Altmann Oliver Associates, LLC

PO Box 578 Carnation, WA 98014 Office (425) 333-4535 Fax (425) 333-4509

AOA
Environmental
Planning &
Landscape
Architecture

May 31, 2024

AOA-6625

Lucia Pirzio-Biroli
lucia@ectypos.com

SUBJECT: **Critical Areas Study for Chu Residence at 4332 West Mercer Way Parcel 936570-0382, Mercer Island, WA (PRE22-032)**

Dear Lucia:

On September 21, 2021 I conducted an initial wetland and stream reconnaissance on and adjacent to the subject property utilizing the methodology outlined in the May 2010 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0).* The site is currently developed with an existing single-family residence and associated yard areas. No wetlands were identified on or adjacent to the property during the field investigation. One stream (Stream 1) was observed draining from east to west off-site to the north.

The accessible portion of the ordinary high water (OHW) of the off-site stream was re-delineated during a field investigation on January 10, 2024 and was subsequently surveyed (**Figure 1**).

## 1.0 STREAM 1

Stream 1 flows within a rock-lined landscaped channel off-site to the north. The stream then flows beneath a chain-link fence into an unmaintained area off-site to the northwest. This portion of the channel is narrow (approximately one to two feet wide) and was flowing slightly at the time of the September 21st site review indicating flows are likely perennial.

At the time of the delineation vegetation along the lower portion of the stream corridor included Douglas fir (*Pseudotsuga menziesii*), red alder (*Alnus rubra*), big-leaf maple (Acer macrophyllum), English holly (*Ilex aquifolium*), laurel, bamboo, and dense English ivy (*Hedera helix*).

Stream 1 is considered a Type Np stream by the City of Mercer Island and requires a 60-foot buffer per MIMC 19.07.180.C.1. An additional 10-foot structure setback from the buffer is required per MIMC 19.07.180.C.7.

## 2.0 PROPOSED PROJECT IMPACTS

The standard 60-foot watercourse buffer currently extends into the existing residence. The proposed project consists of a demolition of the existing residence and constructing a new residence in the same general vicinity as the existing residence.

### 2.1 Proposed Buffer Reduction

The City of Mercer Island allows for the reduction of a watercourse buffer if all of the criteria in MICC 19.07.180.C.5 are met.

*Buffer width reduction shall be allowed provided the following requirements are met:*

a. *The applicant has demonstrated that buffer averaging would not feasibly allow development*;

The site is already developed with the existing residence and associated yard and there are no areas on the property that are suitable for buffer replacement.

b. *The applicant has demonstrated how impacts will be minimized and that avoidance has been addressed consistent with section 19.07.100, mitigation sequencing*;

Since the buffer extends into the middle of the existing residence it is not possible to avoid buffer reduction and meet the goal of the project. .Impacts to the buffer have been minimized to the extent feasible (see Section 2.2 below for mitigation sequencing).

*c. The applicant has demonstrated how all proposed impacts have been mitigated consistent with subsection E of this section and will not result in a loss of ecological function;*

The current stream buffer is mostly developed with existing structure, parking, and yard that does not provide a significant functional benefit to the watercourse. We have prepared a buffer enhancement plan (**Figures 1 through 5**) that will increase the plant species and structural diversity of the watercourse buffer over current conditions. There will be no loss of ecological function as part of the project.

*d. The proposed buffer width is not less than 75 percent of the standard buffer width at any point; and*

The watercourse buffer will be reduced from 60 feet to 45 feet in places and will not be less than 75% of the standard buffer.

e. *The proposed buffer reduction is not proposed in conjunction with buffer averaging*.

Buffer averaging is not proposed.

## 2.2 Mitigation Sequencing

The City of Mercer Island requires per MICC 19.01.100 that *an applicant for a development proposal or activity shall implement the following sequential measures, listed below in order of preference, to avoid, minimize, and mitigate impacts to environmentally critical areas and associated buffers. Applicants shall document how each measure has been addressed before considering and incorporating the next measure in the sequence:*

A. *Avoiding the impact altogether by not taking a certain action or parts of an action. The applicant shall consider reasonable, affirmative steps and make best efforts to avoid critical area impacts. However, avoidance shall not be construed to mean mandatory withdrawal or denial of the development proposal or activity if the proposal or activity is an allowed, permitted, or conditional use in this title. In determining the extent to which the proposal should be redesigned to avoid the impact, the code official may consider the purpose, effectiveness, engineering feasibility, commercial availability of technology, best management practices, safety and cost of the proposal and identified changes to the proposal. Development proposals should seek to avoid, minimize and mitigate overall impacts based on the functions and values of all of the relevant critical areas and based on the recommendations of a critical area study. If impacts cannot be avoided through redesign, use of a setback deviation pursuant to Section 19.06.110(C), or because of site conditions or project requirements, the applicant shall then proceed with the sequence of steps in subsections B through E of this section*;

It is my understanding that originally the owners had intended to add a second story to the existing house, but due to settling in the foundation and limitations from its location within the watercourse buffer, they decided to tear the existing house down and build a new one beyond the reduced watercourse buffer. Since the standard watercourse buffer extends into the middle of the existing residence, it is not possible for the proposed new residence to be constructed outside of the standard buffer and still meet the goal of the project.

