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Wetland Delineation and Buffer Enhancement Plan

13215 NE 205th Street
Woodinville, WA 98072

032605-9034

Section 3, Township 26 North, Range 05E

Introduction

During the summer of 2015, our firm conducted a wetland delineation for the 1.7 acre parcel located on the 1300 block of NE 205th Street, in Woodinville, Washington (Township 26 North, Range 03 East, Section 3; Parcel # 032605-9034). The purpose of the study was to determine the existence, extent, and regulatory status of any streams and wetlands affecting the subject property. We found a single wetland partially in the property as well as noted the presence of said wetlands extending offsite to the south.

The property is the site of a proposed single family residence development project where the old existing single family home site is to be subdivided into ten individual parcels suitable for single family home construction. The property is in an area long developed historically as large residential lots, but the neighborhood is recently being redeveloped with much higher density. All public utilities are available to the property, as is access to a public thoroughfare. While the property is partially encumbered by critical areas and the associated buffer, a land division has been designed that ensures buildability by current standards with a minor amount of mitigation to accommodate a partial buffer reduction. Due to the site conditions, there is ample opportunity on this property for buffer reductions via vegetative enhancement onsite as allowed by the City of Woodinville.

Study Area

The subject parcel is located in the City of Woodinville in an area of older homes on large lots. All of the adjoining parcels are presently developed, some on larger lots (in excess of 1 acre), some on much smaller properties becoming common in the area. This property has been used in recent history in part as a dumping ground for landscaping debris (branches), apparently from a tree service company. The piles of these debris have become covered, as has the majority of the property, with invasive vines such as morning glory and blackberries. An older home is centered in the property, with some remnant yard and relic landscaping, and scattered trees (mostly alder) here and there across the property. Overall the property slopes down to the south, centering on a small drainage swale that begins slightly north of the properties southern property line, with a small wetland found within.

Methods

Methodology

The methodology for the wetland portion of this assessment is dictated by the 1987 Corps of Engineers Wetland Delineation Manual supplemented by the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (version 2.0), the Washington State Wetland Rating System for Western Washington (Department of Ecology 2004), the Cowardin Classification System, and that portion of the City of Woodinville Municipal Code known as Chapter 21.24.

Literature Review

Prior to an onsite investigation, a literature review of available resources regarding this property was made with the following results:

- The USDA Soil Survey of King and Snohomish County indicates no potential hydric soils onsite, or in the vicinity.
- Review of available aerial photography shows no evidence of wetland presence in the immediate vicinity.
- Washington State Department of Natural Resources mapping shows no stream presence onsite/adjacent.

- Mapping put forth by the Washington State Department of Fish and Wildlife indicates no streams onsite.
- Washington State Department of Fish and Wildlife mapping indicates no documented use by salmonid fishes onsite or within the adjacent properties.
- Mapping as available from the Washington State Department of Fish and Wildlife Priority Habitat and Species Program indicates no Priority Species or habitats of such have primary association directly with this property.
- The National Wetland Inventory mapping shows no wetland presence onsite.

NWI Mapping of vicinity.



Subject property highlighted in yellow (general).

Site Inspection

We walked through the entire study area for a thorough visual coverage on March 19, 2015 and again May 16, 2015. We sampled the soils, vegetation, and for indicators of near-surface hydrology and wetland and upland conditions. We recorded the data at 2 representative sample plot locations (minimal wetlands onsite). The wetlands were located, boundaries flagged with sequentially-numbered (A1-4) pink flagging on surrounding vegetation. Flagging was installed prior to the property being surveyed, and while some delineation flagging was placed as to not meet the property boundary slightly, this was unintentional.

Offsite wetland areas were inspected as fully as allowed from offsite vantage point and public record. While the wetland areas to the south were on private property, access via viewing from subject property gave a good representation of site conditions, reinforced by the recorded documents of the feature locations and associated buffers. While inspected, no flagging or specific delineation was made offsite.

The wetland flag locations were subsequently collected via professional land survey (David West). The general surrounding conditions were also collected by the field survey crew. Wetland location and configuration is shown in the supplied displays (Insight Engineering, Inc.).

Findings

Wetlands

A single wetland affects this property, a small slope wetland seep, less than 1000sf in size (825sf onsite with a minor amount found offsite to the south). This wetland is a headwater seep for a small drainage that flows to the south. The drainage is now blocked by dams to create aesthetic ponds (or possibly as , but this

wetland still has the opportunity to contribute water quality functions as well as providing a habitat niche . This wetland is would be considered a Class 3 wetland per WMC 21.24.320, it is less than one acre in size, has less than three vegetation structures, is not associated with a Class 2 or 3 stream, nor does it have a forested or open water component.

