Wetland Resources, Inc.
Delineation / Mitigation / Restoration / Habitat Creation / Permit Assistance

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CRITICAL AREA STUDY

FOR

Headrick – 8822 SE 62nd St Redevelopment
Mercer Island, WA

Wetland Resources, Inc. Project #18303

Prepared By
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Prepared For
Greg and Jennifer Headrick
8822 SE 62nd Street
Mercer Island, WA 98040

First Submittal: May 1, 2019

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TABLE OF CONTENTS

TABLES AND FIGURES

Appendices

Executive Summary

Project Name: Headrick – 8822 SE 62nd St Redevelopment

Location: The subject property is located at 8822 SE 62nd Street, in the city of Mercer Island.

Client:
Greg and Jennifer Headrick
8822 SE 62nd St
Mercer Island, WA 98040

Property Owner:
Same as Client

Wetland Resources Staff: John Laufenberg, PWS (Principal Ecologist) and Niels Pedersen (Senior Ecologist).

Critical Areas Determination: Regulated features located within the subject property include a Type 3 watercourse, two piped watercourses, and one very small (123 square feet) Category IV wetland along the east property line. An additional City-mapped watercourse that is shown in the vicinity of the existing house was determined to be absent based on physical inspection.

Piped watercourses require 25-foot protective buffers. Wetland A and the open channel portion of Stream A require 35-foot protective buffers. No other watercourses, wetlands, or wildlife habitat conservation areas are known to occur on or in the vicinity of the project. Geologic hazards are beyond the scope of this report.

Proposed Project: The applicant proposes to construct a new detached garage, to reconfigure an existing pool and patio, and to expand an existing driveway within the subject property. Several existing structures will be removed, including all structures located in the 35-foot protective buffer associated with Stream A/Wetland A.

Critical Areas Impacts and Mitigation: A portion of the existing pool and patio are located within 35 feet of Stream A. These structures will be removed, soils will be decompacted, and the area will be restored with native plants. All new development will occur outside of 35 feet from Stream A/Wetland A. This project will improve ecological function over the existing condition, and does not propose new permanent impacts to critical areas.

1.0 PROPOSED PROJECT

1.1 PROJECT LOCATION

Basin: Puget Sound
Sub-Basin: Water Resource Inventory Area (WRIA) 8 – Cedar/Sammamish River
Watershed: Lake Washington
Sub-Watershed: Mercer Island

The Headrick project is located at 8822 SE 62nd Street, in the city of Mercer Island, Washington. *Wetland Resources, Inc.* (WRI) performed a site investigation on March 1, 2019 to locate critical areas on and in close proximity to the proposed project. The site is further located as a portion of Section 19, Township 24N, Range 4E, W.M.

The subject property is a relatively level lot that slopes to a shallow ravine in the eastern portion of the property. The level portion of the site is developed with a single-family residence and appurtenant structures/uses, including access/parking, storage sheds, ornamental landscaping, lawngrass, paved areas, and a pool. A seasonal stream channel and a 123 square-foot wetland were identified along the east property line. The stream originates from a large-diameter culvert located near the northeast property boundary, and enters another culvert near the southeast property boundary. The small wetland is supported by groundwater discharge at the toe of the ravine, along the face of an existing retaining wall. The wetland also receives hydrology from a hyporheic connection to Stream A.

Figure 1: Aerial Overview of Subject Property

1.2 PROJECT DESCRIPTION

The applicant proposes to construct a new detached garage, to reconfigure an existing pool and patio, and to expand an existing driveway within the subject property. Proposed development mostly occurs in the footprint of existing residential development/hardscape. Several structures will be removed to accommodate this project, including two existing sheds, the existing pool, and several hundred square feet of concrete patio area. All new development will occur outside of critical area buffers. No new impacts to critical areas or buffers are proposed.

A portion of the existing pool and patio encroach into the 35-foot buffer associated with Stream A/Wetland A. These structures will be removed as part of the proposed redevelopment of the site, and the area will be restored. Concrete removal, soil decompaction, soil amendment, and installation of native plants will restore the nonconforming area. This project is expected to improve ecological functions within the site over the existing condition.

1.3 REGULATORY SETTING

1.3.1 Critical Areas Compliance

The proposed project occurs in the vicinity of regulated watercourses, wetlands, and critical area buffers. This report meets the minimum requirements for critical area reports as defined in Mercer Island City Code (MICC) section 19.07.050.

1.4 CRITICAL AREA IMPACTS AND MITIGATION

The proposed redevelopment will occur outside of regulated critical areas and associated buffers. This project will not impact critical areas. For this reason, no mitigation is required or proposed for this project.

2.0 CRITICAL AREAS DELINEATION METHODOLOGY

2.1 LIMIT OF STUDY

The proposed project occurs within one 0.63-acre parcel (8822 SE 62nd Street). Lack of legal access to additional parcels in the vicinity of the subject property prevents Wetland Resources, Inc. (WRI) staff from performing routine wetland/OHWM determinations in surrounding areas. Critical area boundaries depicted outside of the subject property are estimated using best professional judgment, and are based on visual observation from the edge of legal access.

2.2 CRITICAL AREAS CLASSIFICATION

Critical areas were classified in accordance with the standards set forth in MICC 19.07.070 for watercourses, section 19.07.080 for wetlands, 19.07.090 for wildlife habitat conservation areas, and 19.07.110 for shoreline areas. Identification of geologic hazard areas is beyond the scope of this report. Buffers are measured horizontally in a landward direction from the critical area boundary.

2.3 WETLAND DELINEATION METHODOLOGY

Wetland boundaries were determined using the routine determination approach described in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (U.S. Army Corps of Engineers 2010), as

required by MICC 19.07.080(A). Under the routine methodology, the process for making a wetland determination is based on three steps:

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 following criteria must be met in order to make a positive wetland determination.

2.3.1 Vegetation Criteria

The Corps Manual and 2010 Regional Supplement define hydrophytic vegetation as "*the assemblage of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to influence plant occurrence.*" Field indicators are used to determine whether the hydrophytic vegetation criteria have been met. Examples of these indicators include, but are not limited to, the rapid test for hydrophytic vegetation, a dominance test result of greater than 50%, and/or a prevalence index score less than or equal to 3.0.