B. *Minimizing impacts by limiting the degree or magnitude of the action and its implementation, using a setback deviation pursuant to Section 19.06.110(C), using appropriate technology, or by taking affirmative steps to avoid or reduce impacts*;

The proposed project is a modest compact two-story house with a gross floor area significantly below what could be constructed on an unencumbered lot. Tree impacts have been minimized to the extent feasible and to further minimize grading impacts the existing driveway will be used.

C. *Rectifying the impact by repairing, rehabilitating, or restoring the affected environment*;

The existing house will be removed and a portion of the footprint will be used during construction for staging and material storage. Tree protection and construction limit

fencing will be installed as required. Following construction, all temporarily impacted buffer areas will be restored with native plantings (see buffer enhancement plan).

D. *Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action*;

The native plantings would be preserved in the buffer in perpetuity and the area maintained for a minimum of 5 years as part of an established monitoring and maintenance program.

*E. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and/or*

Although the area of proposed buffer impact is currently primarily developed with the existing residence and parking and does not provide a significant functional benefit to the watercourse, we have prepared a compensatory mitigation planting plan (**Figures 1 through 5**) that will increase the habitat functions of the watercourse buffer over current conditions.

F. *Monitoring the impact and taking appropriate corrective measures to maintain the integrity of compensating measures*.

A 5 year monitoring program has been developed to ensure success of the proposed buffer enhancement plan.

## 3.0 PROPOSED BUFFER MITIGATION

A watercourse buffer enhancement plan has been prepared for the buffer reduction. As part of the mitigation plan, all remaining degraded portions of the watercourse buffer would be enhanced by the removal of existing impervious surfaces and non-native invasive species (i.e., English ivy) and re-planting with native tree, shrub, and groundcover species.

The proposed plantings have been designed to increase the plant species and structural diversity within the buffer and to provide additional physical and visual screening to the watercourse from the residence. Increasing the plant species and structural diversity within the buffer would also increase the wildlife habitat of the area over current conditions.

### 3.1 Goal, Objective, and Performance Standard for Enhancement Area

The primary goal of the enhancement plan is to restore and enhance the watercourse buffer with native vegetation. 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: There will be 100% survival of all 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% after Year 1, 25% after Year 2, 40% after Year 3, and 60% after Year 5.

Objective B: Limit the amount of invasive and exotic species within the enhancement area.
Performance Standard: After installation and at the end of the fifth year after planting, exotic and invasive plant species will be maintained at levels below 10% total cover in all planted areas.

**3.2 Monitoring Methodology**
The monitoring program will be conducted for a period of five years, with annual reports submitted to the City of Mercer Island.

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

**3.3 Maintenance**
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 consultant or the owner. Tall grasses and weeds shall be removed at the base of plants to prevent engulfment. Weed control should be performed by hand removal.

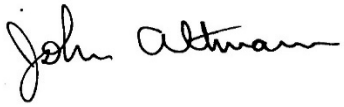
**3.4 Contingency**
All dead plants will be replaced with the same species or an approved substitute species that meets the goal of the enhancement plan. Plant material shall meet the same specifications as originally installed material. Replanting will not occur until after the reason for failure has 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 consultant, City of Mercer Island, or the owner.

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

If you have any questions, please give me a call.

Sincerely,

ALTMANN OLIVER ASSOCIATES, LLC



John Altmann
Ecologist

# King County iMap




Date: 5/31/2024 Notes:

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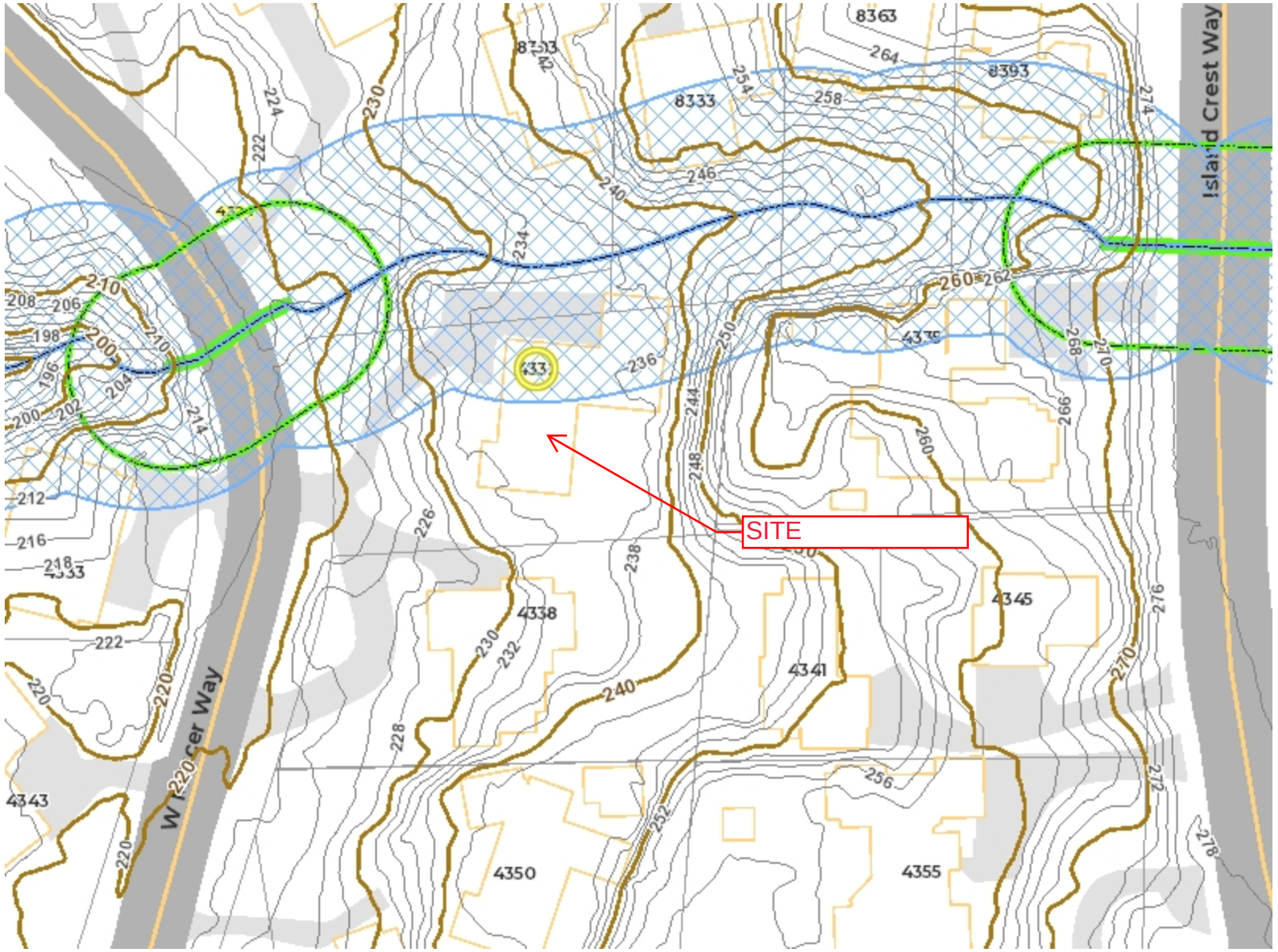
King County

# City of Mercer Island

Information & Geographic Services




## Legend

- 10ft Lidar Contours (2016)
- 2ft Lidar Contours (2016)
- Unpiped Watercourse
  - Type "F" = Fish
  - Type "Np" = Non-Fish
  - Type "Ns" = Non-Fish Seasonal
  - Type "Np" (Unverified)
  - Type "Ns" (Unverifed)
- Piped Watercourse
- Watercourse Buffer/Setback
  - Type "F" = 120-Ft Buffer
  - Type "Np" = 60-Ft Buffer
  - Type "Ns" = 60-Ft Buffer
  - Type "Np" Unverifed = 60-Ft Buffer
  - Type "Ns" Unverified = 60-Ft Buffer
  - Piped Type F/Np/Ns = 45-Ft Setbac
- Address
- Building
- Property Line
- Docks
- Freeway
- Major Street
- Street
- Paved Driveway
- Paved Road
- Paved Parking Area
- Parks
- Lake Washington