While not required by the City of Woodinville, the wetland was casually rated utilizing the most up to date form of the Washington State Department of Ecology publication # 04-06-025, the Washington State Wetland Rating System for Western Washington, to give a rapid assessment of the functions and values present. For rating purposes, a slope designation was used with a final category based on functions being a Category IV wetland with a combined score of 10. The rating breakdown is as follows:

- Score for Water Quality Functions: 2
- Score for Hydrologic Functions: 2
- Score for Habitat Functions: 6

The wetland and its associated buffer serve best, in a functions and values consideration, as habitat support for the previously identified NGPA area abutting the property (a continuation of this system). While water quality functions are contributed, as a landscape feature the function is rather low, as are hydrologic functions, but both are important considering the localized flooding and erosion known to persist in the area, as well as the long term development pressure and urbanized land use. Mitigation as proposed (below) was designed to take into consideration how to add and enhance the existing functions an values.

Assessment Factors

1) Soils

The *Soil Survey of King County Area, Washington* published by the U.S.D.A. Soil Conservation Service (now the N.R.C.S.) lists the dominating soils of this property as two separate soil series, Alderwood gravelly sandy loam as the majority soil, and Everett gravelly sandy loam throughout a sliver along the eastern boundary (see map, below). Distinct Everett soils were not observed.

Alderwood gravelly sandy loam is a moderately well drained soil formed under conifers in glacial deposits. Typically an Alderwood profile will have a surface layer and subsoil that is a dark brown, very dark brown, and grayish brown gravelly sandy loam above what is often a much consolidated substratum usually found at 24-40 inches in depth. Upland areas in the vicinity had a typical profile where undisturbed with the C horizon not observed with soil pits dug in excess of 16 inches. Alderwood soils are not known as hydric soils, but have often been observed with hydric inclusions in drainages, depressions, and forming over time in compacted areas.

Within the small wetland area the soils did not meet physical criteria standards for hydric soils positively (it may based upon the shallow mucky observations, but organic content not confirmed). However, there was a clear aquic regime, a definite darkening (reducing) and demarcation of the soils from the surrounding upland, and based upon past observations of similar situations, the soil is changing to reflect the moisture regime which is the current normal circumstance, and best professional judgment would be that this feature would be considered positive for all wetland criteria.

Soil Map of Vicinity



Subject area bound in yellow
AgB, AgC, #2-Alderwood gravelly sandy loam
EvC, #17, #18- Everett gravelly sandy loam

2) Hydrology

Hydrology indicators used for wetland determination were saturated soils and a high water table, with some small areas and/or evidence of very shallow inundation. While initial site review was in early spring, a follow up review later in the growing season was consistent, with observations assumed to be at or very near the maximum groundwater levels, with no evidence of overbank flooding even though the creek level is very close to the surrounding topography of the adjacent drainage depression (although it is assumed to occur in a historic context). At no point is there any area of these wetlands that appears to have significant (greater than 1 inch depth) surface inundation at any time of the year and only in several very small, isolated pockets/pathways. Throughout the wetland areas, observed hydrology indicators were transferred visually via readily available topographical features.

Outside of the well-defined drainageway/seep, there was no natural positive wetland hydrology. Informal observation of dug soil pits throughout the property and site excavations showed no water table in excess of 24 inches of observed depth outside of the seep itself.

3) Vegetation

The vegetation of the majority of the property is that of an overgrown lot, heavy to weedy, invasive, and noxious vegetation such as morning glory surrounding a small yard area around the home. While largely invasive/pioneering in nature, only a small piece of the northeast corner of the property and along the southern property boundary has any semblance of native vegetation. While wholly not inclusive, the upland portions of the property and those neighboring properties abutting the wetland and riparian corridor were observed to have dominating and/or notable populations of the following (both on and offsite):

Sambucus racemosa, Red elderberry, FACU
Aegopodium podagraria Bishop's Goutweed, FACU
Rubus ursinus, Trailing blackberry, FACU
Oemleria cerasiformis, Indian plum, FACU
Rubus discolor, Himalayan blackberry FACU
Ipomoea, Morning glory
Rubus spectabilis, Salmonberry, FAC
Thuja plicata, Western red cedar, FAC
Alnus rubra, Red Alder, FAC
Ranunculus repens, creeping buttercup, FAC
Equisetum arvense, common horsetail, FAC