2.3.2 Soils Criteria

The 2010 Regional Supplement (per the National Technical Committee for Hydric Soils) defines hydric soils as soils *"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 to determine whether a given soil meets the definition for hydric soils. Indicators are numerous and include, but are not limited to, presence of a histosol or histic epipedon, a sandy gleyed matrix, depleted matrix, and redoximorphic depressions.

2.3.3 Hydrology Criteria

Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface for a sufficient duration during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on the characteristics of vegetation and soils due to anaerobic and chemically reducing conditions, respectively. The strongest indicators include the presence of surface water, a high water table, and/or soil saturation within at least 12 inches of the soil surface.

2.4 WATERCOURSE DETERMINATION

All watercourses observed within the project area were located in the field and are depicted on the attached maps (Appendix D). Observed watercourses were delineated using the methodology described in the Washington State Department of Ecology document Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State (Anderson et al. 2016).

2.5 WATERCOURSE DETERMINATION DISCUSSION

The City of Mercer Island Development Services Group relies on data compiled in the City of Mercer Island GIS Portal to approximate critical areas presence and locate stormwater features (among many other things). This resource was used by WRI staff prior to the site investigation, to determine potential critical areas on and in the vicinity of the subject property. This resource depicts two Type 3 watercourses within the boundaries of the subject property; Stream A, which flows through the aforementioned ravine along the east property line, and a tributary to Stream A, which is shown passing through maintained lawn, the primary residence, and impervious

surfaces in the northern portion of the site. Based on the developed condition of the site, the existence of the mapped Type 3 watercourse (flowing through the property) was thought to be unlikely. Special care was taken during the site inspection to confirm or deny the presence of the mapped tributary. See Figure 2 below, which shows the location of City-mapped watercourses in the vicinity of the subject property.

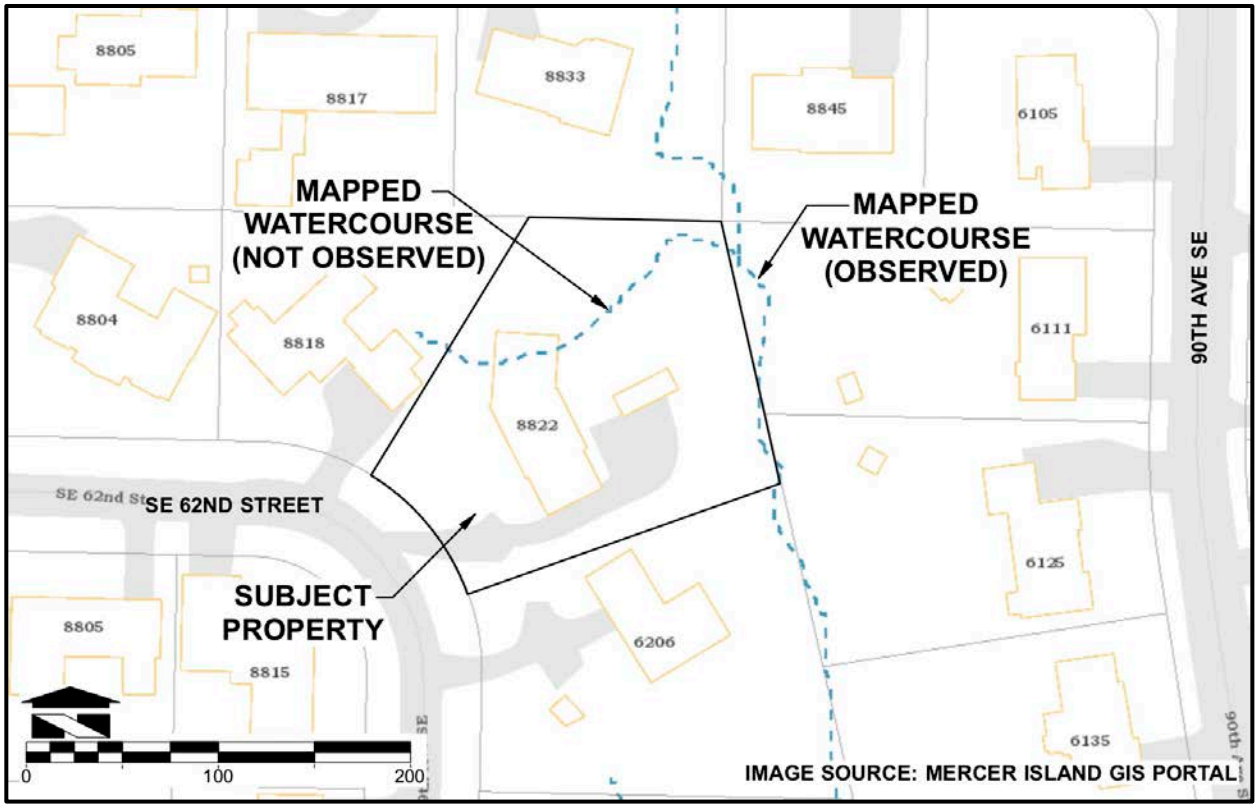


Figure 2: City-Mapped Watercourses

The mapped location of the tributary to Stream A was physically inspected on March 1, 2019. Best available science suggests that directly observed hydrology or evidence of recent surface flow support a stream presence determination. Evidence of flow includes defined bed and banks, scour marks, fine and coarse sediments deposited on existing vegetation, flattened vegetation in the direction of flow, and the presence of wet-tolerant vegetation.

Perennial streams in Puget Sound typically contain hydrology in early March. Given the absence of hydrology or indicators of surface flow along the entire path of the City-mapped watercourse during the March visit, WRI staff has determined that the mapped watercourse does not exist. The City's map error should be corrected by removing the mapped tributary to Stream A. Figure 3 below shows site photos from the March visit, and provides visual evidence that the mapped stream does not exist. No additional discussion of the (non-existent) tributary to Stream A is included in this report.

Figure 3: Site Photos of City-Mapped Watercourse

2.6 Wildlife Habitat Conservation Discussion

Areas used by bald eagles for nesting, breeding, feeding and survival are designated by the City as wildlife habitat conservation areas. No known bald eagle nests are located in the vicinity of the subject property, based on comparison with the City of Mercer Island GIS Portal.