0 67 134 Feet

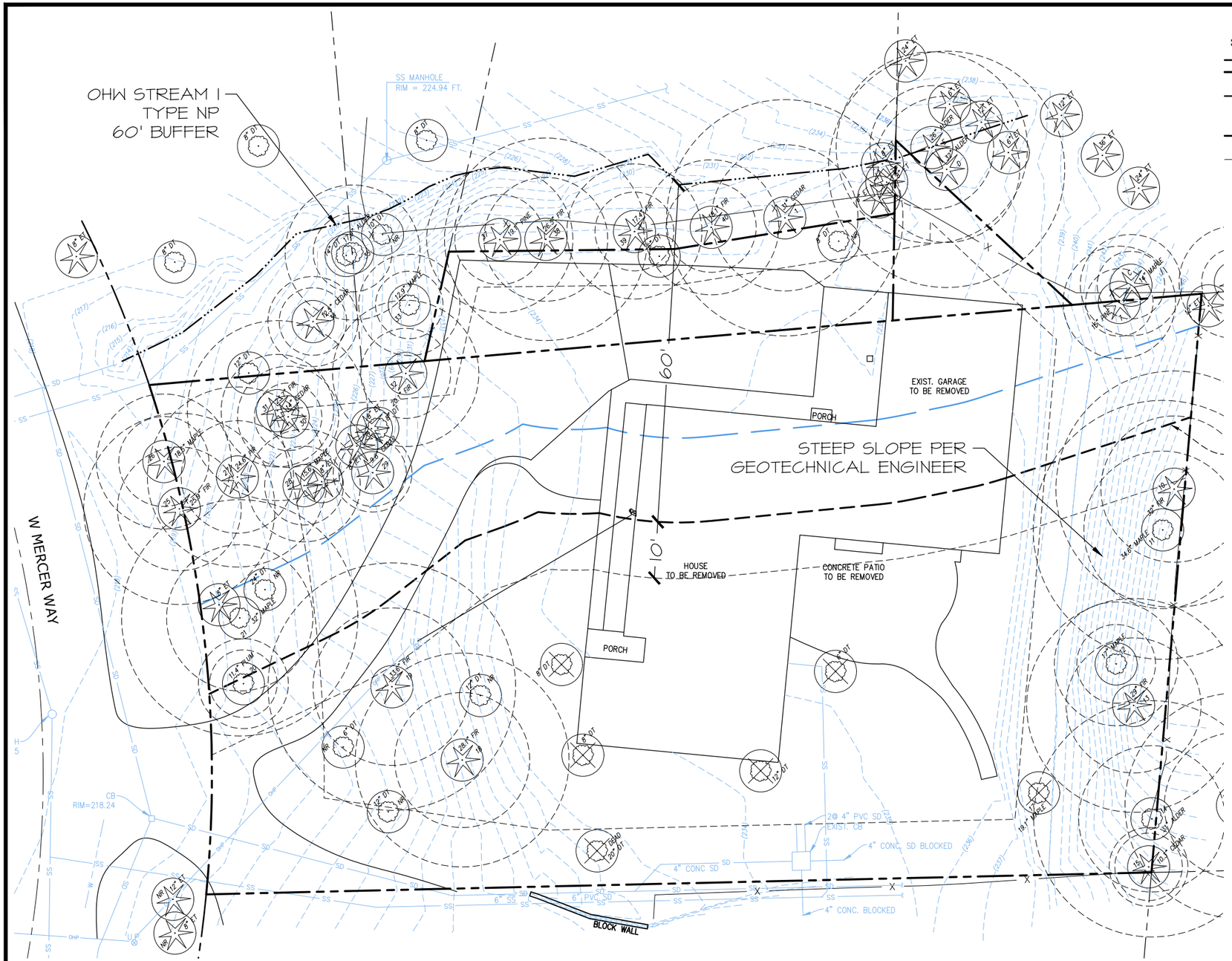
1 inch = 133.6960385 feet



Map Printed: May 31, 2024



**Notes**




## PLAN LEGEND

- PROPERTY LINE
- SOUTH STREAM ORDINARY HIGH WATER LINE
- 60' STREAM BUFFER
- 10' STRUCTURE SETBACK

GRAPHIC SCALE
(IN FEET)

0 10 20 30 40 60

SCALE: 1:20

N

## NOTES

1. BASE INFORMATION PROVIDED BY NICK BOSSOFF ENGINEERING, INC., 191 NE TARI LANE, STEVENSON, WA 98648, 425.881.5904.

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FIGURE 1: EXISTING CONDITIONS
CHU PROPERTY
4332 WEST MERCER WAY
MERCER ISLAND, WASHINGTON
PARCEL 9365700382