The wetlands were very sparse overall in the vegetation diversity as is often the case in urban environments, but included the following (as observed both on and off site):

Ranunculus repens, Creeping buttercup, FAC
Rubus discolor, Himalayan blackberry FACU
Athyrium filix-femina, Lady fern FAC
Rubus spectabilis, Salmonberry, FAC
Alnus rubra, Red Alder, FAC
Equisetum telmateia, Giant horsetail, FACW
Equisetum arvense, common horsetail, FAC
Salix sp., Willows (various), FAC-FACW

HCA's

A single *potential* fish and wildlife habitat conservation area affects this property. The wetland seep previously discussed transitions into what appears to be what was once a small stream a short distance offsite to the south. However, this feature has been dammed in multiple locations, creating a long ponded feature. Such a situation creates a questionable area in critical area definitions; it is no longer really a stream as defined in code, nor is it technically a wetland due to lack of soils or rooted vegetation, and it does not meet the traditional definition of a pond (>6.6' depth). While not technically a stream, guidance from WAC 222-16-030 suggests, with interpretation, that features are to be considered with blockages removed, and in this case, it would appear that if the blockages were removed, a stream would flow once again.

This feature has no surface water connection visible (per available digital resources) with any other surface waters. It is not fish bearing, and would appear to meet the definition of a non-fish bearing Type 4 water per City of Woodinville typing standards.

Regulatory Analysis

There are no wetland impacts proposed with this project, meeting the initial avoidance criteria of WMC 21.24.350(1) when combined with the prescriptive protection measures required by WMC (buffers).

Per the City of Woodinville Municipal Code (WMC) 21.24.330(1)(c), Class 3 wetlands shall have a 50-foot buffer with a 25-foot buffer allowed with enhancement. As this property meets the requirements put forth in WMC 21.24.330(1)(d), the standard reduced buffer width of 25 feet is being utilized in conjunction with the required buffer enhancement to be afforded to the site per WMC. A reduced buffer is put forth at this time as the site lends its self well to enhancement, specifically in the form of vegetative enhancement due to the unique characteristics of the present vegetative regime. While minimized in areas, the buffer is left larger than required by WMC in others.

Per City of Woodinville staff comments, mitigation sequencing for potential buffer impacts is as follows: Avoidance; the buffers proposed are as set forth in WMC 21.24.330, impacts to regulated buffers are avoided. Rectification; all temporal impacts to the wetland buffer through site development (including noxious weed removal) will be rectified by the native plant schematic as proposed below. Minimization; landscape level impacts (not direct buffer impacts) will be minimized by the expansion of the regulated buffer in areas where allowed by the lot configuration by up to 7-feet in portions of the buffer.

Non-fish bearing (Type 4) waters are afforded a 50-foot buffer in the City of Woodinville per WMCC 21.24.380. Any potential stream buffer does not surpass the adjoining wetland buffer, even when reduced as proposed.

Buffer Enhancement

As the City requires a set amount of tree retention that this parcel does not meet, it was decided to put forth buffer reduction with enhancement per WMC 21.24.330(1)(d), to coincide with the vegetative management plan to meet the required tree standards. A reduced buffer gives the project more room for access, utilities, and a practical lot layout that will give the project (wetland protection) a much greater chance for long term success (when there is adequate room around a home for ancillary activities, buffer intrusion has been found to be much less likely).

The buffer area was and is functioning at a moderate-low level in its present state. While comprised mostly of non-native and invasive species, the current vegetative regime does provide some shading, erosion control, water quality preservation, and protection in the form of a protective barrier. It is, however, mostly a mono-culture of Himalayan blackberries, and while it functions at some level, such a regime is inherently lesser functioning than one comprised of a mixed stand of native species historically acclimated to the local environment. Blackberries preclude ground level growth of any other species, and create a raised canopy over time, lessening in functionality over time as the canopy grows up, leaving the lower level essentially un-vegetated. The enhancement proposed will supplant such a regime with one that functions at a higher level, permanently.