3.0 Critical Areas Delineation Report

WRI was contracted to delineate regulated features within and in the vicinity of the subject property. One wetland (Wetland A) was observed in the study area. One watercourse (Stream A) was observed. These features are depicted in the attached critical area study maps (See Appendix C). Wetland A is a small Category IV wetland that requires a 35-foot protective buffer. Stream A originates from a culvert and drains to a culvert, both of which are classified as piped watercourses. Piped watercourses require 25-foot protective buffers. The open channel is a Type 3 watercourse that requires a 35-foot protective buffer.

3.1 Review of Existing Information

Prior to conducting the on-site investigation, public resources information was reviewed to gather background information on the project study area and surrounding areas in regards to wetlands, streams, and other critical areas.

3.1.1 USFWS National Wetlands Inventory
No wetlands are depicted in the vicinity of the project area.

3.1.2 King County Soils
The Natural Resources Conservation Service (NRCS) web soil survey and the 2014 national hydric soil list by state were used to identify soil types in the project area, and state their hydric properties. Arents, Alderwood material is the only mapped soil type in the project area. The following table describes the hydric component percentage found in the mapped soil type. The likelihood that a given map unit is a hydric soil is partly based on the percentage of hydric components found in the soil type.

Map Unit Name	Hydric Component	Component Percentage
Arents, Alderwood 0-6%	None	0

Table 1: Mapped Soils in the Project Area

3.1.3 Fish Presence
The Washington Department of Fish and Wildlife (WDFW), Pacific States Marine Fisheries Commission (PSMFC), and the Washington Dept. of Natural Resources (WADNR) are the primary agencies that provide publicly available information used for making fish presence determinations consistent with the water typing rules set forth in WAC 222-16-030. The following information represents the findings from each source.

3.1.4 WDFW SalmonScape Map Tool
SalmonScape is an online GIS database that contains publicly available resource information for fish population studies and general species distribution (both documented and modeled presence).

SalmonScape does not depict fish use in the vicinity of the property.

3.1.5 PSMFC StreamNet Map Tool
StreamNet is a fish distribution database maintained by the PSMFC as a regional clearinghouse for fish data. In the vicinity of the project area, fish presence is only depicted within Lake Washington.

StreamNet does not depict fish use in the vicinity of the property.

3.1.6 WDNR Forest Practices Activity Mapping Tool (FPAMT)
FPAMT is an online GIS database that aids the process of submitting a Forest Practices Permit application. The tool is useful for the purposes of this study because WADNR models fish presence.

FPAMT does not depict fish use in the vicinity of the property.

3.1.7 City of Mercer Island Critical Areas
In the vicinity of the project area, the City of Mercer Island depicts the aforementioned Type 3 watercourse (Stream A) in addition to the non-existent tributary to Stream A. No other features are mapped.

3.1.8 WDFW Priority Habitat and Species (PHS) Maps

WDFW PHS maps depicts the ravine along the east property line as a Biodiversity Area and Corridor. No other features are mapped on or in the vicinity of the subject property.

3.1.9 Field Investigation

Field delineation occurred on March 1, 2019. One small wetland (123 square feet) was observed in the vicinity of Stream A.

3.2 WETLAND DETERMINATION FINDINGS

Wetland A

Jurisdiction: USACE, Mercer Island
HGM Class: Slope
Cowardin Classification: Palustrine, Emergent
Ecology Score for Functions: 15/5 (total score/habitat score)
Ecology Rating: Category IV (for functions)
Mercer Island Buffer Requirement: 35 feet

Figure 4: Facing East Towards Wetland A

Figure 5: Facing North Towards Wetland A

Wetland A is 123 square feet in total area. The feature is located along the east property line of the subject property, on the left bank of Stream A. The feature forms from groundwater discharge at the toe of an existing retaining wall, and is also supported by the hyporheic zone associated with Stream A. Groundwater was observed in data site S-1 at the same elevation as the stream bed. Wetland A was rated as a slope wetland due to lack of evidence of overbank flooding. Vegetation was not flattened or otherwise marked, scour marks and recent or layered sediment deposits were not observed in the soil profile.

This small wetland contains two dominant herbaceous species: creeping buttercup and yellow archangel. Archangel is a Class B noxious weed. Several small canes of Himalayan blackberry were also rooted in the wetland. Soils sampled from the center of Wetland A were black (10YR 2/1) from 0 to 6 inches below the soil surface. Redoximorphic features were present from 6 to 14 inches as concentrations within a very dark brown layer (10YR3/2). This area easily meets criteria for designation as a regulated wetland.

Wetland A received an overall score of 15 points on the 2014 Washington State Wetland Rating System for Western Washington, with a habitat functions score of 5 points. Wetlands with scores between 9 and 15 are classified as Category IV wetlands. Wetland A requires a 35-foot protective buffer.

3.3 WATERCOURSE DETERMINATION FINDINGS

3.3.1 Stream A

Jurisdiction: City of Mercer Island
Cowardin Class: Riverine Intermittent Unconsolidated Bottom
Watercourse Type (MICC): Piped Watercourse/Type 3 Watercourse
City of Mercer Island Standard Buffer Requirement: 25 feet (piped)/35 feet (open)

Figure 6: Facing South Along Stream A

The open channel of Stream A originates at the outlet of a large-diameter culvert located near the northeast corner of the subject property. The channel terminates where it enters another culvert located in the southeast corner of the subject property. The open channel consists of mixed cobble and mud. Based on comparison with the Mercer Island GIS Portal, it appears that Stream A outlets directly to Lake Washington on the east side of Mercer Island.

The OHWM of Stream A was determined along the break to upland vegetation, where channel morphology has created defined banks and bed material, and where roots have been exposed by stream flow. Piped watercourses require 25-foot protective buffers, and Type 3 watercourses require 35-foot protective buffers.

4.0 BUFFER RESTORATION PLAN

Based on the applicant's survey, 207 square feet of an existing pool and patio are located within the 35-foot buffer associated with Stream A/Wetland A. The applicant's proposed re-development will occur entirely outside of the buffer, and will also result in removal of the non-

conforming pool and patio area. The applicant proposes to restore this 207 square-foot area with native vegetation.

4.1 BUFFER RESTORATION PLANTING PLAN

The applicant proposes to restore 207 square feet of an existing patio that is located in the 35-foot buffer associated with Stream A/Wetland A. Following the removal of concrete from the restoration area, underlying soils will be decompacted as necessary (to no less than one foot below existing native soils). Soil amendments shall consist of three inches of premium topsoil (with at least 15 percent organic content) tilled into the top twelve inches of existing soil. Mulch shall be placed throughout the restoration area, but away from the stems of woody plants. Additional soil preparation measures may be necessary, based on recommendations by the contracted biologist. The following plant species and quantities will be installed within the restoration area.