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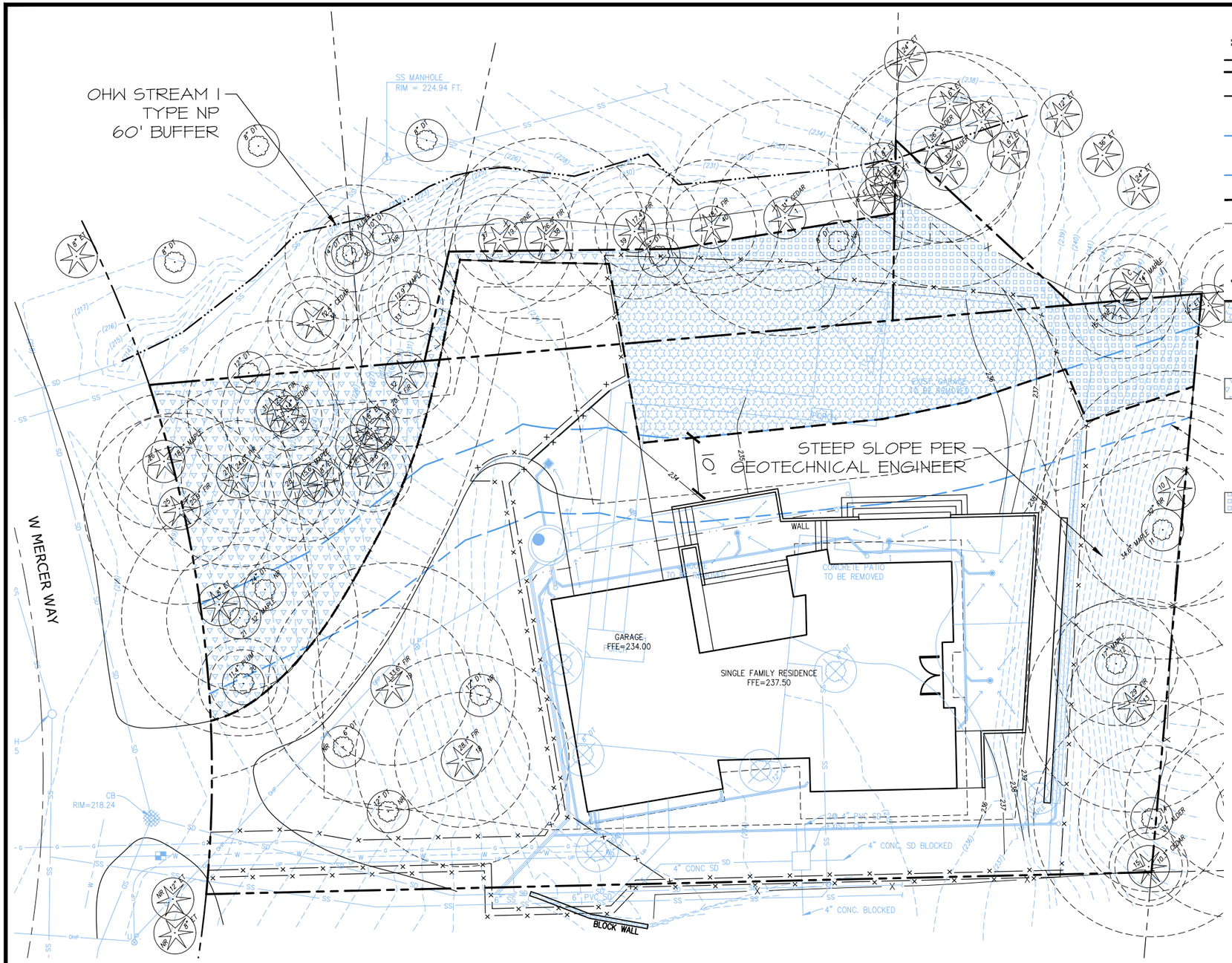


## PLAN LEGEND

- PROPERTY LINE
- SOUTH STREAM ORDINARY HIGH WATER LINE
- 60' STANDARD STREAM BUFFER
- 45' REDUCED STREAM BUFFER
- PROPOSED STREAM BUFFER
- 10' STRUCTURAL SETBACK

## MITIGATION LEGEND

| | | |
|---|---|---|
| | STREAM BUFFER RESTORATION - RESTORE WITH NATIVE TREES, SHRUBS AND GROUNDCOVER | 1,983 SF |
| | BUFFER ENHANCEMENT - REMOVE INVASIVE PLANT SPECIES AND IVY ON HILL - PLANT WITH SHRUBS AND GROUNDCOVER AT 100% DENSITY | 2,018 SF |
| | BUFFER ENHANCEMENT - REMOVE BAMBOO, IVY, HOLLY, PORTUGAL LAUREL, COTONEASTER, CHERRY LAUREL AND PLANT NATIVE TREES, SHRUBS AND GROUNDCOVER | 957 SF |

