cannot guarantee the outcome of such agency determinations. Therefore, the conclusions of this report should be reviewed by the

Mr. Jeff Peterson, Toll Brothers, Inc.

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appropriate regulatory agencies prior to any detailed site planning or construction activities.

We warrant that the work performed conforms to standards generally accepted in our field and has been prepared substantially in accordance with then-current technical guidelines and criteria. The conclusions of this report represent the results of our analysis of the information provided by the project proponent and their consultants, together with information gathered in the course of the study. No other warranty, expressed or implied, is made.

If you have any questions or comments, or wish to discuss this issue further, please contact me at (206) 525-8122 or at [kkosters@raedeke.com](mailto:kkosters@raedeke.com).

#### **LITERATURE CITED**

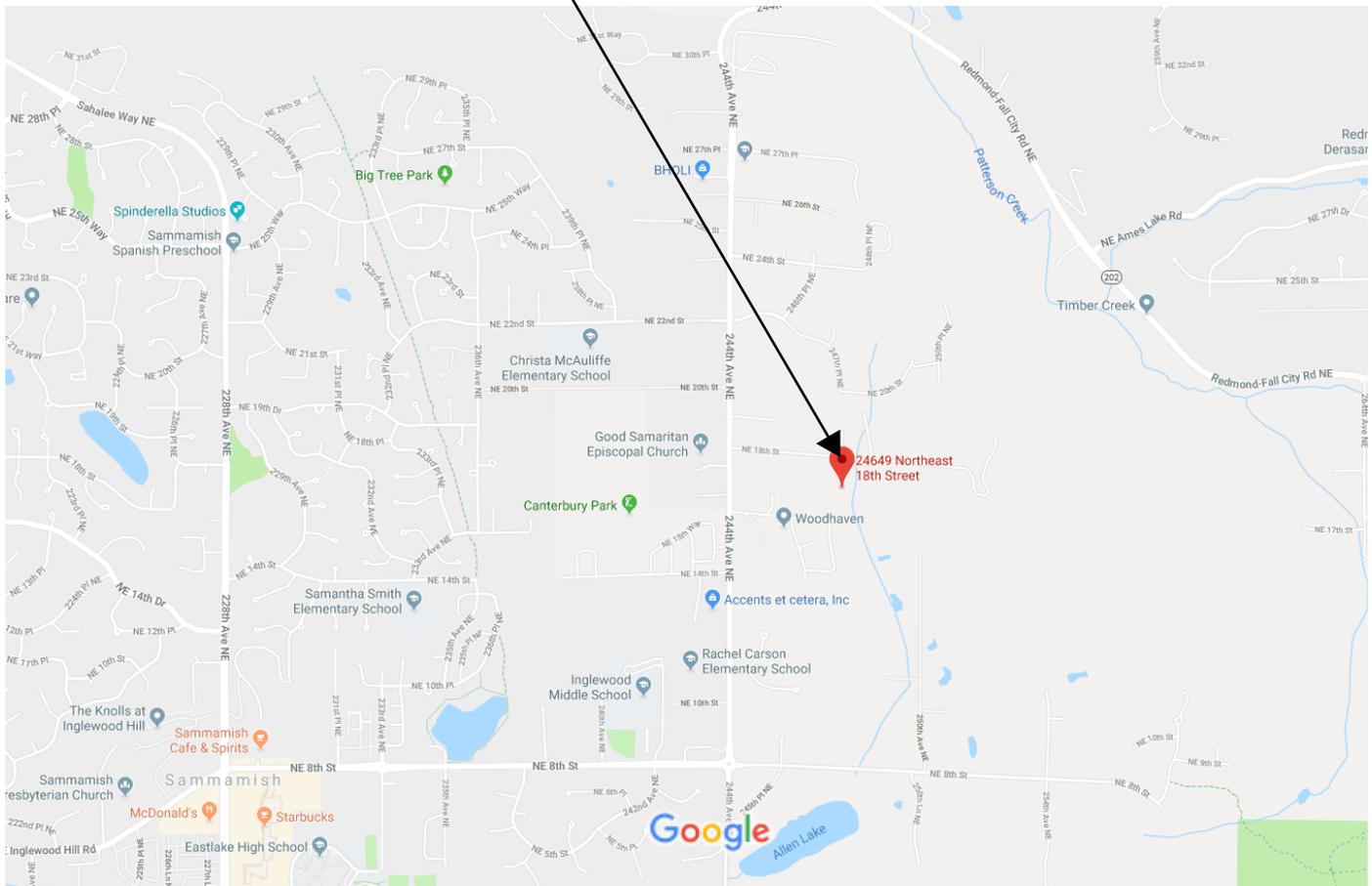
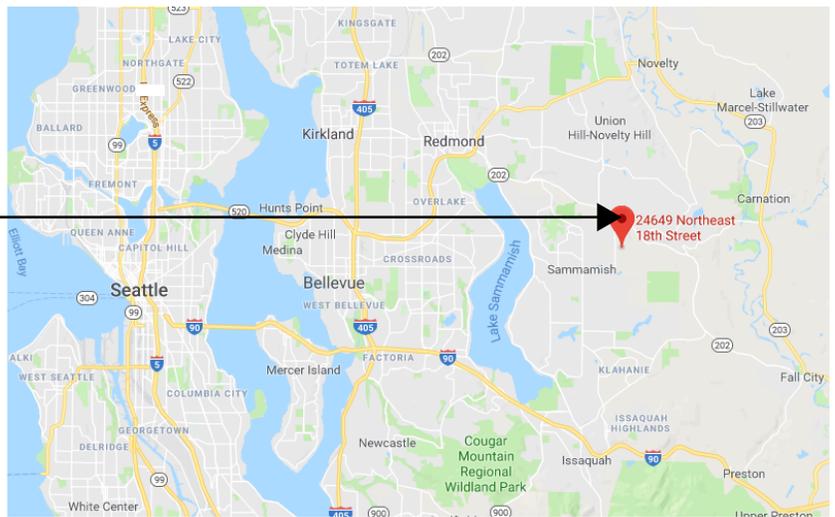
King County. 2004. King County Basin and Shorelines Conditions map. Available at: [https://www.kingcounty.gov/council/issues/environment/~media/Council/documents/Issues/CAO/Attachment\\_A.ashx](https://www.kingcounty.gov/council/issues/environment/~media/Council/documents/Issues/CAO/Attachment_A.ashx)

King County. 2019a. Chapter 21A.24: Critical Areas. Title 21A, King County code. Updated February 6, 2019. [http://www.kingcounty.gov/council/legislation/kc\\_code.aspx](http://www.kingcounty.gov/council/legislation/kc_code.aspx)

King County. 2019b. Critical Areas Designation CADS19-0039, Parcel 2625069029. April 25, 2019 letter from Laura Casey to Jeff Peterson, Toll Brothers, Inc., Kirkland, WA.

Raedeke Associates, Inc. 2019. Wetland Delineation Report for Floyd Property, King County, Washington. April 18, 2019 report to Toll Brothers, Inc., Kirkland, Washington.