Buffer Restoration Planting Plan (207 square feet)

Common Name	Latin Name	Size	Spacing	Quantity
Western red cedar	*Thuja plicata*	1 gallon	10'	2
Salmonberry	*Rubus spectabilis*	1 gallon	5'	4
Vine maple	*Acer circinatum*	1 gallon	5'	2
Coastal strawberry	*Fragaria chiloensis*	1 gallon	3'	22

4.2 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. There will be a pre-construction meeting on this site between the Permittee, the consulting wetland professional, and the contracted landscaper. The objective will be to verify the location of mitigation planting areas, and to assess the adequacy of decompaction/amendment measures.

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 Mercer Island representative and/or the consulting professional will make these decisions during construction.

4.3 PLANTING NOTES

Planting shall occur in the early spring or late fall. All plants shall be obtained 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.

Compost/Cultivation

During the pre-construction meeting, the condition of the soils in the restoration 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. . 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 City staff. Fertilizers shall be applied only at the base of plantings underneath the required covering of mulch (and shall not make contact with stems of 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 restoration plant installation, two to four inches of woodchip mulch shall be placed throughout the restoration area. Woodchips shall be kept at least 2 inches from the trunks and stems of woody plants.

5.0 PROJECT MONITORING PROGRAM

Requirements for monitoring project:
1. Initial compliance/as-built report
2. Site inspection (twice per year for years one and two, and once per year until year 5)
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 landscaper, wetland specialist, and/or City of Mercer Island staff 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 Restoration Plan. The monitoring period will begin upon City acceptance of written notification confirming the mitigation plan has been successfully implemented. Final inspection will occur five years after completion of this project. The contracted consultant will prepare a final report documenting the success of the project.

Vegetation Monitoring
Due to the small physical size of the restoration area, monitoring will occur based on a hand count of installed species. Monitoring of vegetation sampling points shall occur once per year for five years. Semi-annual inspections will be primarily useful for making maintenance recommendations that will ensure long-term success.

Photo points
No less than two permanent photo points will be established within the mitigation areas. Photographs will be taken from these points to visually record condition of the restoration 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, 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, avian species, 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

5.1 GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS
The overall goal of this restoration plan is to restore ecological functions within the buffer associated with Wetland A/Stream A. Specific goals, objectives, and performance standards include the following:

Goal 1
Modestly improve forage opportunities in the riparian corridor.

Objective 1a: Maintain diverse native species that can provide forage for terrestrial mammals and passerine birds.

> **Performance Standard 1a1:** The restoration area shall contain at least four different native species (including native pioneer species) during each monitoring year.

Objective 1b: Control aggressive non-native species.

Performance Standard 1b1: Aggressive non-native species (i.e. Himalayan blackberry, English ivy, and reed canarygrass) shall constitute less than 10 percent areal cover in the restoration area for all monitoring years.

Goal 2

Improve vegetative screening between proposed development and Stream A/Wetland A.

Objective 1a: Create soil conditions that can support successional development/screening goals within the restoration area.

Performance Standard 1a1: Prior to planting, concrete shall be removed from the restoration area. Soils shall be decompacted to at least twelve inches below existing native soils, and at least three inches of mulch shall be incorporated into the decompacted area.

Objective 1b: Install species that can improve screening in the shrub, sub-canopy, and canopy layers.

Performance Standard 1b1: Installed and native pioneer species in the restoration area shall constitute 50 percent areal cover in year five. An increase in areal cover shall be observed between monitoring years three and four.

Performance Standard 1b2: There shall be 100 percent survival of all installed woody species in the restoration area, and at least 80 percent survival of all herbaceous species in all years, as documented during annual site visits.

5.2 MAINTENANCE

The mitigation areas will require periodic maintenance to remove aggressive non-native 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), irrigation, fertilization (only 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 actions.

Survival

The permittee shall be responsible for the health of 100% of all installed woody plants, and 80% of herbaceous plants, for five growing seasons after successful installation. 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 Mercer Island 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 Mercer Island 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 Mercer Island 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 Mercer Island 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 Mercer Island 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 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.

5.3 CONTINGENCY PLAN

If 20% of the installed 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.

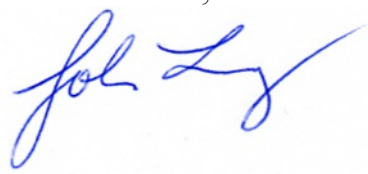
6.0 USE OF THIS REPORT

This Critical Area Study is supplied to Greg and Jennifer Headrick as a means of determining critical area conditions, as required by the City of Mercer Island 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.

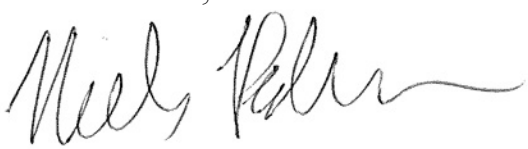
The work for this report has conformed to the standard of care employed by wetland ecologists. No other representation or warranty is made concerning the work or this report and any implied representation or warranty is disclaimed.

Wetland Resources, Inc.



John Laufenberg
Principal Ecologist, PWS #1742

Wetland Resources, Inc.



Niels Pedersen
Senior Ecologist

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Appendix A

Dept. of Ecology Wetland Rating Forms for Western Washington
(Wetland A)

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Wetland name or number **A**

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Headrick Property Wetland A Date of site visit: 3.1.19

Rated by Niels Pedersen Trained by Ecology? ✔ Yes ___No Date of training 06.14

HGM Class used for rating SLOPE Wetland has multiple HGM classes? ___Y ✔ N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.