GRAPHIC SCALE
(IN FEET)

0 10 20 30 40 60

SCALE: 1:20

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## NOTES

1. BASE INFORMATION PROVIDED BY NICK BOSSOFF ENGINEERING, INC., 191 NE TARI LANE, STEVENSON, WA 98648, 425.881.5904.

FIGURE 2: BUFFER MITIGATION PLAN
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## PLANT LIST (SEE FIGURE 4 FOR SCHEDULE

### TREES

| KEY | COMMON NAME |
|---|---|
| AC | VINE MAPLE |
| CD | INCENSE CEDAR |
| CC | WESTERN HAZELNUT |
| PM | DOUGLAS FIR |
| QG | GARRY OAK |
| RP | CASCARA |

### SHRUBS

| KEY | COMMON NAME |
|---|---|
| HD | OCEAN SPRAY |
| M | TALL OREGON GRAPE |
| OC | INDIAN PLUM |
| RS | RED FLOWERING CURRANT |
| R | BALDHIP ROSE |
| N | NOOTKA ROSE |
| S | SNOWBERRY |
| V | EVERGREEN HUCKLEBERRY |

### GROUNDCOVER

| KEY | COMMON NAME |
|---|---|
| | COAST STRAWBERRY |
| | SALAL |
| | SWORD FERN |

GRAPHIC SCALE
(IN FEET)

0 10 20 30 40 60

SCALE: 1:20

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FIGURE 3: PLANTING PLAN
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# PLANT SCHEDULE

## TREES

| KEY | SCIENTIFIC NAME | COMMON NAME | SPACING | QTY | SIZE (MIN.) | NOTES |
|---|---|---|---|---|---|---|
| AC | ACER CIRCINATUM | VINE MAPLE | 9' O.C. | 5 | 2 GAL. | MULTI-STEM (3 MIN.) |
| CD | CALOCEDRUS DECURRENS | INCENSE CEDAR | 9' O.C. | 2 | 2 GAL. | FULL & BUSHY |
| CC | CORYLUS CORNUTA | WESTERN HAZELNUT | 9' O.C. | 4 | 2 GAL. | MULTI-STEM (3 MIN.) |
| PM | PSEUDOTSUGA MENZIESII | DOUGLAS FIR | 9' O.C. | 2 | 2 GAL. | FULL & BUSHY |
| QG | QUERCUS GARRYANA | GARRY OAK | 9' O.C. | 2 | 2 GAL. | FULL & BUSHY |
| RP | RHAMNUS PURSHIANA | CASCARA | 9' O.C. | 3 | 2 GAL. | SINGLE TRUNK |

## SHRUBS

| KEY | SCIENTIFIC NAME | COMMON NAME | SPACING | QTY | SIZE (MIN.) | NOTES |
|---|---|---|---|---|---|---|
| HD | HOLODISCUS DISCOLOR | OCEAN SPRAY | 5' O.C. | 6 | 1 GAL. | MULTI-STEM (3 MIN.) |
| M | MAHONIA AQUIFOLIUM | TALL OREGON GRAPE | 3' O.C. | 18 | 1 GAL. | FULL & BUSHY |
| OC | OEMLERIA CERASIFORMIS | INDIAN PLUM | 5' O.C. | 8 | 1 GAL. | MULTI-STEM (3 MIN.) |
| RS | RIBES SANUINEUM | RED FLOWERING CURRANT | 5' O.C. | 8 | 1 GAL. | MULTI-STEM (3 MIN.) |
| R | ROSA GYMNOCARPA | BALDHIP ROSE | 3' O.C. | 23 | 1 GAL. | MULTI-STEM (3 MIN.) |
| N | ROSA NUTKANA | NOOTKA ROSE | 3' O.C. | 19 | 1 GAL. | MULTI-STEM (3 MIN.) |
| S | SYMPHORICARPOS ALBUS | SNOWBERRY | 3' O.C. | 39 | 1 GAL. | MULTI-STEM (3 MIN.) |
| V | VACCINIUM OVATUM | EVERGREEN HUCKLEBERRY | 3' O.C. | 33 | 1 GAL. | FULL & BUSHY |

## GROUNDCOVER

| KEY | SCIENTIFIC NAME | COMMON NAME | DENSITY | QTY | SIZE (MIN.) | NOTES |
|---|---|---|---|---|---|---|
| | FRAGARIA CHILOENSIS | COAST STRAWBERRY | 2' O.C. | 350 | 1 GAL. | FULL & BUSHY |
| | GAULTERIA SHALLON | SALAL | 2' O.C. | 25 | 1 GAL. | FULL & BUSHY |
| | POLYSTICHUM MUNITUM | SWORD FERN | 3' O.C. | 200 | 1 GAL. | FULL & BUSHY |