The City of Woodinville allows reduction of the protective buffer in blanket form when a vegetation enhancement plan is put in place that raises critical area functions. As the long term permanent gains will mitigate for the short term functional losses with a more voluminous and diverse canopy, as well as a planting selection that has a high conservation value as well as providing buffer functions and values, there will be no loss of function, with long term gains foreseen that are well above and beyond what would result from a no action scenario, even with a greater area spatially. Results of the proposed buffer enhancement on a long term outlook include:

- Shrub species selected will be considered in large part conservation selections; native species with added value of food, forage, and shelter for native wildlife, especially avian species. Plants such as hazelnut and serviceberry provide excellent forage, a large benefit over potentially planted species with little or no fruit or seed food source. While the blackberries present do provide some shelter and food for local wildlife, the proposed will include greater structure/variety, overall volume, and forage sources that span a wider range of time (and of more nutritional value) providing greater benefit to local wildlife, especially avians.
- The proposed evergreen overstory will, when mature, provide over double the water quality and hydrologic function of a deciduous canopy, and over four times the rate of a deciduous shrub layer alone. This is due to the greater surface area presented, allowing for greater precipitation interception and direct evaporation in addition to the regular transpiration derived from tree life. A lower shrub level will also be present that is currently lacking, fulfilling even more of this function potential.

- The mixed canopy proposed will also enhance water quality and hydrologic functions, with a layered canopy providing for greater evapo-transpiration rates, as well as having greater direct interception/evaporation than the monoculture present.
- Light pollution protection will be enhanced by enacting a taller vegetative barrier between developed areas and critical areas that is also comprised of multiple, interlayered species vs. the mono-culture now dominant.
- A seed bank of native species will be re-introduced into the area. While the neighboring property to the south is partially protected via an NGPA easement, the largely monoculture area there will also benefit from a variety of native species introduced, that will hopefully spread offsite.
- Species were also selected for aesthetic appeal, with emphasis towards flowering an overall appearance. Such plantings have been found to have much greater success in intensely developed residential areas as neighbors value and protect plantings they find pleasant to view.

The buffer reduction as proposed is variable, at the 25ft minimum allowed (and bigger in areas), fluctuating somewhat with the needs of the adjacent lots. While the buffer width is varied somewhat, it is a seamless outer boundary, and it will be fully fenced, a mitigating protective measure not required by WMC.

Goals and Objectives

Upon even cursory site inspection it is obvious that the riparian and wetland buffer portions of this property could benefit from enhancement of some kind. Current conditions of the wetland buffer area are that of an area dominated by Class C Noxious Weeds as determined by the Washington State Noxious Weed Control Board. Vegetative enhancement by replacing this non-native, invasive vegetation with a multi-layered canopy comprised of native species will have long term benefits to wildlife, water quality, and stormwater functions. As a baseline condition, any functional uplift gained by proposed enhancement will be weighed against the present composition and domination of the area by invasive species. The goals and subsequent objective for obtaining said goals for this enhancement are as follows:

- **Goal 1: Eliminate the presence of invasive species and increase native tree and shrub species diversity within the wetland fringe and associated buffer.**
Objective: Remove by hand all invasive and noxious plants from the site and follow up with an intensive five year monitoring and maintenance regime to ensure removal success.
- **Goal 2: Restore the area to a more diverse, natural vegetative regime.**
Objective: Plant native trees and shrubs throughout the wetland fringe and buffer enhancement areas at restoration densities.
- **Goal 3: Protect the wetland and buffer enhancement areas from future development and impacts.**
Objective: Designate the on-site critical areas and buffers as such to be left permanently undisturbed in a substantially natural state in which no clearing, grading, filling, building construction or placement, or road construction of any kind is allowed without proper review by the City. Physical barrier construction is deemed necessary along this area to facilitate this goal in this location.

Methodology

The specific methodology as put forth for this enhancement site is as follows:

- *Himalayan Blackberry Removal.* Approximately 3500 square feet, heavy and spreading. Hand cutting and grubbing of root ball, includes disposal.
- *Bishop's Goutweed Removal.* Bishop's goutweed will be removed by hand as able on the subject property.

- *Plant Installation.* Includes plant materials, protective coverings, and labor. Locally grown native plants per species schedule below, or substitutions as determined by Wetland Biologist. See notes regarding planting below.
- *Fence Installation.* The reduced buffer will be demarcated by orange construction fencing throughout construction, followed by permanent installation of a split rail cedar fence.
- *Permanent signage.* The wetland buffer boundary will be demarcated on each individual lot with signage denoting a protected critical area. Signs will meet the standards as put forth by the City of Woodinville.
- *Five Year Maintenance Plan.* Year 1 and 2, three visits during growing season. Year 3 through 5, two visits during growing season. Invasive plants will be hand weeded or sprayed with foliar herbicide depending on species and season.