Source of base aerial photo/map King County

OVERALL WETLAND CATEGORY IV (based on functions ✔ or special characteristics ___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

✔ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H M [L]	H M [L]	H M [L]	
Landscape Potential	H [M] L	H [M] L	H M [L]	
Value	H [M] L	H [M] L	[H] M L	**TOTAL**
Score Based on Ratings	**5**	**5**	**5**	**15**

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	✔

Wetland name or number **A**

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	1
Hydroperiods	H 1.2	1
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	5
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	5
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	1
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	4

Wetland name or number **A**

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ✔ The wetland is on a slope (*slope can be very gradual*),
   ✔ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ✔ The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number **A**

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number **A**

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance*) ☐ Slope is 1% or less points = 3 ☐ Slope is > 1%-2% points = 2 ☐ Slope is > 2%-5% points = 1 ☑ Slope is greater than 5% points = 0	**0**
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 [No = 0]	**0**
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* ☐ Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 ☐ Dense, uncut, herbaceous plants > ½ of area points = 3 ☐ Dense, woody, plants > ½ of area points = 2 ☐ Dense, uncut, herbaceous plants > ¼ of area points = 1 ☑ Does not meet any of the criteria above for plants points = 0	**0**
Total for S 1 Add the points in the boxes above	**0**

Rating of Site Potential If score is: ___ **12 = H** ___ **6-11 = M** ✔ **0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? [Yes = 1] No = 0	**1**
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources Stormwater [Yes = 1] No = 0	**1**
Total for S 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If score is: ✔ **1-2 = M** ___ **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 [No = 0]	**0**
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list*. [Yes = 1] No = 0	**1**
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 [No = 0]	**0**
Total for S 3 Add the points in the boxes above	**1**

Rating of Value If score is: ___ **2-4 = H** ✔ **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number **A**

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?

S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.* ☐ Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 ☑ All other conditions points = 0	**0**

Rating of Site Potential If score is: ___ **1 = M** ✔ **0 = L** *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 No = 0	**1**

Rating of Landscape Potential If score is: ✔ **1 = M** ___ **0 = L** *Record the rating on the first page*

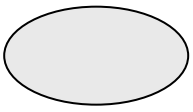
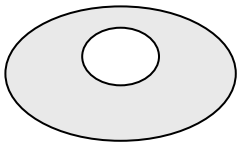
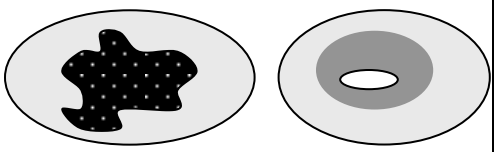
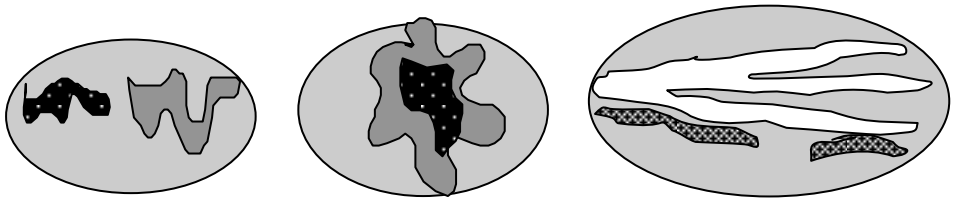
S 6.0. Are the hydrologic functions provided by the site valuable to society?

S 6.1. Distance to the nearest areas downstream that have flooding problems: ☐ The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 ☑ Surface flooding problems are in a sub-basin farther down-gradient points = 1 ☐ No flooding problems anywhere downstream points = 0	**1**
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	**0**
Total for S 6 Add the points in the boxes above	**1**

Rating of Value If score is: ___ **2-4 = H** ✔ **1 = M** ___ **0 = L** *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number **A**

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	
H 1.0. Does the site have the potential to provide habitat?	
H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.* ____Aquatic bed — 4 structures or more: points = 4 __✔__Emergent — 3 structures: points = 2 ____Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1 ____Forested (areas where trees have > 30% cover) — [1 structure: points = 0] *If the unit has a Forested class, check if:* ____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon	**0**
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*). ____Permanently flooded or inundated — 4 or more types present: points = 3 ____Seasonally flooded or inundated — 3 types present: points = 2 ____Occasionally flooded or inundated — [2 types present: points = 1] __✔__Saturated only — 1 type present: points = 0 ____Permanently flowing stream or river in, or adjacent to, the wetland __✔__Seasonally flowing stream in, or adjacent to, the wetland ____**Lake Fringe wetland** — **2 points** ____**Freshwater tidal wetland** — **2 points**	**1**
H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *Different patches of the same species can be combined to meet the size threshold and you do not have to name the species.* ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*** If you counted: > 19 species — points = 2 5 - 19 species — points = 1 [< 5 species] — [points = 0]	**0**
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*  [**None** = 0 points]  **Low** = 1 point  **Moderate** = 2 points All three diagrams in this row are **HIGH** = 3points 	**0**

Wetland name or number **A**

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* ____Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	**0**
Total for H 1 Add the points in the boxes above	**1**

Rating of Site Potential If score is:___**15-18 = H** ___**7-14 = M** ✔ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 0 **+** [(% moderate and low intensity land uses)/2] 0 **=** 0 % If total accessible habitat is: ☐ > 1/3 (33.3%) of 1 km Polygon points = 3 ☐ 20-33% of 1 km Polygon points = 2 ☐ 10-19% of 1 km Polygon points = 1 ✔ < 10% of 1 km Polygon points = 0	**0**
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 12 **+** [(% moderate and low intensity land uses)/2] 9 **=** 21 % ☐ Undisturbed habitat > 50% of Polygon points = 3 ☐ Undisturbed habitat 10-50% and in 1-3 patches points = 2 ✔ Undisturbed habitat 10-50% and > 3 patches points = 1 ☐ Undisturbed habitat < 10% of 1 km Polygon points = 0	**1**
H 2.3. Land use intensity in 1 km Polygon: If ✔ > 50% of 1 km Polygon is high intensity land use points = (- 2) ☐ ≤ 50% of 1 km Polygon is high intensity points = 0	**-2**
Total for H 2 Add the points in the boxes above	**-1**

Rating of Landscape Potential If score is**:**___**4-6 = H** ___**1-3 = M** ✔ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 ✔ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan ☐ Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 ☐ Site does not meet any of the criteria above points = 0	**2**

Rating of Value If score is: ✔ **2 = H** ___**1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number A

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

☐ **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

☑ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

☐ **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

☐ **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

☐ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

☐ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

☑ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

☐ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

☐ **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

☐ **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

☐ **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

☑ **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number **A**

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes **– Go to SC 2.2** No **– Go to SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes **= Category I** No **= Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes **– Contact WNHP/WDNR and go to SC 2.4** No **= Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes **= Category I** No **= Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No **= Is not a bog**	**Cat. I**