**FLOYD  
PROPERTY**



**FLOYD PROPERTY  
FIGURE 1  
VICINITY MAP  
KING COUNTY, WA**

2018-063

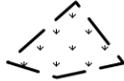
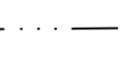


**2111 N. Northgate Way, Suite 219  
Seattle, Washington 98133**

SOURCE INFORMATION: Natural Resource Conservation Service, Soils Mapper. Available at <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>. Accessed 02/14/2019.

**FIGURE 2**  
**TOLL BROTHERS**  
**FLOYD PROPERTY**  
**KING COUNTY, WA**  
 BUFFER AVERAGING PLAN  
**EXISTING CONDITIONS**

**LEGEND**

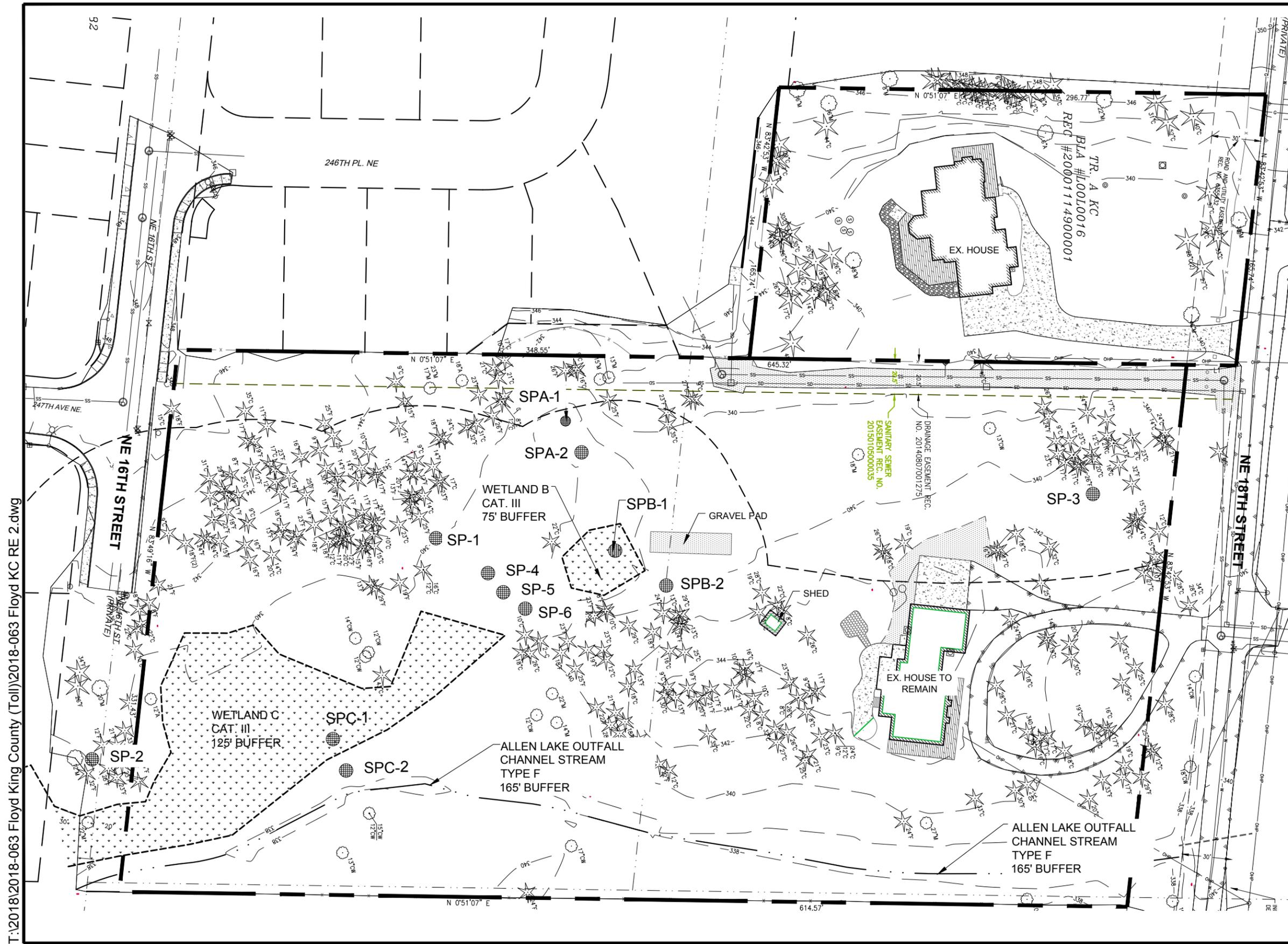
-  PROPERTY BOUNDARY
-  PREVIOUSLY DELINEATED WETLANDS\*
-  PREVIOUSLY DELINEATED STREAM
-  SPC-# SAMPLE PLOT LOCATION

\*WETLANDS & STREAM DELINEATED BY SEWALL WETLAND CONSULTING, INC. AND VERIFIED BY RAEDEKE ASSOCIATES, INC.

**Raedeke**  
 Associates, Inc.  
 2111 N. Northgate Way, Ste 219  
 Seattle, WA 98133

 NORTH  
  
 SCALE: 1" = 60'

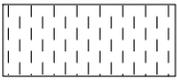
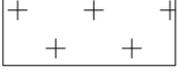
|  |        |
|--|--------|
| RAI PROJECT: 2018-063  |        |
| DATE: 10/21/2019   |        |
| DRAWN BY: AC   | PM: KK |
| BASE INFORMATION:<br>SURVEY PROVIDED BY: DR STRONG CONSULTING ENGINEERS, INC, KIRKLAND ON 9/19 |        |



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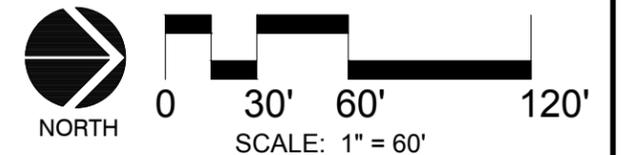
**FIGURE 3**  
**TOLL BROTHERS**  
**FLOYD PROPERTY**  
**KING COUNTY, WA**  
 BUFFER AVERAGING PLAN  
**SITE PLAN**

**LEGEND**

-  PROJECT BOUNDARY
-  STREAM & WETLAND BUFFER
-  BUFFER REDUCTION  
8,016 SF
-  BUFFER ADDITION  
8,448 SF
-  BUFFER ENHANCEMENT  
6,900 SF
-  NGPA FENCE
-  NGPA SIGN