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FIGURE 4: PLANT SCHEDULE
CHU PROPERTY
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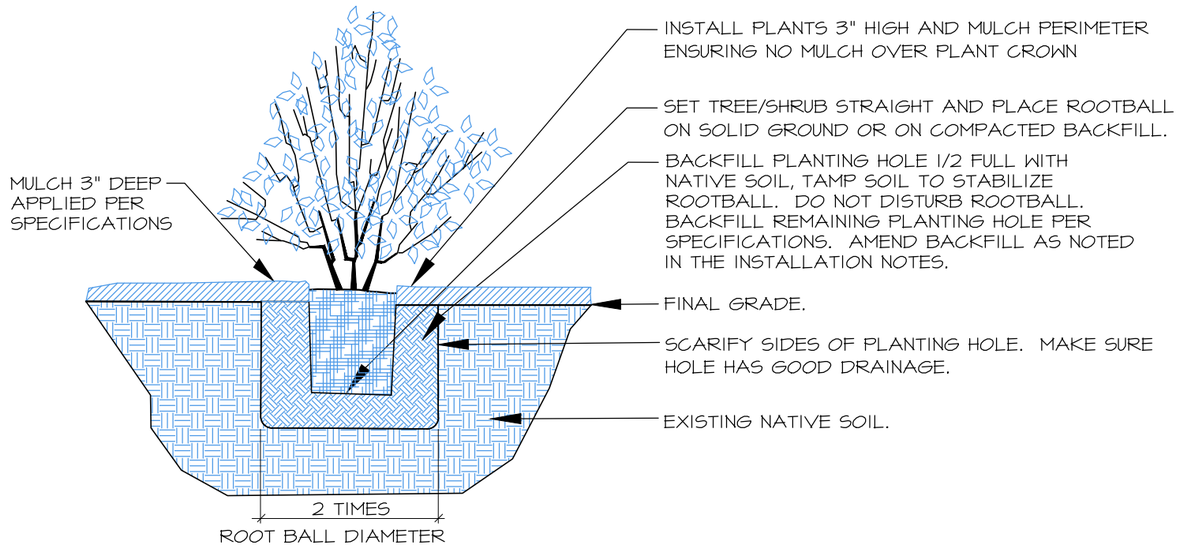


## 1 CONTAINER TREE/SHRUB PLANTING (TYP.)

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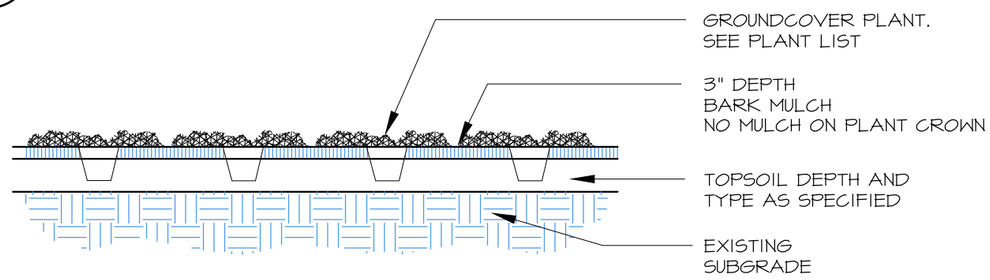


