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AOA

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Environmental
Planning &
Landscape
Architecture

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AOA-1959

Geordy Rostad
233 10th Ave
Kirkland, WA 98033

SUBJECT: **Parcel 123850-0322, 126th Ave. NE, Kirkland**
Wetland Buffer Impacts for Reasonable Use

Dear Geordy:

The purpose of this letter is to provide an impact and mitigation analysis associated with a reasonable use request and buffer enhancement and monitoring proposal on the subject property. The wetland on the property has been delineated by The Watershed Company (TWC) and is fully described in their July 31, 2007 report. TWC has classified the wetland as a Type 1 wetland located within a primary basin (Forbes Creek). Type 1 wetlands in primary basins in the City of Kirkland require a standard 100-foot buffer. Since the entire site is located within the wetland buffer, development of the site for a single-family residence requires a reasonable use request.

1.0 Reasonable Use Request
A reasonable use request in the City of Kirkland requires the following analysis:

a. A determination and delineation of the sensitive area and sensitive area buffer containing all the information specified in KZC 90.40(3) for a wetland or based on the definitions contained in this chapter for a stream;

See the July 31, 2007 wetland report prepared by The Watershed Company.

b. An analysis of whether any other reasonable use with less impact on the sensitive area and sensitive area buffer is possible;

The project has been designed to avoid the wetland and limit the wetland buffer impact (3,000 s.f.) to the minimum amount necessary to build a small single-family residence. No other reasonable residential development of the property is possible that would have less of an impact to the wetland buffer.

c. Sensitive site design and construction staging of the proposal so that the development will have the least practicable impact on the sensitive area and sensitive area buffer;

The wetland buffer disturbance area has been minimized to the extent feasible and has been pushed as far from the wetland as possible. Due to the size of the lot and the wetland buffer constraints there is no other potential development location that would have less impacts on the wetland.

d. A description of the area of the site which is within the sensitive area or within the setbacks or buffers required by this chapter;

The wetland buffer on the site appears to have been historically filled and is currently dominated by a black cottonwood (*Populus trichocarpa*) forest. Understory vegetation at the time of an August 20, 2007 field investigation consisted primarily of Himalayan blackberry (*Rubus discolor*) and reed canarygrass (*Phalaris arundinacea*), with widely scattered hazelnut (*Corylus cornuta*) and Indian plum (*Oemleria cerasiformis*).

e. A description of protective measures that will be undertaken such as siltation curtains, hay bales and other siltation prevention measures, and scheduling the construction activity to avoid interference with wildlife and fisheries rearing, nesting or spawning activities;

A silt fence will be installed along the wetland boundary to prevent sediments from entering the wetland during development and buffer enhancement activities. In addition, all significant vegetation to be preserved will be clearly flagged prior to any clearing activity.

f. An analysis of the impact that the amount of development proposed would have on the sensitive area and the sensitive area buffer;

The proposed buffer impact area will be limited to 3,000 s.f. and will require the removal of 6 black cottonwood trees. In addition, 4 black cottonwood trees located within the outer 10 feet of the preserved buffer will be topped at 15 feet in height and cut into logs that will be placed within the enhanced buffer as habitat features.

g. How the proposal minimizes to the greatest extent possible net loss of sensitive area functions;

The proposed project would implement a buffer enhancement plan to mitigate for the loss of buffer area. Under the proposed buffer enhancement plan, blackberry, reed canarygrass and other invasive species would be removed and the buffer would be re-planted with a variety of native trees and shrubs. The enhancement should increase the plant species and structural diversity of the buffer while providing a physical and visual screen to the wetland from the proposed development.

h. Whether the improvement is located away from the sensitive area and the sensitive area buffer to the greatest extent possible; and

The proposed development has been located as far from the wetland as possible and as close to the roadway as allowable.

i. Such other information or studies as the Planning Official may reasonably require.

A buffer enhancement plan has been prepared to mitigate for the loss of buffer area (**Drawings W1.1, W2.1, and W3.1**).

2.0 Wetland Buffer Enhancement
Wetland buffer enhancement will consist primarily of the removal of blackberry, reed canarygrass, and other invasive plant species. The entire enhancement area would then be planted with a variety of native trees and shrubs, with care taken to preserve all existing native vegetation within the buffer. Following implementation of the wetland buffer enhancement plan, a split-rail fence would be installed along the buffer edge to prevent pedestrian intrusion.