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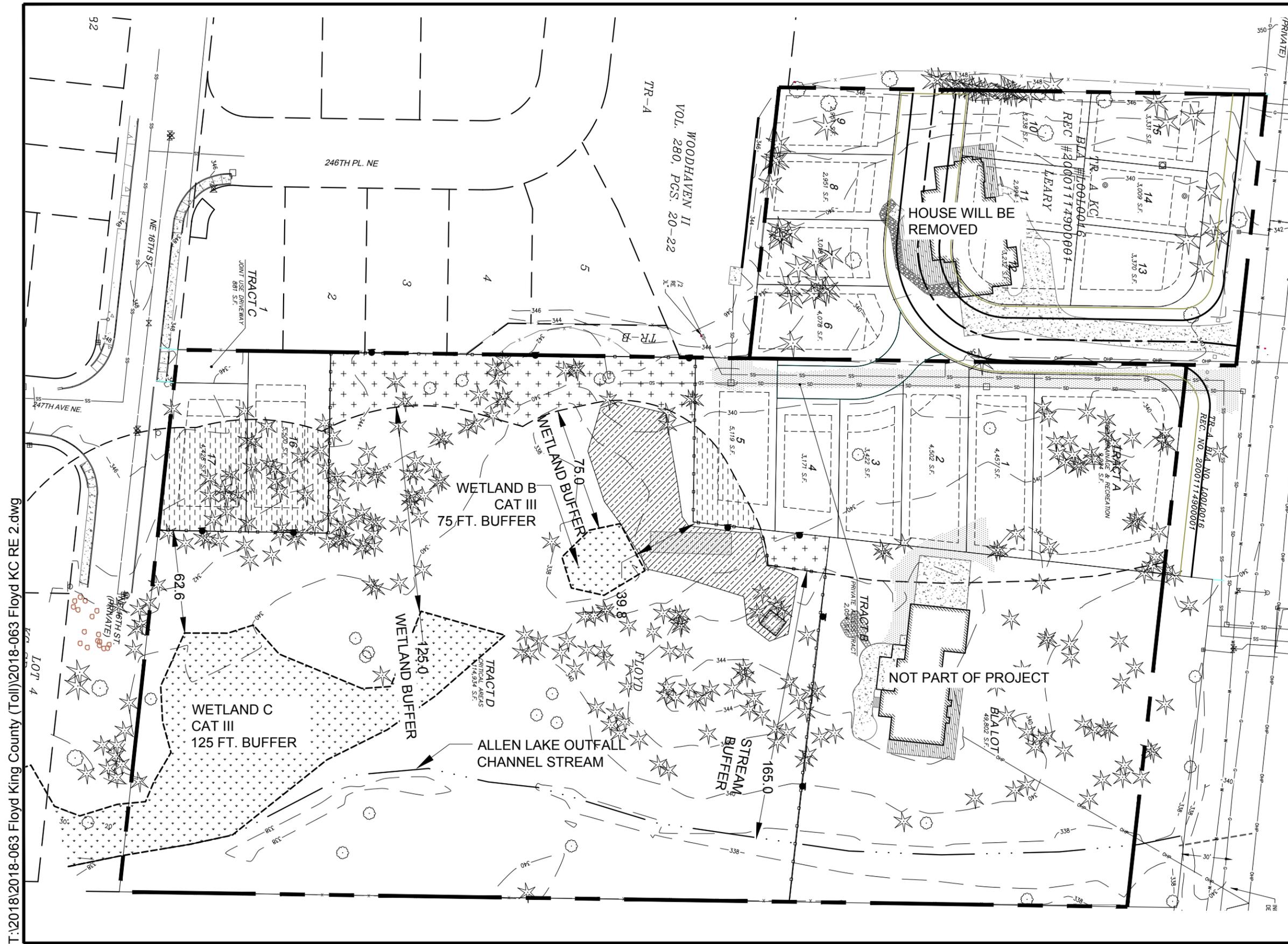


**RAI PROJECT: 2018-063**

**DATE: 10/21/2019**

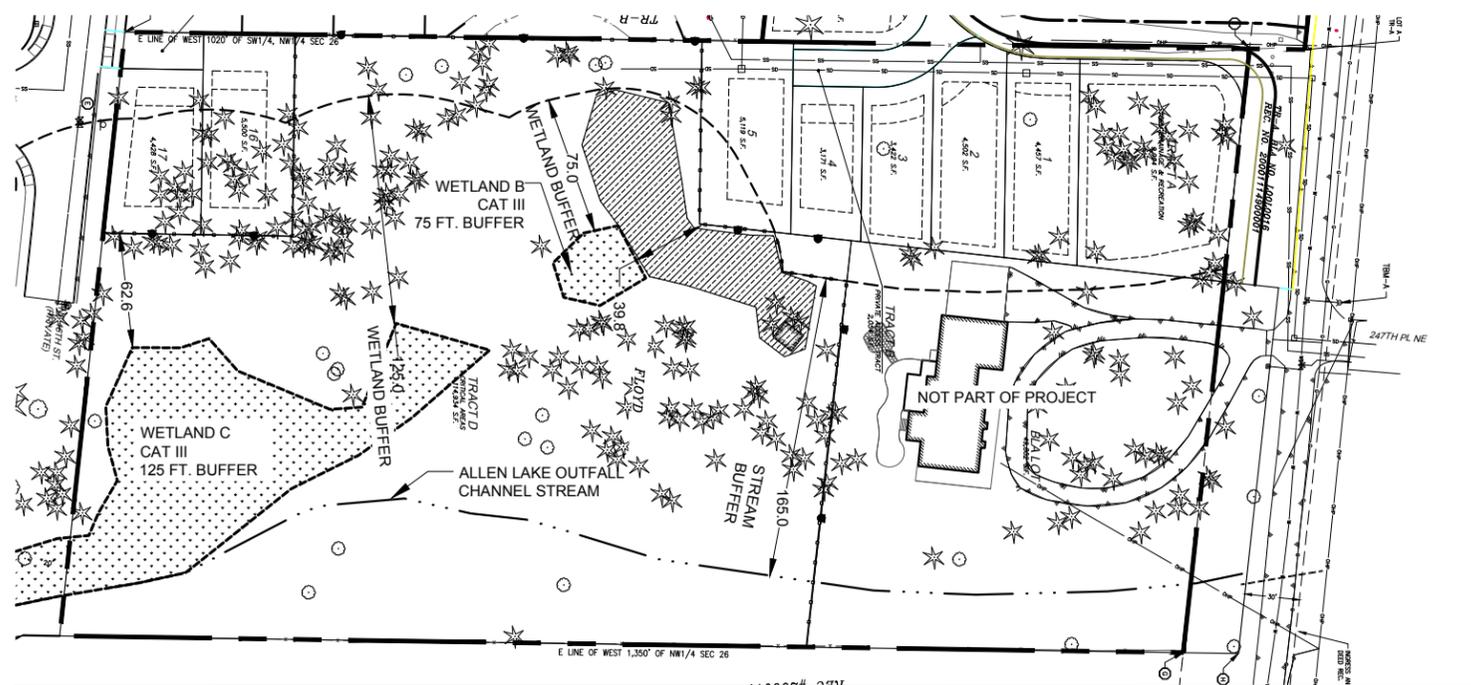
**DRAWN BY: AC PM: KK**

**BASE INFORMATION:**  
 SURVEY PROVIDED BY: DR STRONG CONSULTING  
 ENGINEERS, INC, KIRKLAND ON 9/19

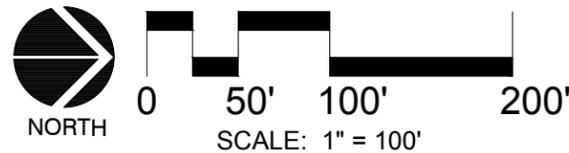


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FIGURE 4  
TOLL BROTHERS  
FLOYD PROPERTY  
KING COUNTY, WA  
BUFFER AVERAGING PLAN  
PLANTING PLAN