As a smaller single family project this project has not been held to absolutes that would normally be provided with more complex projects with no grading or major site preparation involved. The invasive species areas given are visual estimates, but are based on extensive prior experience. The costs listed below are bid prices based upon these area calculations and are absolute through August 31, 2015.

Site Preparation

Currently the buffer area is comprised almost exclusively of blackberries, interspersed with a small clump of red alder saplings. Several avenues were explored relating to site preparation, but is proposed to proceed as follows:

- All invasive blackberries and the Bishop's goutweed will be removed, by hand as applicable (Bishop's goutweed may be sprayed by licensed herbicide applicator). Blackberry removal will include grubbing of the main root structure as well.
- Construction ribbon will denote the buffer area first. All blackberries will be cut in this area.
- After blackberry removal, orange construction fencing will be placed at the buffer edge unless permanent fencing is immediately installed.
- Once construction fencing is in place, blackberry root wads will be grubbed out by hand.
- Mulching will cover the site to a minimum of 3 inches after blackberry root wad removal.
- Alder trees will be thinned to a density of 13 feet on center.
- Alder trees left in the buffer will be pruned of all branches less than 4" in diameter to a height of 8-10 feet, or as prescribed by onsite supervisor (wetland specialist, arborist, landscape architect).

Planting Schematic

A plant schedule has been developed for the proposed enhancement of the impacted buffer/wetland area that will be needed. As there are several components of the project that overlap (landscaping requirements, tree retention, and buffer enhancement), the plant schedule was prepared in coordination with the landscape architect preparing/coordinating the project as a whole, with the enhancement proposed herein being a component of the prepared landscape plan as a whole. Plants were chosen for hardiness and appropriateness to the area which includes consideration to the local region, value to the water cycle (from a stormwater perspective) being an intermingled wetland/upland area, nearness to existing/future structures, susceptibility to exposure, and for conservation value to wildlife. While costs are assigned in this plan, they are assigned for a reference point only. **For final planting costs and site array as well as any discrepancies, the Street Tree/Tree Retention/Wetland Buffer Enhancement Plan will be the standard.**

As any usable native vegetation will be retained within the buffer as able, no detailed planting plan is specified (plan locations are approximate only), with numbers proposed based upon a density calculation. The density required when combined with the size of plant material is not what would typically be recommended, but is a requirement of the City of Woodinville. Shrub planting will utilize a 5-foot centers

density calculation and tree densities based upon a 10-ft center density calculation, with the layout specified by a well versed licensed landscape architect. While density calculations are given for a plant count, onsite constraints will place many of the shrubs and smaller trees at a much denser planting, making survivability, plant health, and ongoing maintenance for noxious weed control questionable. All tree and shrub plant costs supplied are plants in the ground, installation included. Often in an enhancement or restoration, plantings can be extrapolated precisely onto a drawn planting plan. In this case, like many others, however, there are still may be some relic native shrubs/trees within the area to be worked around. Utmost care will be taken to preserve these plants, but they were not mapped and will dictate the specific density and locations of plantings for the site. The plant schedule gives a total number and general locations, but density of plantings may vary throughout the site as conditions dictate, with plantings placed by an appropriate professional with consideration to wetland fringe and/or buffer location.

Planting is to take place under the supervision of a wetland specialist, appropriately experienced landscape architect, or native plant restoration specialist for this project. Exact planting areas and numbers of each species to be planted may vary somewhat due to existing site conditions. A drawn plant specific planting plan is provided for tree placement, however, some variations from the plan may be required and are considered acceptable. An as-built including photo documentation of the planting performed under supervision will be provided as required by the City if any significant site required changes occur. Additions or substitutions as approved by the planting supervision support is allowed so long as it is one native to the area and held to the same performance standards (below).

The planting schedule is as follows:

1. All plants will be brought from the nursery in containers labeled by scientific and common names as specified. Fertilization may be required.
2. Planting will be done between November and March.
3. The entire reduce buffer area will be mulched with wood chips or hog fuel (calculated at 38 cubic yards).
5. All plantings with the exception of groundcover will be flagged with a PVC tree protector installed.