Wetland name or number **A**

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** ☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. ☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? ☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks ☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: ☐ Long Beach Peninsula: Lands west of SR 103 ☐ Grayland-Westport: Lands west of SR 105 ☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	**N/A**

Wetland name or number _____

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HEADRICK - 8822 SE 62ND ST REDEVELOPMENT
WETLAND RATING FIGURE A1 - WETLAND A

LEGEND

- EMERGENT VEGETATION
- SATURATED ONLY
- 150' FROM WL BOUNDARY
- INTERMITTENT STREAM

Scale 1" = 50'

0 50 100

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

WETLAND RATING
Wetland A

Greg and Jennifer Headrick
8800 SE 62nd St
Mercer Island, WA 98040

Figure A1
WRI Job #18303
Drawn by: NP

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HEADRICK - 8822 SE 62ND ST REDEVELOPMENT
WETLAND RATING FIGURE A2 - WETLAND A

LEGEND

- RELATIVELY UNDISTURBED
- LOW/MOD. INTENSITY
- HIGH INTENSITY
- ACCESSIBLE HABITAT
- WETLAND
- 1 KM FROM WETLAND

Scale 1" = 1,000'

0 1,000 2,000

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WETLAND RATING
Wetland A

Greg and Jennifer Headrick
8800 SE 62nd St
Mercer Island, WA 98040

Figure A2
WRI Job #18303
Drawn by: NP

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HEADRICK - 8822 SE 62ND ST REDEVELOPMENT
WETLAND RATING FIGURE A3 - WETLAND A

LEGEND

WETLAND

AQUATIC RESOURCES ON THE 303(d) LIST

Scale 1" = 1,000'

0 1,000 2,000

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WETLAND RATING
Wetland A

Greg and Jennifer Headrick
8800 SE 62nd St
Mercer Island, WA 98040

Figure A3
WRI Job #18303
Drawn by: NP

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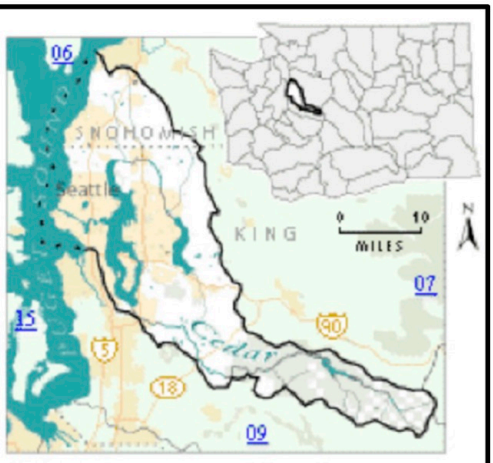
HEADRICK - 8822 SE 62ND ST REDEVELOPMENT
WETLAND RATING FIGURE A4 - WETLAND A

WRIA 8: Cedar-Sammamish

The following table lists overview information for water quality improvement projects (including total maximum daily loads, or TMDLs) for this water resource inventory area (WRIA). Please use links (where available) for more information on a project.



Counties

- King
- Snohomish

Waterbody Name	Pollutants	Status**	TMDL Lead
Ballinger Lake	Total Phosphorus	Approved by EPA	Tricia Shoblom 425-649-7288
Bear-Evans Creek Basin	Fecal Coliform	Approved by EPA	Joan Nolan 425-649-4425
	Dissolved Oxygen Temperature	Approved by EPA	
Cottage Lake	Total Phosphorus	Approved by EPA Has an implementation plan	Tricia Shoblom 425-649-7288
Issaquah Creek Basin	Fecal Coliform	Approved by EPA	Joan Nolan 425-649-4425
Little Bear Creek Tributaries: Trout Stream Great Dane Creek Cutthroat Creek	Fecal Coliform	Approved by EPA	Ralph Svrjcek 425-649-7036
North Creek	Fecal Coliform	Approved by EPA Has an implementation plan	Ralph Svrjcek 425-649-7036
Pipers Creek	Fecal Coliform	Approved by EPA	Joan Nolan 425-649-4425
Sammamish River	Dissolved Oxygen Temperature	Field work starts summer 2015	Ralph Svrjcek 425-649-7036
Swamp Creek	Fecal Coliform	Approved by EPA Has an implementation plan	Ralph Svrjcek 425-649-7036

** ***Status*** *will be listed as one of the following: Approved by EPA, Under Development or Implementation*

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WETLAND RATING
Wetland A

Greg and Jennifer Headrick
8800 SE 62nd St
Mercer Island, WA 98040

Figure A4
WRI Job #18303
Drawn by: NP

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HEADRICK - 8822 SE 62ND ST REDEVELOPMENT
WETLAND RATING FIGURE A5 - WETLAND A

LEGEND

- WETLAND
- DENSE, UNCUT HERBACEOUS
- DENSE, UNCUT WOODY
- DENSE, UNCUT, RIGID PLANTS

Scale 1" = 10'

0 10 20

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WETLAND RATING
Wetland A

Greg and Jennifer Headrick
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Mercer Island, WA 98040

Figure A5
WRI Job #18303
Drawn by: NP

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Appendix B

U.S. Army Corps of Engineers Wetland Determination Data Forms
(S1-S2)

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Headrick Redevelopment/8822 SE 62nd St City/County: Mercer Island/King Sampling Date: 3.1.19

Applicant/Owner: Greg and Jennifer Headrick/Same State: WA Sampling Point: S1

Investigator(s): Niels Pedersen Section, Township, Range: SEC 19, TWP 24N, RGE 5E, WM

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): >5%

Subregion (LRR): A Lat: 47.547867° Long: -122.219901° Datum: WGS84

Soil Map Unit Name: Arents, Alderwood Material NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☑ No ☐ Hydric Soil Present? Yes ☑ No ☐ Wetland Hydrology Present? Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m^2)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum*	50	-	-
2. Thuja plicata*	30	-	-
3.			
4.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m^2)			
1. Rubus armeniacus	5	Y	FAC
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Lamium galeobdolon**	40	Y	NOL
2. Ranunculus repens	40	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80	= Total Cover	
Woody Vine Stratum (Plot size: 3m^2)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

*Species rooted in different hydrologic/soil conditions, and therefore excluded from the hydrophytic veg. assessment.
**Lamium is not listed in the 2016 NWPL. It is conservatively presumed FAC for this assessment.