PLANTING AREAS



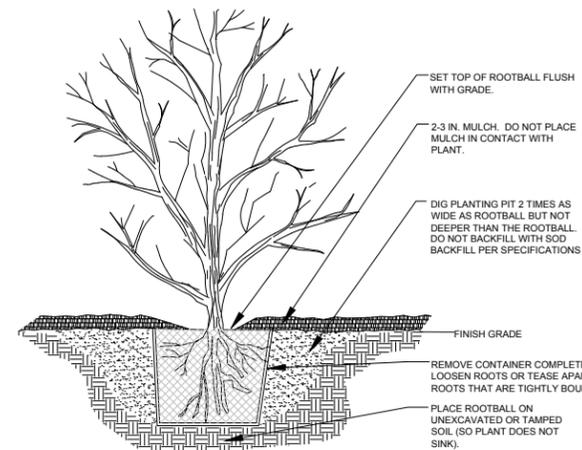
BUFFER ENHANCEMENT PLANT SCHEDULE

| SCIENTIFIC NAME              | COMMON NAME              | WIS STATUS | MIN. SIZE (container) | QTY. | SPACING     |
|------------------------------|--------------------------|------------|-----------------------|------|-------------|
| <i>Pseudotsuga menziesii</i> | Douglas Fir              | FACU       | 4' tall               | 10   | 15 FT. O.C. |
| <i>Thuja plicata</i>         | Western red Arborvitae   | FAC        | 4' tall               | 20   | 15 FT. O.C. |
| <i>Acer circinatum</i>       | Vine Maple               | FAC        | 5 gal.                | 20   | 6 FT. O.C.  |
| <i>Mahonia aquifolium</i>    | Hollyleaved Oregon grape | FACU       | 1 gal.                | 30   | 6 FT. O.C.  |
| <i>Polystichum munitum</i>   | Pineland Swordfern       | FACU       | 1 gal.                | 40   | 6 FT. O.C.  |
| <i>Rosa gymnocarpa</i>       | Bald-hip Rose            | FAC        | 1 gal.                | 20   | 6 FT. O.C.  |
| <i>Symphoricarpos albus</i>  | Common Snowberry         | FACU       | 1 gal.                | 60   | 6 FT. O.C.  |
| <i>Vaccinium ovatum</i>      | Evergreen Blueberry      | FACU       | 1 gal.                | 20   | 6 FT. O.C.  |

PERFORMANCE STANDARDS

SPECIFIC PERFORMANCE STANDARDS TO BE USED OVER THE FIVE-YEAR LONG-TERM MONITORING ARE THE FOLLOWING:

- 100% SURVIVAL OF ALL PLANTED SHRUBS IN THE ENHANCED BUFFERS FOLLOWING COMPLETION OF THE FIRST YEAR AFTER PLANTING. ALL PLANTINGS THAT DO NOT SURVIVE DURING THE FIRST YEAR MUST BE REPLACED WITH THE SAME OR SIMILAR SPECIES AND SPECIFICATIONS. UPON INSTALLATION OF REPLACEMENT PLANTINGS AT THE CONCLUSION OF THE FIRST YEAR, THE 100% SURVIVAL PERFORMANCE STANDARD WILL BE CONSIDERED TO BE MET;
- 85% SURVIVAL OF ALL PLANTED SHRUBS IN THE ENHANCED BUFFERS FOLLOWING COMPLETION OF THE FIVE YEARS OF MONITORING. SUFFICIENT PLANTINGS WILL BE REPLACED, AS NECESSARY, WITH THE SAME OR SIMILAR SPECIES AND SPECIFICATIONS IN ORDER TO MEET THE 85% SURVIVAL STANDARD.
- COVERAGE BY NATIVE TREE AND SHRUB SPECIES WITHIN THE BUFFER ENHANCEMENT AREA WILL BE THE FOLLOWING:
  - AT LEAST 30% COVER AFTER THREE YEARS;
  - AT LEAST 50% COVER AFTER FIVE YEARS;
- THERE WILL BE NO MORE THAN 10% COVER BY HIMALAYAN BLACKBERRY OR OTHER INVASIVE PLANT SPECIES, AS IDENTIFIED BY THE PROJECT BIOLOGIST, AT ANY TIME DURING THE FIVE-YEAR MONITORING PERIOD IN THE ENHANCED AREA OF THE BUFFERS.



1 CONTAINER TREE OR SHRUB PLANTING DETAIL NTS

**Raedeke Associates, Inc.**  
2111 N. Northgate Way, Ste 219  
Seattle, WA 98133

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DATE: 10/21/2019  
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SURVEY PROVIDED BY: DR STRONG CONSULTING ENGINEERS, INC, KIRKLAND ON 9/19

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**GENERAL NOTES AND CONDITIONS**

**1.0 GENERAL CONDITIONS**

**1.1 GENERAL DESCRIPTION**

FURNISH ALL MATERIALS, TOOLS, EQUIPMENT, AND LABOR NECESSARY FOR THE COMPLETION OF SITE PREPARATION AND PLANTING, AS INDICATED ON DRAWINGS AND SPECIFIED HEREINAFTER. WORK INCLUDES REMOVAL OF INVASIVE PLANT SPECIES BY HAND METHODS, PLANTING, MULCHING, AND GUARANTEE OF PLANTED AREAS AS SPECIFIED HEREIN.

**1.2 CONSTRUCTION OBSERVATION / QUALITY ASSURANCE / GUARANTEE**

THE PROJECT BIOLOGIST / ARCHITECT SHALL BE INVOLVED DURING THE FOLLOWING PHASES OF CONSTRUCTION: (1) ON-SITE MEETING PRIOR TO COMMENCEMENT OF WORK (PRE-CONSTRUCTION MEETING), FLAG CONSTRUCTION LIMITS FOR GARBAGE, DEBRIS, AND HARD SURFACE REMOVAL; (2) APPROVAL OF INVASIVE SPECIES REMOVAL COMPLETION; (3) (3) APPROVAL OF PLANTS, PLANTING LOCATIONS AND TECHNIQUES; AND (5) FINAL INSPECTION. PRIOR NOTICE OF 48 HOURS TO THE PROJECT BIOLOGIST FOR THE ABOVE ACTIVITIES IS REQUIRED.

APPROVAL BY THE PROJECT BIOLOGIST MUST BE RECEIVED PRIOR TO PLANT SUBSTITUTIONS. THESE MAY BE PERMITTED BASED ON PLANT AVAILABILITY.

ALL PLANT MATERIAL SHALL BE GUARANTEED FOR ONE FULL YEAR FROM THE DATE OF ACCEPTANCE OF THE WORK BY THE PROJECT BIOLOGIST. ANY DEAD PLANTED MATERIAL OR PLANTED MATERIAL THAT IS NOT IN VIGOROUS CONDITION WITHIN A PERIOD OF ONE YEAR FROM ACCEPTANCE OF THE WORK SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL FURNISH CERTIFICATES OF INSPECTION AND COMPLIANCE TO THE PROJECT BIOLOGIST AS REQUIRED BY FEDERAL AND STATE LAWS AND REGULATIONS FOR ALL PLANT MATERIALS AND FERTILIZERS USED IN THE PROJECT.