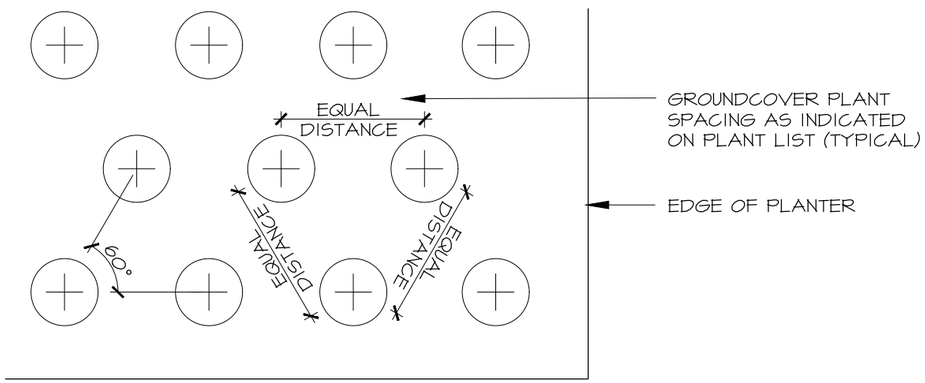


## 2 GROUNDCOVER PLANTING (TYP.)

SCALE: NTS

## SPECIFICATIONS

1. PRIOR TO PLANTING, ALL NON-ORGANIC DEBRIS AND NON-NATIVE, INVASIVE VEGETATION SHALL BE HAND-REMOVED AND EXPORTED OFF SITE. EXISTING RHODODENDRON SHALL BE PRUNED BACK. IRRIGATION SHALL BE ADJUSTED TO COVER MITIGATION AREA.
2. PRIOR TO PLANTING, ALL NON-NATURAL MATERIALS SHALL BE REMOVED (GRAVEL, ROCK, CONCRETE) FROM EXISTING DEVELOPED AREAS AND YARD. A 6" LIFT OF IMPORTED CEDAR GROVE 3-WAY TOPSOIL SHALL BE PLACED AND TILLED INTO THE TOP 6" OF SUBGRADE PRIOR TO PLANTING.
3. IMPORTED CEDAR GROVE 3-WAY TOPSOIL SHALL BE PLACED IN THE NON-GRADED AREAS AFTER WEED REMOVAL TO PRE-REMOVED GRADES PRIOR TO PLANTING AND MULCHING.
4. ALL PLANTS SHOULD BE INSTALLED BETWEEN DECEMBER 1ST AND MARCH 15TH.
5. ALL PLANTS SHALL BE PIT-PLANTED IN PLANTING PITS EXCAVATED 2X THE DIAMETER OF THE PLANT. PITS SHALL BE BACKFILLED WITH A 30/70 MIX OF STEERCO TO NATIVE SOIL. PLANTS SHALL BE INSTALLED 2" HIGH AND SURFACED MULCHED TO A DEPTH OF 3" WITH WOOD CHIPS PLACED CONTINUOUSLY THROUGHOUT THE PLANTING BED.
6. ALL PLANTS SHALL BE NURSERY GROWN (IN W. WA OR OR.) FOR AT LEAST 1 YEAR FROM PURCHASE DATE, FREE FROM DISEASE OR PESTS, WELL-ROOTED, BUT NOT ROOT-BOUND AND TRUE TO SPECIES.
7. LANDSCAPE CONTRACTOR TO INSTALL DRIP OR LOW-FLOW IRRIGATION SYSTEM CAPABLE OF HEAD TO HEAD COVERAGE OF ALL PLANTINGS.
8. ALL PLANTINGS SHALL BE IRRIGATED AT A RATE OF ½" OF FLOW 2-3 TIMES WEEKLY, FROM JUNE 15-OCT 15 THE FIRST YEAR AFTER PLANTING. THE SECOND YEAR, FLOW SHOULD BE REDUCED TO PROVIDE ½" OF FLOW 1-2 TIMES WEEKLY FROM JULY 1-SEPT 30. THE SYSTEM CAN BE REMOVED AFTER 3 YEARS.
9. UPON APPROVAL OF PLANTING INSTALLATION BY AOA, MERCER ISLAND WILL BE NOTIFIED TO CONDUCT A SITE REVIEW FOR FINAL APPROVAL OF CONSTRUCTION.
10. MAINTENANCE SHALL BE IMPLEMENTED ON A REGULAR BASIS ACCORDING TO THE SCHEDULE BELOW.

ANNUAL MAINTENANCE SCHEDULE

| MAINTENANCE ITEM | J | F | M | A | M | J | J | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WEED CONTROL | | | 1 | | 1 | | 1 | | | 1 | | |
| GENERAL MAINT. | | | 1 | | 1 | | 1 | | | 1 | | |
| WATERING - YEAR 1 | | | | | | 4 | 8 | 8 | 8 | 4 | | |
| WATERING - YEAR 2 | | | | | | | 4 | 4 | 4 | | | |

1-8 = NUMBER OF TIMES TASK SHALL BE PERFORMED PER MONTH.

MAINTENANCE WILL INCLUDE:
1. REMOVAL OF NON-NATIVE PLANTS, BY HAND, AS LISTED ABOVE.
2. CONTINUED APPLICATION OF IRRIGATION, AS NOTED ABOVE.
3. REMOVAL OF PEST INFESTATIONS, LIKE TENT CATERPILLAR AND SPRUCE APHID.
4. THINNING OF RED ALDER AND MOWING OF TALL GRASSES, AS DIRECTED BY AOA TO ENSURE SURVIVAL OF PLANTED SPECIES.

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FIGURE 5: PLANTING DETAILS & SPECIFICATIONS
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