SOIL

Sampling Point: S1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Silt Loam	Organic Staining on Hands
6-14	10YR 3/2	95	10YR 3/6	5	C	M	Sandy Loam	Very Gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☑ No ☐ Depth (inches): 7"+

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 6-7"

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Headrick Redevelopment/8822 SE 62nd St City/County: Mercer Island/King Sampling Date: 3.1.19

Applicant/Owner: Greg and Jennifer Headrick/Same State: WA Sampling Point: S2

Investigator(s): Niels Pedersen Section, Township, Range: SEC 19, TWP 24N, RGE 5E, WM

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): >5%

Subregion (LRR): A Lat: 47.547867° Long: -122.219901° Datum: WGS84

Soil Map Unit Name: Arents, Alderwood Material NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5m^2)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer macrophyllum	50	Y	FACU
2. Thuja plicata	40	Y	FAC
3.			
4.			
	90	= Total Cover	
Sapling/Shrub Stratum (Plot size: 3m^2)			
1. None			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 1m^2)			
1. Lamium galeobdolon*	10	Y	NOL
2. Ranunculus repens	5	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15	= Total Cover	
Woody Vine Stratum (Plot size: 3m^2)			
1. None			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 85

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks:

*Lamium is not listed in the 2016 National Wetland Plant List. Although this species is typically associated with upland areas, it is conservatively presumed FAC for the purpose of this hydrophytic vegetation assessment.

SOIL

Sampling Point: S2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2	100					Sandy Loam	
12-17	10YR 3/2	100					Sandy Loam	Dry to 17"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:_____

Depth (inches):_____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C

Critical Area Study Maps
(Sheets 1/3-3/3)

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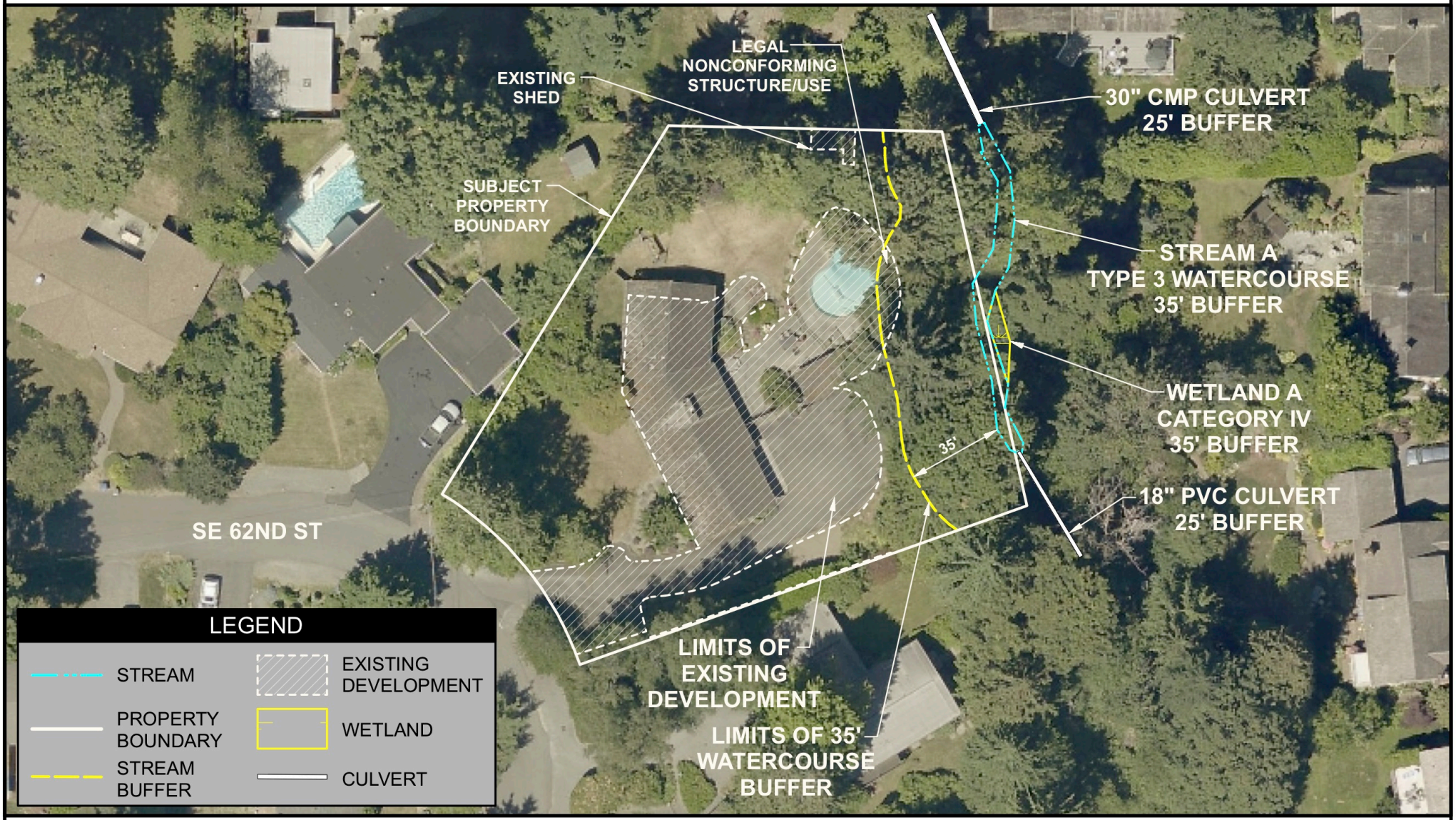
CRITICAL AREA STUDY MAP

HEADRICK - 8822 SE 62ND ST REDEVELOPMENT

EXISTING CONDITIONS



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

Critical Area Study Map
Headrick - 8822 SE 62nd St Redevelopment
Existing Conditions
Sheet 1/3
Greg & Jennifer Headrick
8822 SE 62nd St
Mercer Island, WA 98040
Project Number: 18303
Drawn by: NP
5/1/2019