**1.3 SITE CONDITIONS / DAMAGE / CLEANUP**

THE PROJECT BIOLOGIST SHALL BE NOTIFIED IMMEDIATELY IF SITE CONDITIONS DIFFER FROM THOSE SHOWN IN THE PLANS. CARE SHALL BE TAKEN TO PROTECT THE WETLAND DURING CONSTRUCTION ACTIVITIES. THE MITIGATION PLANTING AREA SHALL BE CLEARLY MARKED BY CONTRACTOR AND APPROVED BY THE PROJECT BIOLOGIST PRIOR TO THE INITIATION OF CONSTRUCTION ACTIVITIES.

ANY ITEMS NOT SHOWN IN THE PLANS, SUCH AS EXISTING BUILDINGS, EQUIPMENT, UNDERGROUND UTILITIES, WALKS, AND/OR ROADS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AND/OR REPAIRED AT THE CONTRACTOR'S EXPENSE, IN A MANNER SATISFACTORY TO THE OWNER/CONSTRUCTION SITE SUPERINTENDANT BEFORE FINAL PAYMENT WILL BE MADE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING PLANTED AREAS FREE OF DEBRIS. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL SURPLUS MATERIAL, EQUIPMENT, AND DEBRIS FROM THE SITES. ALL PLANTED AREAS SHALL BE RAKE-CLEAN PRIOR TO MULCHING.

**1.4 SCHEDULE**

ALL GRADING AND OTHER SOIL DISTURBING ACTIVITIES WITHIN THE MITIGATION AREAS, INCLUDING BUT NOT LIMITED TO REMOVAL OF ASPHALT AND OTHER HARDENED SURFACES OR REMOVAL OF INVASIVE SPECIES, SHALL OCCUR BETWEEN MARCH 1 AND OCTOBER 30 UNLESS OTHERWISE APPROVED BY THE PROJECT BIOLOGIST OR UNLESS OTHERWISE REQUIRED BY STATE OR FEDERAL AGENCIES FOR PERMITS THAT MAY BE REQUIRED FOR PROJECT IMPLEMENTATION.

PLANTING OF WOODY MATERIAL SHOULD OCCUR BETWEEN OCTOBER 1 AND MARCH 1 TO TAKE ADVANTAGE OF SEASONAL RAINS AND GREATER AVAILABILITY OF PLANT MATERIAL. PLANTING DURING ABNORMALLY HOT, DRY, OR FREEZING WEATHER, OR AT TIMES OTHER THAN AS NOTED IS NOT ALLOWED WITHOUT PRIOR AUTHORIZATION BY THE PROJECT BIOLOGIST PRIOR TO IMPLEMENTATION AND MAY REQUIRE PLANT SUBSTITUTIONS AND SUPPLEMENTAL IRRIGATION.

**2.0 PRODUCTS**

**2.1 TOPSOIL- IMPORTED**

THE IMPORTED TOPSOIL SHALL BE FRIABLE SURFACE SOIL FROM THE A HORIZON AS DETERMINED BY THE US AGRICULTURE SOIL CONSERVATION SERVICE SOIL SURVEY. TOPSOIL SHALL BE FREE FROM: MATERIALS TOXIC TO PLANT GROWTH, NOXIOUS WEED SEEDS, RHIZOMES, ROOTS, SUBSOIL, STONES AND OTHER DEBRIS. ALL TOPSOIL SHALL PASS THROUGH A 1" SCREEN. TOPSOIL SHALL CONSIST OF A SANDY CLAY LOAM, SANDY LOAM, LOAM, CLAY LOAM, SILTY LOAM SOIL. MAXIMUM PERCENTAGES ALLOWED IN THE SOIL IS 50% SAND AND/ OR 20% CLAY. TOPSOIL SHALL BE AMENDED WITH COMPOST IF MORE ORGANIC CONTENT IS NEEDED AS DETERMINED BY THE PROJECT BIOLOGIST. CONTRACTOR SHALL PROVIDE THE PROJECT BIOLOGIST WITH A ONE POUND SAMPLE OF TOPSOIL FOR APPROVAL PRIOR TO DELIVERY TO SITE.

**2.2 ORGANIC COMPOST**

A WELL-DECOMPOSED, HUMUS-LIKE MATERIAL DERIVED FROM THE DECOMPOSITION OF GRASS CLIPPINGS LEAVES, BRANCHES, WOOD, AND OTHER ORGANIC MATERIALS. COMPOST SHALL BE PRODUCED AT A PERMITTED SOLID WASTE COMPOSTING FACILITY (HEALTH PERMIT, WDOE STORMWATER PERMIT, PSAPCA FACILITY, AND EQUIPMENT REGISTRATION). COMPOST MUST MEET THE DEFINITION OF "COMPOSTED MATERIALS" IN WAC 173-350-220. THIS CODE IS AVAILABLE ON-LINE AT: [HTTP://WWW.ECY.WA.GOV/PROGRAMS/SWFA/FACILITIES//350.HTML](http://www.ecy.wa.gov/programs/swfa/facilities/350.html)

THE SOIL AMENDMENT MUST ALSO MEET THE FOLLOWING SPECIFICATIONS:

- SCREEN SIZE (APPROX. PARTICLE SIZE): 3/4-INCH MAXIMUM
- MATURITY: GREATER THAN 80%
- MATURITY MEASURE (C/N RATIO): 35:1 MAXIMUM
- ORGANIC MATTER CONTENT BY DRY WEIGHT: 35% TO 80%
- MEETS CONTAMINANT STANDARDS FOR GRADE A COMPOST

**2.3 PLANT MATERIALS**

ALL PLANT MATERIAL SHALL BE LOCALLY GROWN AND BE OF ACCEPTED SIZE STANDARDS AS SPECIFIED IN "AMERICAN STANDARD FOR NURSERY STOCK - 2014" PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN (ANSI Z60.1-2014V). ROOTED PLANTS SHALL BE FIRST QUALITY, WELL-FOLIATED, WITH WELL-DEVELOPED ROOT SYSTEMS, AND NORMAL WELL-SHAPED TRUNKS, LIMBS, STEMS, AND LEADS. THE PROJECT BIOLOGIST/INSPECTOR SHALL INSPECT FOR QUALITY CONFORMANCE. ALL ROOTED PLANT MATERIAL SHALL BE LABELED BY GENUS AND SPECIES. PLANTS DEEMED UNSUITABLE SHALL BE REJECTED BEFORE OR AFTER DELIVERY. ALL PLANT MATERIAL SHALL BE FREE FROM DAMAGE, DISEASE, INSECTS, INSECT EGGS AND LARVAE. BARE ROOT MATERIAL MAY BE USED IF PLANT MATERIAL IS INSTALLED BETWEEN FEBRUARY- MARCH. CONTACT PROJECT BIOLOGIST FOR PLANTING DETAILS FOR BARE ROOT MATERIAL.

**2.4 BARK & STRAW MULCH**

BARK MULCH SHALL CONSIST OF GROUND FIR OR HEMLOCK BARK OF UNIFORM COLOR, FREE FROM WEED, SEEDS, SAWDUST, AND SPLINTERS AND SHALL NOT CONTAIN SALTS, OR OTHER COMPONENTS DETRIMENTAL TO PLANT LIFE. SIZE RANGE OF MULCH SHALL BE FROM 1/2" TO 1-1/4" WITH MAXIMUM OF 20% PASSING A 1/2" SCREEN. STRAW MULCH WILL CONSIST OF STRAW FREE FROM WEED SEEDS.