WETLAND BUFFER PLANTING SCHEDULE					
Common Name	Species:	Size	Density	Number	Cost each (installed)
TREES					
Bigleaf Maple	<i>Acer macrophyllum</i>	2.5" DBH	10' center	2	250/ea
Western Red Cedar	<i>Thuja plicata</i>	2.5" DBH	10' center	13	200/ea
Scouler willow	<i>Salix souleriana</i>	1 gal.	10' center	27	12
Total Trees	15				\$3424
SHRUBS					
Mock orange	<i>Philadelphus lewisii</i>	2 gal.	5' center	20	12
Serviceberry	<i>Amelanchier sp.</i>	2 gal.	5' center	20	12
Red flowering current	<i>Ribes sanguineum</i>	2 gal.	5' center	20	12
Beaked hazelnut	<i>Corylus cornuta</i>	2 gal.	5' center	23	12
Indian plum	<i>Oemlaria cerasiformis</i>	2 gal.	5' center	20	12
Black twinberry	<i>Lonicera involucrata</i>	2 gal.	5' center	20	12

Total Shrubs	103					\$1236
GROUNDCOVER						
Salal	Gaultheria shalon	4" pot	24" center	~50	8	
Total Groundcover	~50 (as needed only)					\$400
				Total Plants	129	\$5060

*Note on plantings. Duplicated on landscape plans/tree retention plan. Site landscape plan takes precedence.

Cost Analysis

- Cost noxious weed removal:.....\$1500
- Cost of split rail cedar fence, installed (177ft x \$10/ft).....\$1770
- Cost of mulching (\$21/yd x 38yds):.....\$798
- Cost of plant protectors (\$2/ea. Excluding groundcover).....\$158
- Total cost of plant material installed:.....\$5060
- Cost of 5 year maintenance and monitoring.....\$4200
- Planting supervision and as-built.....\$600

TOTAL COST OF ENHANCEMENT: **\$14,086**

*Costs are based upon commercial installation including PVC protector. Fencing is not considered part of the enhancement costs. **If any costs duplicated in landscape plan, landscape plan takes precedence.**

An assignment of savings for 125% of the enhancement costs is recommended (**\$16,618**). If an assignment of savings is not optional due to City limitations, for bonding purposes, it would be recommended to consider this mitigation in two parts; initial noxious plant removal and restoration plantings separated from long term maintenance (which should be contracted for the full term).

A signed contract(s) for enhancement, monitoring, and maintenance will be provided to the City of Woodinville prior to permit issuance if required.

Maintenance

Year 1 and 2, three visits during growing season. Year 3 through 5, two visits during growing season. Invasive plants will be hand weeded or sprayed with foliar herbicide depending on species and season. Non-invasive species will be weed-wacked.

Monitoring

Performance Standards

Because of the standards of the City (very dense planting requirements) and the very large plant material utilized for a portion of the tree canopy, a survival rate based performance standard is deemed questionable. While shrubs are noted as a 5-ft density, that is an average, the planting density will be much higher when one takes out the area encompassed by the large specimen trees (cedars are expected to have a ~12' diameter impact area at shrub height). As such survivability is questionable and two performance standards are given, with meeting either deemed a success.

Performance standard 1) Measurements of success for the planting site shall be determined by assessing the rate of survival for the first five years after planting. Success standards shall be as follows:

1. 100% of planted species will survive or be replanted after the first year of planting.
2. An 75% survival rate will be attained during the third and fifth monitoring year.

3. Noxious/invasive vegetation will not exceed 15% coverage in the buffer on any given year.

Performance standard 2) Measurements of success for the planting site shall be determined by assessing the aerial coverage in addition to survivability components. Success standards shall be as follows:

1. 100% of planted species will survive or be replanted after the first year of planting.
2. Aerial coverage will be 85% at year 3.
3. Aerial coverage will be 100% at year 5.
4. Noxious/invasive vegetation will not exceed 15% coverage in the buffer on any given year.

*100% invasive removal is not proposed at any time, intrusion will come from neighboring properties; such will be out of the applicant's control.

Annual Inspections

If required by the City of Woodinville in addition to above specified maintenance, site monitoring will entail annual inspections for 5 years following installation of plant materials. Such inspections can be combined with the tree inspections for the rest of the property. Annual inspections will be performed for years 1-2-3 and 5. In addition, photo points will be established that allow wide-angle views of the enhanced area. These photo points should be placed far enough back from the nearest installed plants to maintain full, wide angle views of the site even after the trees or shrubs have attained at least five feet of height. A letter report summarizing all monitoring information including photo point photographs will be provided by December 1 of each monitoring year. If the results of monitoring Year 5 show that the mitigation area does not satisfy the performance standards set forth above, additional monitoring and mitigation may be required (e.g., replanting, soil amendments, selection of alternative species, etc.).

