WESTECH COMPANY

Environmental Consulting ~ Site Permitting

FINAL WETLAND MITIGATION AND MONITORING PLAN
8114 WEST MERCER WAY RESIDENTIAL PROJECT
MERCER ISLAND, WASHINGTON

September 2018

G. Bradford Shea, Ph.D.
Trevor Shea

Submitted to:

CITY OF MERCER ISLAND
DEPARTMENT OF COMMUNITY DEVELOPMENT
9611 Southeast 36th Street
Mercer Island, Washington 98040-3732

Submitted by:

WESTECH COMPANY
P.O. Box 2876
Port Angeles, Washington 98362

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1.0 INTRODUCTION

1.1 PROPOSED PROJECT

The Project is to build a 4,000 square foot single family residence on an existing residentially zoned parcel located at 8114 West Mercer Way on Mercer Island, Washington (Figures 1-3). The residence is planned to be 3-story in order to minimize the footprint of the home and maximize use of the hillside and views.

The parcel is currently undeveloped, but is surrounded by other comparable homes on all sides. It is accessed by an existing access driveway which serves two other adjacent homes. The home is being designed by Architect Benny Kim of Benny Kim Design.

1.2 CRITICAL AREAS

Due to the potential for the presence of Critical Areas on the Site (wetlands, streams, etc.), Westech Company (Westech) was retained by Mr. Kim to assist with assessing the presence of wetlands or other critical areas.

Westech found that the Site contained one wetland (Designated Wetland A) along the eastern Site boundary, which is approximately 3,720 square feet in size. The eastern portion of this wetland is off-site in some areas as shown in Figure 4.

A small wet area was also found during the winter months (December 2017) on the west side of the property, extending off-site to the west. This area was found to not have characteristics of a wetland, including dominant upland vegetation, non-hydric soil characteristics and an absence of hydrological indicators. The small area that was investigated is also shown in Figure 4 (along with test quadrat VSH-3) and a data sheet using the Routine On-Site Field Method is included as Appendix A.

Westech found that the Site did not contain any "watercourse" on the western or southern ends of the parcel. Wetland A does contain a seasonal runoff channel within the wetland which flows through the wetland from north to south.

The Wetland Boundaries were flagged by Westech in the field, and coordinates were determined by using a Garmin Montana Series GPS meter. Surveying was then conducted and mapped by the Architect to ensure additional accuracy (see Figure 4).