**3.0 EXECUTION**

**3.1 GARBAGE, DEBRIS, AND HARD SURFACE REMOVAL**

REMOVE ALL GARBAGE AND OTHER DEBRIS FROM THE MITIGATION AREAS. REMOVE ALL HARD SURFACES SUCH AS GRAVEL, CONCRETE, AND ASPHALT WITHIN THE PROJECT AREA. REMOVE THE BOCCO COURT AND SAND OR BASE COURSE ASSOCIATED WITH IT. REMOVE SHED FROM WITHIN BUFFER AND ANT BASE COURSE UNDER THE SHED. DISPOSE OF ALL DEBRIS OFF-SITE AT AN APPROVED CITY, COUNTY, OR OTHER WASTE DISPOSAL FACILITY.

**3.2 IMPORTED TOPSOIL**

TOPSOIL WILL NEED TO BE IMPORTED TO MATCH GRADE IN THE AREA WHERE THE SHED AND BOCCO BALL COURT ARE REMOVED.

**3.2 INVASIVE SPECIES REMOVAL**

WALK MITIGATION SITE WITH THE PROJECT BIOLOGIST TO IDENTIFY LIMITS OF INVASIVE SPECIES REMOVAL. INVASIVE SPECIES REMOVAL MAY EXTEND BEYOND THE PLANTING AREA TO REMOVE SEED SOURCES THAT WOULD NEGATIVELY IMPACT THE BUFFER RESTORATION AREA. INVASIVE SPECIES INCLUDE HIMALAYAN BLACKBERRY, ENGLISH LAUREL, ENGLISH HOLLY, REED CANARYGRASS, AND OTHER INVASIVE SPECIES IDENTIFIED BY THE PROJECT BIOLOGIST. INVASIVE SPECIES WILL BE REMOVED BY GRUBBING OUT ROOT MASS. ALL NON-NATIVE, INVASIVE SPECIES INCLUDING ALL PLANT PARTS MUST BE REMOVED FROM PROJECT SITE AND DISPOSED AT A FACILITY THAT ACCEPTS YARD WASTE.

**3.3 PLANT INSTALLATION**

PLANTING SHALL OCCUR ACCORDING TO PREVIOUSLY DEFINED SCHEDULE. PLANTS SHALL BE INSTALLED IN COMPLIANCE WITH DETAILS IN THE PLANS. SAND WILL NOT BE USED TO BACKFILL PLANTING HOLES; THEREFORE IMPORTED TOPSOIL SHOULD BE USED TO AUGMENT BACKFILL IN THE PLANTING HOLES. THE PROJECT BIOLOGIST WILL EVALUATE IF ADDITIONAL SOIL AMENDMENTS ARE REQUIRED FOR PLANTING HOLES. SEE DETAILS PROVIDED IN THE PLANS.

IF CONTAINER STOCK APPEARS TO BE ROOTBOUND, SLASH ROOTS VERTICALLY WITH A SHARP KNIFE ALONG OUTSIDE OF BALL IN THREE (3) PLACES MINIMUM BEFORE PLANTING. SOAK DRIED ROOTBALLS IMMEDIATELY PRIOR TO AND AFTER PLANTING. CLEANLY PRUNE BROKEN ROOTS ONE-HALF-INCH OR GREATER IN DIAMETER.

PLANTS SHALL BE INSTALLED SO FINISH GRADE IS LEVEL WITH THE TOP OF ROOT BALL. PLANTS SHALL BE BACKFILLED AND WATER-SETTLED. NO COMPACTION OF BACKFILL IS TO OCCUR AROUND PLANT. ALL PLANTS SHALL BE WATERED THOROUGHLY IMMEDIATELY FOLLOWING INSTALLATION.

PLANTING LOCATIONS INDICATED ON THE PLAN ARE BASED ON ANTICIPATED SITE CONDITIONS. NO TREES OR SHRUBS SHALL BE PLANTED IN STANDING WATER.

**3.4 MULCHING**

IMMEDIATELY AFTER COMPLETION OF PLANTING, BARK MULCH SHALL BE SPREAD EVENLY TO A DEPTH OF 3 INCHES WITHIN THE ENTIRETY OF THE PLANTING AREAS.

**3.5 NGPA SIGNS & FENCE**

INSTALL NGPA SIGNS AND FENCE PER PLAN

**4.0 IRRIGATION**

SUPPLEMENTAL WATER FOR ALL SHRUB PLANTINGS SHALL BE PROVIDED BY CONTRACTOR DURING THE FIRST TWO GROWING SEASON AFTER INSTALLATION TO ENSURE SURVIVAL OF PLANT MATERIAL. HAND WATERING OR A TEMPORARY IRRIGATION SYSTEM MAY BE USED.

**5.0 PLANT ACCEPTANCE AND GUARANTEE PERIOD**

FOLLOWING COMPLETION OF THE INSTALLATION OF THE BUFFER RESTORATION BY CONTRACTOR AND FINAL APPROVAL BY THE PROJECT BIOLOGIST, THE LANDSCAPE PLANTING WARRANTY PROVIDED BY CONTRACTOR SHALL BE IN EFFECT. FROM THIS DATE FORWARD, FOR A PERIOD OF ONE YEAR, A 100% SURVIVORSHIP OF NEWLY INSTALLED PLANT MATERIAL IS REQUIRED UNDER THIS GUARANTEE. IF MORTALITY OCCURS DURING THIS PERIOD, THE PROJECT BIOLOGIST WILL SPECIFY WHICH PLANTS WILL BE REPLACED BY CONTRACTOR TO ACHIEVE A 100% SURVIVAL RATE. SPECIFIED PLANTS SHALL BE REPLACED WITH PLANTS OF SPECIES, SIZES, AND CONDITIONS SHOWN ON THE DRAWINGS UNLESS DIRECTED OTHERWISE BY THE PROJECT BIOLOGIST IN WRITING. ALL MAINTENANCE OF PLANTED AREAS DURING THE GUARANTEE PERIOD SHALL BE BY THE CONTRACTOR AND SHALL INCLUDE ITEMS AS INDICATED TO FULLY ESTABLISH ALL PLANTED AREAS TO A HEALTHY, VIGOROUS STATE.

AT THE END OF THE ONE-YEAR WARRANTY PERIOD, AND FOLLOWING REPLACEMENT OF ANY DEAD OR DEFECTIVE PLANT MATERIAL BY THE CONTRACTOR, THE PROJECT BIOLOGIST WILL CERTIFY IN WRITING THE PLANT MATERIAL IS SUITABLE AND HAS BEEN ACCEPTED AND THAT THE ONE-YEAR WARRANTY IS NO LONGER IN EFFECT.