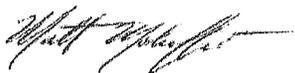
Contingency Plan

If monitoring results indicate that performance standards are not being attained for any monitoring year, replanting may be necessary. However, some of the planted species may need to be substituted with other species for one reason or another. If more than 15% fail, soil testing will be required to evaluate soil fertility and nutrient availability to the plants and plants analyzed for nutrient uptake at a testing lab. Soil amendments, fertilizers, or inoculants may be required based on testing results.

Disclaimer

This wetland delineation is based upon physical circumstances that are described in manuals and publications utilized by Federal, State, and Local agencies. The wetland delineation methodology used in this report is consistent with the routine on-site determination method prescribed by the 1987 Corps of Engineers Wetland Delineation Manual and by the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coasts Regional Supplement. No guarantees are given that the delineation will concur precisely with those performed by agencies with jurisdiction or by other qualified professionals. This report is provided for the use of the specified recipient only and is not intended for use by other parties or purposes.

Respectfully submitted,



Matt Mahaffie
Skagit Wetlands & Critical Areas, LLC

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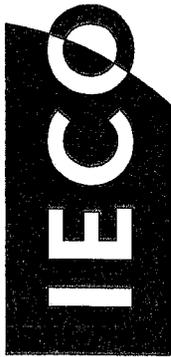
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WOODINVILLE 10

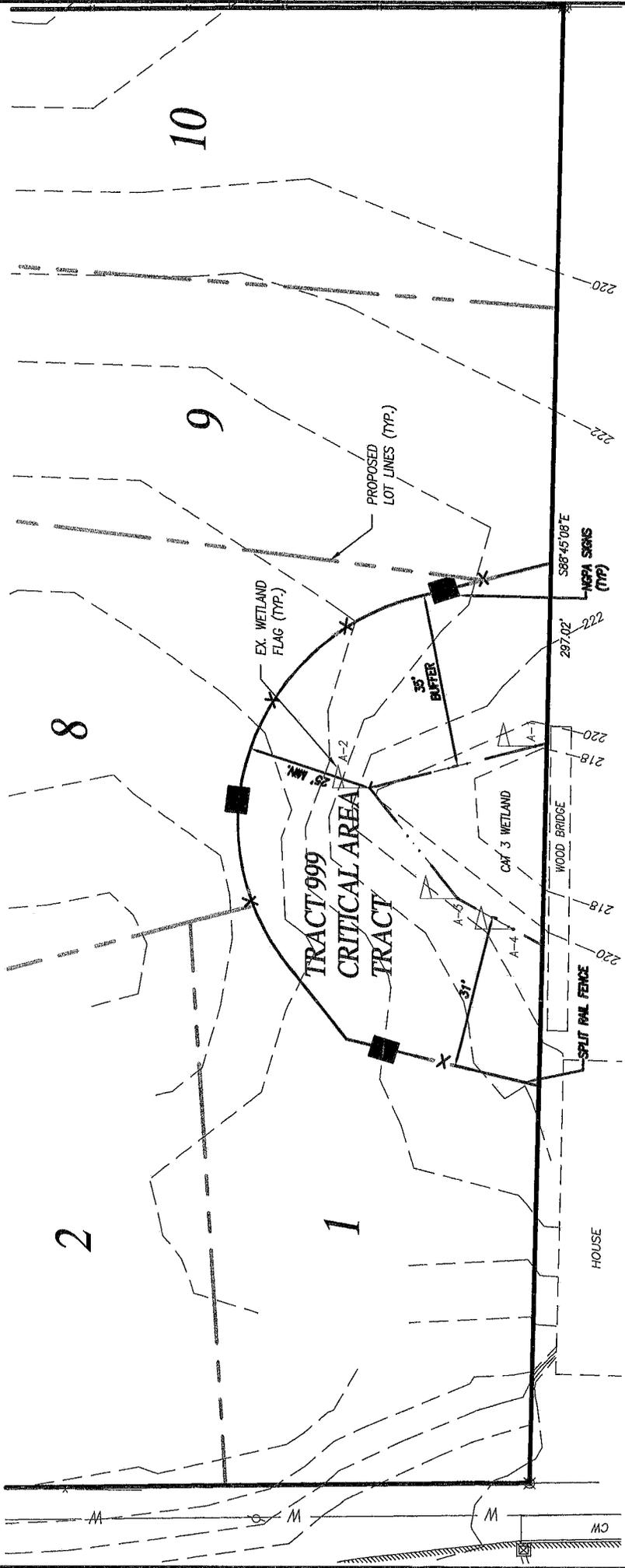
DESIGNED BY:	DATE:	SCALE:	JOB NO.:
JRC	01-13-2016	1"=30'	15-0716