Figure 1. 8114 West Mercer Way Location Map

Westech Company 2018

Source: Google Earth 2018

Figure 2. 8114 West Mercer Way Vicinity Map

Westech Company 2018

Source: Google Earth 2018

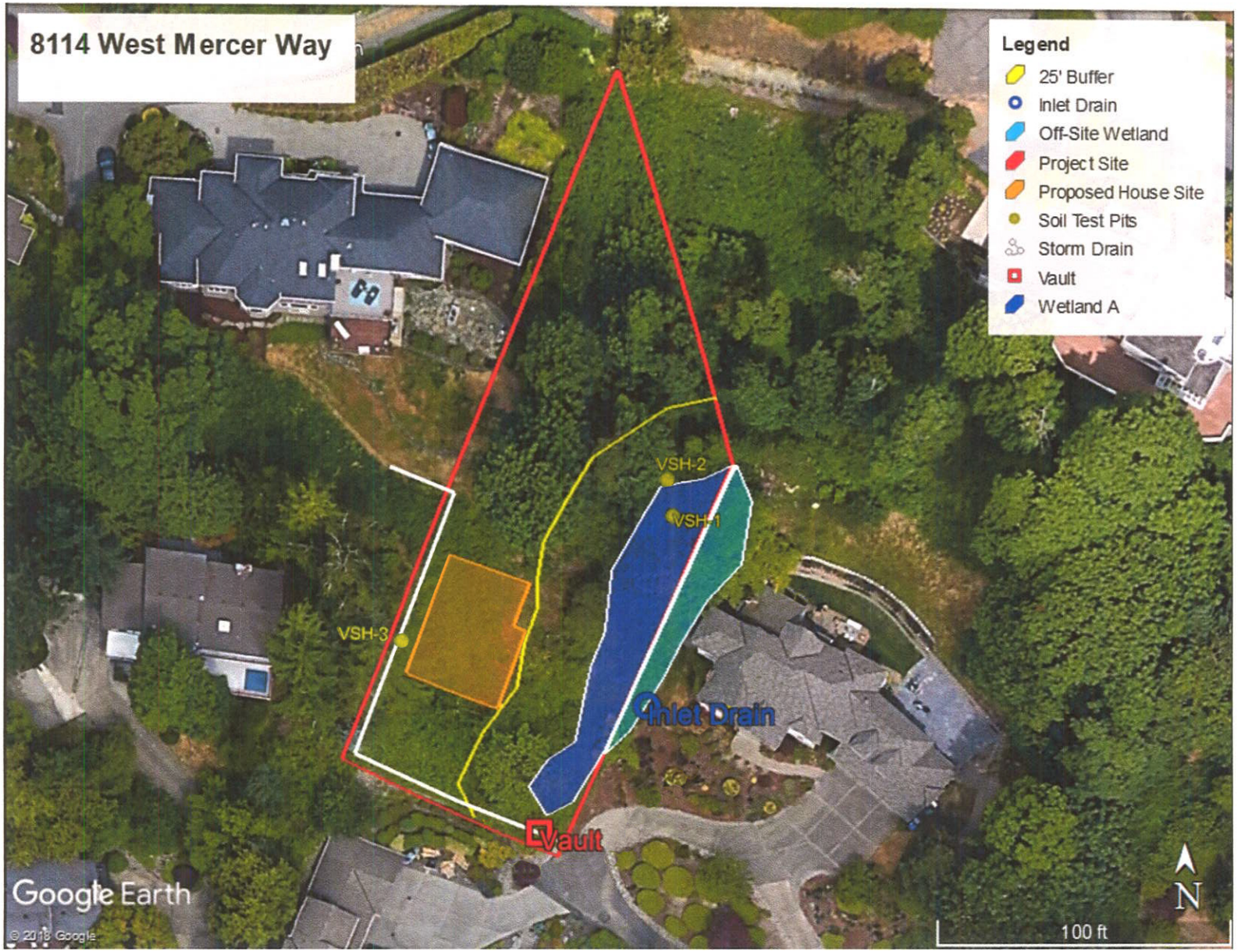

Figure 3. 8114 West Mercer Way Site Map Showing On-Site Wetland and Proposed Residence