**FIGURE 5  
TOLL BROTHERS  
FLOYD PROPERTY  
KING COUNTY, WA  
BUFFER AVERAGING PLAN  
GENERAL NOTES**



|   |              |
|---|--------------|
| <b>RAI PROJECT: 2018-063</b>  |              |
| <b>DATE: 10/21/2019</b>   |              |
| <b>DRAWN BY:AC</b>  | <b>PM:KK</b> |
| <b>BASE INFORMATION:</b>  |              |
| SURVEY PROVIDED BY: DR STRONG CONSULTING ENGINEERS, INC, KIRKLAND ON 9/19 |              |

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**MONITORING NOTES & MAINTENANCE PLAN**

**1.0 MONITORING PROGRAM**

THIS PLAN INCLUDES A SYSTEMATIC MONITORING PROGRAM OF THE ENHANCED BUFFER TO EVALUATE THE SUCCESS OF THE MITIGATION EFFORT. THE RESULTS OF THE MONITORING WILL BE USED TO DEVELOP ANY NEEDED MODIFICATIONS AND/OR ALTERATIONS OF THE SITE IN SUBSEQUENT YEARS.

THE PURPOSES OF THE MONITORING PROGRAM ARE: (1) TO DOCUMENT PHYSICAL AND BIOLOGICAL CHARACTERISTICS OF THE MITIGATION AREA, AND (2) TO ENSURE THAT THE GOALS AND OBJECTIVES COMPLY WITH PERMIT SPECIFICATIONS.

THE MONITORING PROCESS WOULD CONSIST OF THREE DISTINCT PHASES: (1) CONSTRUCTION MONITORING; (2) COMPLIANCE MONITORING; AND (3) LONG-TERM MONITORING. THE "TIME-ZERO" OR BASELINE COMPOSITION, STRUCTURE, AND COVER ABUNDANCE WOULD BE DOCUMENTED DURING THE COMPLIANCE MONITORING PHASE. THE LONG-TERM MONITORING PROGRAM WOULD DOCUMENT THE SURVIVAL OF PLANTED VEGETATION AND RATES OF COLONIZATION BY OTHER PLANTS (I.E., IN PLANTED AREAS) OVER A FIVE-YEAR PERIOD AFTER INSTALLATION OF THE BUFFER RESTORATION HAS BEEN COMPLETED.

THE FOLLOWING SECTIONS DESCRIBE THE ELEMENTS OF AN EFFECTIVE MONITORING PROGRAM.

**1.1 CONSTRUCTION MONITORING**

THE PROJECT BIOLOGIST WOULD BE PRESENT ON-SITE DURING THE VARIOUS STAGES OF CONSTRUCTION IN ORDER TO: (1) DEMARK THE LIMITS OF INVASIVE SPECIES REMOVAL; (2) REVIEW THE REMOVAL OF HARD SURFACES AND THE DECOMPACTION OF THOSE AREAS (3) REVIEW AND APPROVE THE PLANT MATERIALS AND RECOMMEND THEIR FINAL PLACEMENT BEFORE PLANTING; (4) ENSURE THAT CONSTRUCTION ACTIVITIES ARE CONDUCTED PER THE APPROVED PLAN; AND (5) RESOLVE PROBLEMS THAT ARISE DURING CONSTRUCTION, THUS LESSENING PROBLEMS THAT MIGHT OCCUR LATER DURING THE LONG-TERM MONITORING PHASE.

**1.2 COMPLIANCE MONITORING**

COMPLIANCE MONITORING CONSISTS OF EVALUATING THE RESTORATION AREAS IMMEDIATELY AFTER ALL FEATURES OF THE MITIGATION PLAN HAVE BEEN INSTALLED BY THE CONTRACTOR. THE OBJECTIVES WOULD BE TO CERTIFY THAT ALL DESIGN FEATURES, AS AGREED TO IN THE PLANTING PLAN, HAVE BEEN CORRECTLY AND FULLY IMPLEMENTED, AND THAT ANY CHANGES MADE IN THE FIELD ARE CONSISTENT WITH THE INTENT OF THE DESIGN. EVALUATION OF THE PLANTING AREAS AFTER IMPLEMENTATION WOULD BE DONE BY THE BIOLOGIST USING EVALUATION STANDARDS AND CRITERIA DISCUSSED IN SECTION 2.0.

THE COMPLIANCE MONITORING PHASE WOULD CONCLUDE WITH THE PREPARATION OF A BRIEF COMPLIANCE REPORT BY THE BIOLOGIST. THE REPORT WOULD VERIFY THAT ALL DESIGN FEATURES HAVE BEEN CORRECTLY, FULLY, AND SUCCESSFULLY INCORPORATED.

SUBSTANTIVE CHANGES MADE IN THE PLANTING PLANS WOULD BE NOTED IN THE COMPLIANCE REPORT AND ON THE DRAWINGS FOR USE DURING THE LONG-TERM MONITORING PHASE. DOCUMENTATION OF PLAN CHANGES SHOULD INCLUDE WHAT WAS DONE, WHERE, WHY, AT WHOSE REQUEST, AND THE RESULT OF THE CHANGE. LOCATIONS OF MONITORING STATIONS ESTABLISHED FOR THE COMPLIANCE MONITORING WOULD BE IDENTIFIED ON THE AS-BUILT PLANS.

THE PLANTING PLANS, WITH THE COMPLIANCE REPORT, WOULD DOCUMENT "AS-BUILT" CONDITIONS AT THE TIME OF CONSTRUCTION COMPLIANCE. A QUANTITATIVE ASSESSMENT OF THE PLANTS ESTABLISHED IN THE BUFFER RESTORATION AREA WOULD BE RECORDED AT REPRESENTATIVE SAMPLE PLOTS FOR BASELINE DATA. THIS INFORMATION WOULD BE USED TO DOCUMENT "TIME-ZERO" CONDITIONS FROM WHICH THE LONG-TERM MONITORING PERIOD WOULD BEGIN. THE COMPLIANCE REPORT AND AS-BUILT DRAWINGS WOULD BE SUBMITTED TO THE COUNTY OF KING COUNTY.

**1.3 LONG-TERM MONITORING**

LONG-TERM MONITORING WOULD BE CONDUCTED OVER FIVE GROWING SEASONS FOLLOWING APPROVAL OF THE COMPLIANCE REPORT AND AS-BUILT PLAN BY THE COUNTY. LONG-TERM MONITORING WOULD EVALUATE THE ESTABLISHMENT AND MAINTENANCE OF THE PLANT COMMUNITY IN THE ENHANCED BUFFER TO DETERMINE IF THE GOALS AND OBJECTIVES OF THE MITIGATION PLAN HAVE BEEN MET.

PLANT SPECIES WOULD BE IDENTIFIED AND PLANT COUNTS WOULD BE MADE DURING THE EACH YEAR OF THE LONG-TERM MONITORING IN ORDER TO DOCUMENT THE PERCENT SURVIVAL OF EACH PLANTED SPECIES. PLANT IDENTIFICATIONS WOULD BE MADE ACCORDING TO STANDARD TAXONOMIC PROCEDURES DESCRIBED IN HITCHCOCK AND CRONQUIST (1976), WITH NOMENCLATURE AS UPDATED BY THE U.S. ARMY CORPS OF ENGINEERS NATIONAL WETLAND PLANT LIST (LICHVAR AND KARTESZ 2009). SIGNS OF PLANTING STRESS OR DAMAGE, PRESENCE OF INVASIVE SPECIES, AS WELL AS SIGNS OF VIGOR, AND RATES OF COLONIZATION BY OTHER PLANTS (I.E., IN BARE SOIL AREAS) WOULD BE DOCUMENTED DURING EACH YEAR OF THE LONG-TERM MONITORING.