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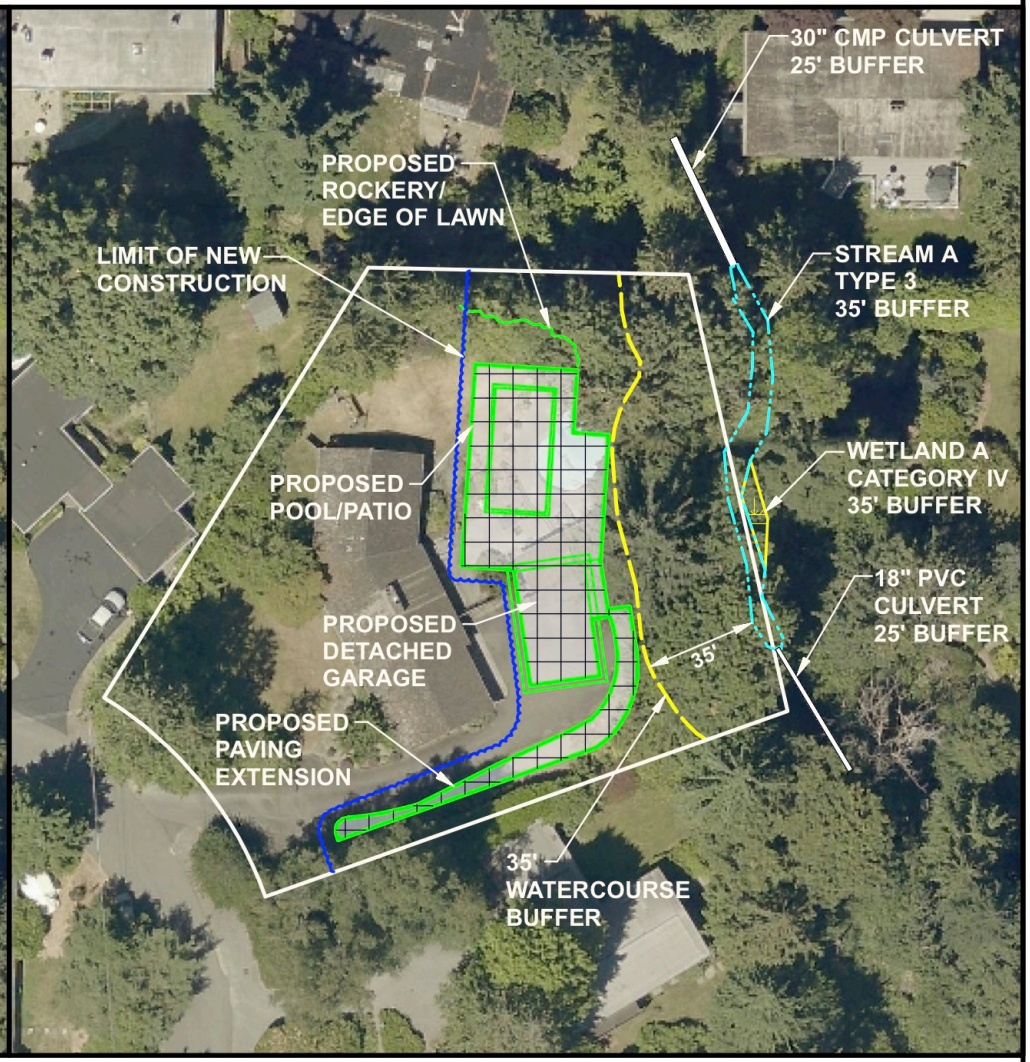
CRITICAL AREA STUDY MAP

HEADRICK - 8822 SE 62ND ST REDEVELOPMENT

PROPOSED DEVELOPMENT



Scale 1" = 60'

0 30 60 90 120

LEGEND	
STREAM	EXISTING TBR STRUCTURES
PROPERTY BOUNDARY	PROPOSED DEVELOPMENT
STREAM BUFFER	WETLAND

NOTE: ALL PROPOSED DEVELOPMENT OCCURS OUTSIDE OF 35' WETLAND/WATERCOURSE BUFFER

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Critical Area Study Map
Headrick - 8822 SE 62nd St Redevelopment
Proposed Development
Sheet 2/3
Greg & Jennifer Headrick
8822 SE 62nd St
Mercer Island, WA 98040
Project Number: 18303
Drawn by: NP
5/1/2019

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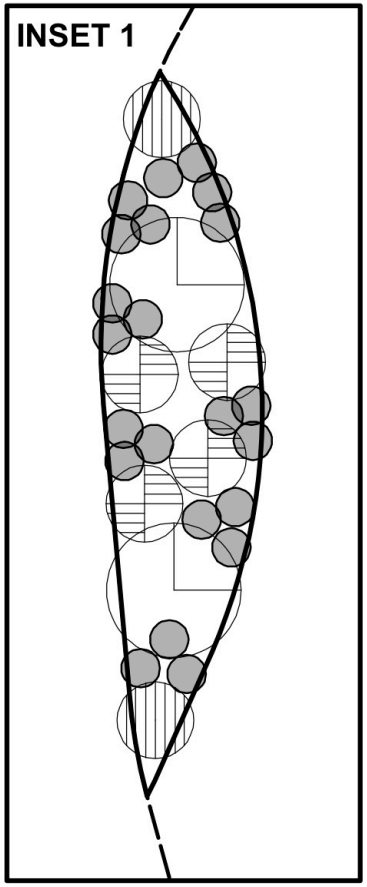
CRITICAL AREA STUDY MAP

HEADRICK - 8822 SE 62ND ST REDEVELOPMENT

BUFFER RESTORATION PLAN



PLANT LEGEND

- WESTERN RED CEDAR
- SALMONBERRY
- VINE MAPLE
- COASTAL STRAWBERRY

Inset Scale 1" = 10'

0 5 10 15 20

Common Name	Latin Name	Size	Spacing	Quantity
Western red cedar	*Thuja plicata*	1 gallon	10'	2
Salmonberry	*Rubus spectabilis*	1 gallon	5'	4
Vine maple	*Acer circinatum*	1 gallon	5'	2
Coastal strawberry	*Fragaria chiloensis*	1 gallon	3'	22

Scale 1" = 60'

0 30 60 90 120

LEGEND

- STREAM
- PROPERTY BOUNDARY
- STREAM BUFFER
- EXISTING DEVELOPMENT
- WETLAND
- CULVERT

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Critical Area Study Map
Headrick - 8822 SE 62nd St Redevelopment
Buffer Restoration Plan
Sheet 3/3
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