WETLAND EXHIBIT W1



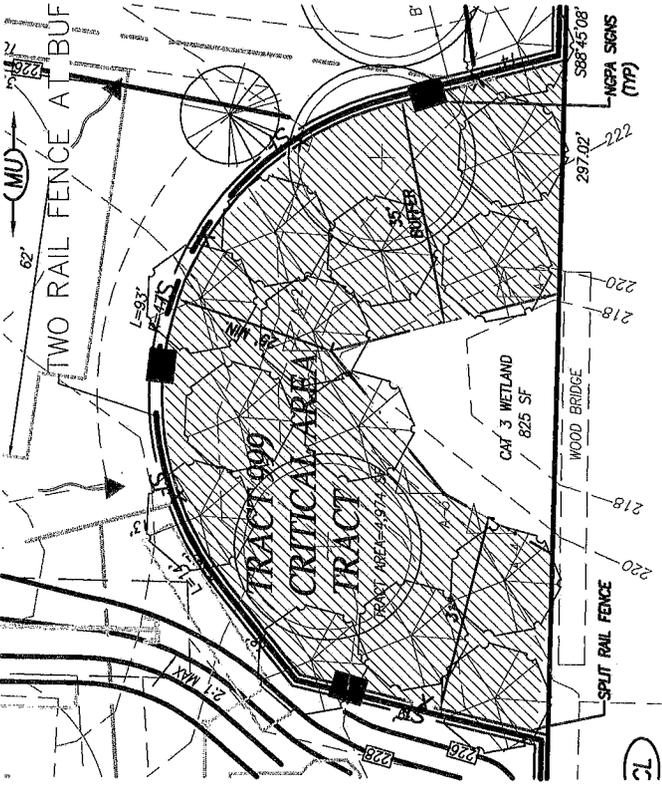
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SCALE: 1" = 30'





BUFFER ENHANCEMENT PLANTINGS

SYMBOL QUANTITY NAME SIZE/COMMENTS

LARGE TREES

- 13 THUJA PLICATA/WESTERN RED CEDAR 2.5" DBH
- 2 ACER MACROPHYLLUM/BIG LEAF MAPLE 2.5" DBH

SMALL BUFFER ENHANCEMENT TREES

TREE COUNT WITHIN BUFFER ENHANCEMENT AREA IS BASED ON AN AVERAGE SPACING OF 10 FEET ON CENTER, AND INCLUDES THE LARGE TREES PROPOSED WITHIN THE BUFFER AREA AS SHOWN ON THE PLAN.

- 27 SALIX SCOULERIANA/SCOULER'S WILLOW 1 GAL.

BUFFER ENHANCEMENT SHRUBS

SHRUB COUNT WITHIN BUFFER ENHANCEMENT AREA IS BASED ON AN AVERAGE SPACING OF 5 FEET ON CENTER, LESS THE TREES PLANTED WITHIN THE AREA. TOTAL SHRUB COUNT IS THEREFORE 123.

- 20 OEMLERIA CERASIFORMIS/INDIAN PLUS 1 GAL.
- 20 PHILADELPHUS LEWISII/MOCK ORANGE
- 20 AMELANCHIER CANADENSIS/SERVICEBERRY
- 20 RIBIES SANGUINEUM/RED FLOWERING CURRENT
- 23 CORYLUS CORNUTA/BEAKED HAZELNUT
- 20 LONICERA INVOLUCRATA/TWINBERRY

GROUND COVER

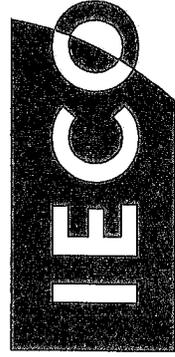
WETLAND BUFFER ENHANCEMENT

- AS REQ'D. GAULTERIA SHALLOON/SALAL 4" POTS/18" O.C.

NOTE REGARDING WETLAND BUFFER ENHANCEMENT:

BLACKBERRY AND OTHER NOXIOUS NEEDS TO BE REMOVED PRIOR TO PLANTING PROVIDE 178 LINEAR FEET TWO RAIL FENCE AT EDGE OF BUFFER

NW 1/4, SEC. 03, T. 26 N., R. 5 E., W.M.
WOODINVILLE 10
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BUFFER ENHANCEMENT W2



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