PHOTOS WOULD BE TAKEN ANNUALLY TO PROVIDE PHYSICAL DOCUMENTATION OF THE CONDITION OF THE MITIGATION AREAS.

**1.4 MONITORING AND REPORTING SCHEDULE AND CONTENTS**

FORMAL MONITORING OF THE ENHANCED BUFFER WOULD OCCUR AFTER THE SEASON'S GROWTH IS VIRTUALLY COMPLETE (RECOMMENDED DURING AUGUST OR SEPTEMBER). IN ADDITION, SPRING SITE CHECKS WOULD BE CONDUCTED DURING EACH YEAR OF THE FIVE-YEAR LONG-TERM MONITORING PERIOD TO ASSESS SITE PROGRESS AND TO DETERMINE WHETHER SITE MAINTENANCE IS NEEDED.

MONITORING REPORTS WOULD BE PREPARED FOLLOWING THE COMPLETION OF THE GROWING SEASON OF EACH YEAR OF THE FIVE-YEAR LONG-TERM MONITORING PERIOD FOR SUBMITTAL TO THE COUNTY OF KING COUNTY. THE LONG-TERM MONITORING PERIOD WILL COMMENCE FOLLOWING ACCEPTANCE OF THE COMPLIANCE REPORT AND "AS-BUILT" DRAWINGS BY THE COUNTY OF KING COUNTY.

**3.0 MAINTENANCE**

**3.1 IRRIGATION**

SUPPLEMENTAL WATER WILL BE PROVIDED TO ALL TREE AND SHRUB PLANTINGS DURING THE FIRST TWO GROWING SEASONS FOLLOWING INSTALLATION. HAND WATERING OR A TEMPORARY IRRIGATION SYSTEM MAY BE USED. IRRIGATION WILL OCCUR FROM JUNE 1 THROUGH OCTOBER 30 OR OTHER PERIODS OF HOT, DRY WEATHER AND WILL DELIVER APPROXIMATELY 1 INCH OF WATER PER WEEK THROUGHOUT THE RESTORATION AREAS. IF WATERED BY HAND, THEN THE MINIMUM WATERING REQUIREMENTS WILL BE 1 TO 3 GALLONS OF WATER FOR SMALL SHRUBS AND 3 TO 5 GALLONS PER WEEK FOR SAPLING TREES AND LARGE SHRUBS. THESE MINIMUM REQUIREMENTS ARE GUIDELINES THAT MAY VARY DEPENDING ON PLANT LOCATION, EXPOSURE, SOIL CONDITION, AND PRESENCE OF EXISTING VEGETATION.

**3.2 SITE MAINTENANCE**

THE ENHANCED BUFFER IS DESIGNED TO BE SELF-SUSTAINING. TO ENSURE THE SUCCESS OF THE PLANTINGS, ADDITIONAL REPLANTING AND CONTROL OF UNDESIRABLE PLANT SPECIES MAY BE NECESSARY AFTER INITIAL INSTALLATION. THIS MAINTENANCE PLAN INCLUDES ALL ACTIONS REQUIRED TO MAINTAIN PLANTS FREE OF INSECTS AND DISEASE, CONTROL COMPETITION WITH GRASSES AND WEEDS, AND LIMIT DIE-BACK OR MORTALITY DUE TO INADEQUATE SOIL MOISTURE TO WITHIN PERFORMANCE STANDARDS SPECIFIED ON SHEET 4.

UPON COMPLETION OF THE REMOVAL OF ALL NON-CONFORMING STRUCTURES AND UNPERMITTED FILL AND INSTALLATION OF THE ENHANCEMENT PLANTINGS, MULCH AND ALL OTHER ITEMS SPECIFIED BY THE BUFFER ENHANCEMENT PLAN, ALL SURPLUS MATERIAL, EQUIPMENT, AND DEBRIS SHALL BE REMOVED FROM

THE MITIGATION SITE. ALL SILT FENCES WILL BE REMOVED FROM WITHIN THE ENHANCED BUFFER WHEN THE ADJACENT HERBACEOUS VEGETATION IS ONE FOOT IN HEIGHT OR AS APPROVED BY THE PROJECT BIOLOGIST AND OR KING COUNTY.

THE SITE MAINTENANCE PROGRAM WOULD COMMENCE UPON APPROVAL OF THE COMPLIANCE REPORT AND AS-BUILT PLAN BY THE COUNTY. THE SITE WOULD BE REGULARLY MAINTAINED FOR THE DURATION OF THE LONG-TERM MONITORING PERIOD. THE PROJECT BIOLOGIST WOULD INSPECT THE SITE DURING SPRING (MARCH-APRIL) DURING EACH YEAR OF THE LONG-TERM MONITORING PERIOD TO IDENTIFY ANY DEVELOPING PROBLEMS WITHIN THE MITIGATION SITE. ITEMS TO BE EVALUATED WITHIN THE RESTORATION AREAS INCLUDE IRRIGATION SYSTEM OPERABILITY (IF APPLICABLE), PRESENCE OF INVASIVE SPECIES, PLANT HEALTH, ANIMAL DAMAGE TO PLANTINGS, AND PRESENCE OF TRASH.

THE PROJECT BIOLOGIST WOULD SUBMIT A WRITTEN SUMMARY OF HIS/HER FINDINGS ALONG WITH MAINTENANCE RECOMMENDATIONS TO THE PROJECT PROPONENT WITHIN 10 DAYS AFTER COMPLETION OF HIS/HER INSPECTION. MAINTENANCE RECOMMENDATIONS WOULD BE IMPLEMENTED BY THE PROJECT PROPONENT WITHIN 30 DAYS OF RECEIPT FROM THE PROJECT BIOLOGIST.

INVASIVE SPECIES WOULD BE CONTROLLED BY METHODS THAT DO NOT COMPROMISE THE ESTABLISHED VEGETATION OR THE REST OF THE RESTORATION PLANTINGS. UNLESS OTHERWISE AUTHORIZED BY THE PROJECT BIOLOGIST, REMOVAL OF INVASIVE SPECIES WILL BE DONE BY HAND, WITH HAND PULLING OF ALL WEEDS WITHIN THE DRIP RING OF ANY INSTALLED SHRUB OR TREE. NO WEED-WHIPPING WITH MECHANIZED LINE TRIMMERS WILL BE ALLOWED BETWEEN WOODY PLANTS WITHIN CLUSTER OR CLUMPED PLANTINGS.

**4.0 PROJECT ACCEPTANCE**

AFTER COMPLETION OF THE FIVE-YEAR MONITORING PERIOD AND CONFIRMATION BY KING COUNTY THAT THE BUFFER ENHANCEMENT HAS SUCCESSFULLY MET THE PERFORMANCE STANDARDS, KING COUNTY SHALL PROVIDE WRITTEN ACCEPTANCE AND APPROVAL OF THE BUFFER ENHANCEMENT SIT AND RELEASE ALL BONDS IN PLACE AS GUARANTEE OF MITIGATION SITE CONSTRUCTION AND PERFORMANCE.

**FIGURE 6  
TOLL BROTHERS  
FLOYD PROPERTY  
KING COUNTY, WA  
BUFFER AVERAGING PLAN  
MONITORING NOTES**



|   |              |
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