2.1 Goal, Objectives, and Performance Standards for Enhancement Area
The primary goal of the enhancement plan is to replace the buffer functions lost from the loss of buffer area. To meet this goal, the following objectives and performance standards have been incorporated into the design of the plan:

Objective A: Increase the structural and plant species diversity within the enhancement area.
Performance Standard: Following every monitoring event for a period of at least five years, the enhancement area will contain at least 11 native plant species. In addition, there will be 100% survival of all woody planted species throughout the enhancement area at the end of the first year of planting. Following Year 1, success will be based on an 80% survival rate or areal cover of planted or recolonized native species of 15% at construction approval, 20% after Year 1, 30% after Year 2, 40% after Year 3, 50% after Year 4 and 60% after Year 5.

Objective B: Limit the amount of invasive and exotic species within the enhancement area.
Performance Standard: After construction and following every monitoring event for a period of at least five years, exotic and invasive plant species will be maintained at levels below 10% total cover in all planted areas. These species include, but are not limited to, Himalayan and evergreen blackberry, reed canarygrass, morning glory, Japanese knotweed, English ivy, thistle, and creeping nightshade.

2.2 Construction Management
Prior to commencement of any work in the enhancement area, the clearing limits will be staked and all existing vegetation to be saved will be clearly marked. A pre-construction meeting will be held at the site to review and discuss all aspects of the project with the landscape contractor and the owner.

A wetland consultant will supervise plan implementation during construction to ensure that objectives and specifications of the enhancement plan are met. Any necessary significant modifications to the design that occur as a result of unforeseen site conditions will be jointly approved by the City of Kirkland and the consultant prior to their implementation.

2.3 Monitoring Methodology
The monitoring program will be conducted for a period of five years, with two monitoring site visits a year (in the spring and fall). An annual report would then be submitted to the City of Kirkland.

Although the entire enhancement area will be reviewed, permanent vegetation sampling plots will be established at selected locations to incorporate all of the representative plant communities. The same monitoring points will be re-visited each year with a record kept of all plant species found. Vegetation will be recorded on the basis of relative percent cover of the dominant species within the vegetative strata.

Photo-points will be established from which photographs will be taken throughout the monitoring period. These photographs will document general appearance and progress in plant community establishment in the enhancement area. Review of the photos over time will provide a visual representation of success of the enhancement plan.

2.4 Maintenance Plan
Maintenance will be conducted on a routine, year round basis. Additional maintenance needs will be identified and addressed following a twice-yearly maintenance review. Contingency measures and remedial action on the site shall be implemented on an as-needed basis at the direction of the wetland consultant or the owner.

Weed Control
Routine removal and control of non-native and other invasive plants (e.g., Himalayan and evergreen blackberry, Scot's broom, reed canarygrass, Japanese knotweed, English ivy, morning glory, thistle and creeping nightshade) shall be performed by manual means whenever possible. Chemical means will only be used if necessary. Undesirable and weedy exotic plant species shall be maintained at levels below 10% total cover within any given stratum at any time during the five-year monitoring period.

Himalayan and Evergreen Blackberry Control
Small patches (areas <3' x 3') need to be grubbed out, large areas (>3' x 3') need to be cut down. New shoots (approx. 6" in height) which reappear should be spot-sprayed with herbicide only if necessary and under the supervision of a wetland consultant.

General Maintenance Items
Routine maintenance of planted trees shall be performed. Measures include resetting plants to proper grades and upright positions. Tall grasses and other competitive weeds shall be weeded at the base of plants to prevent engulfment. Weed control should be performed by; hand removal, installation of weed barrier cloth with mulch rings, or selective weed-whacking. If weed-whacking is performed, great care shall be taken to prevent damage to desired native species either planted or re-colonized. Woody plants shall only be pruned at the direction of the wetland consultant or to remove pest infestations.

2.5 Contingency Plan
All dead plants will be replaced with the same species or an approved substitute species that meets the goal of the enhancement plan. Plant material shall meet the same specifications as originally-installed material. Replanting will not occur until after reason for failure has been identified (e.g., moisture regime, poor plant stock, disease, shade/sun conditions, wildlife damage, etc.). Replanting shall be completed under the direction of the wetland consultant, City of Kirkland, or the owner.

2.6 As-Built Plan
Following completion of construction activities, an as-built plan for the enhancement area will be provided to the City of Kirkland. The plan will identify and describe any changes in relation to the original approved plan.

If you have any questions please call me at (425) 333-4535.

Sincerely,

ALTMANN OLIVER ASSOCIATES, LLC

John Altmann
Ecologist