Westech Company 2018

Source: Google Earth 2018

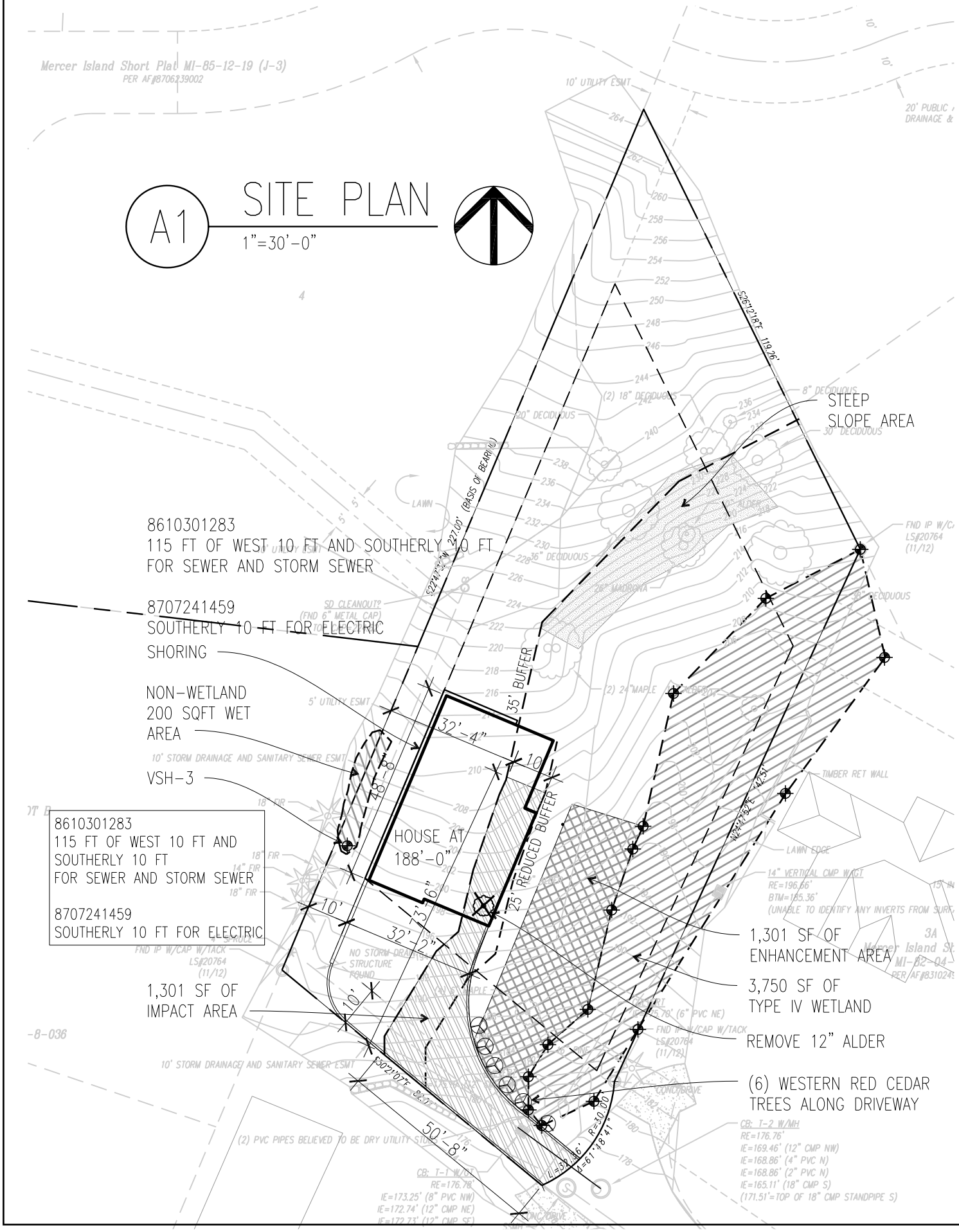

Figure 4. Site Plan Showing Proposed Buffer Reduction and 1,301 SF Enhancement Area

Westech Company 2018

1.3 CRITICAL AREA BUFFERS

Wetland A was rated in accordance with the Washington Department of Ecology Wetland Rating System for Western Washington (DOE 2014). The Wetland was found to be a Category IV Wetland. The Standard Buffer Zone for this Category of wetland is 35 feet in accordance with the Mercer Island City Code (MICC).

The Applicant has requested that the buffer zone for the west side of Wetland A be reduced to 25 feet as provided by the MICC. The design of the residence has been revised so that 25 feet is the minimum buffer for the residence. However, due to space constraints, the access driveway to the property will lie within the reduced buffer zone. The driveway will be located south of the wetland, near a storm-drain inlet located on the southeast corner of the property.

The small western area (200 square feet) was determined NOT to be a regulated wetland as documented on the data sheet in Appendix A. This area is therefore not regulated and does not require any buffer.

1.4 PROJECT TIMELINE AND HISTORY

Westech Company prepared a Wetland Delineation Report for the Property. That report was competed and submitted to the City of Mercer Island during April 2018. A previous engineering report on the stormwater system at the property and the absence of any "watercourse" on the western and southern property boundaries was previously submitted to the City during 2017 (C2MY Engineers 2017).

The City's consultant, ESA, reviewed the property conditions and the preliminary Wetland investigations conducted by Westech Company during the fall of 2017. ESA has also reviewed the Wetland Delineation Report (Westech 2018a). Additional comments were received from the City dated July 30, 2018. These comments are addressed in this revised report.

The City of Mercer Island has requested that a Mitigation and Monitoring Plan be prepared by the Applicant. This report describes that Mitigation and Monitoring Plan. The Plan is intended to offset any direct or indirect environmental impacts from the Project and protect the wetland. The goal of this Mitigation and Monitoring Plan is to achieve "No Net Ecological Loss" for the wetland and the Project Site.

2.0 METHODS AND APPROACH

2.1 FIELD METHODOLOGY

The Wetland Delineation Report was prepared using methodology of the U.S. Army Corps of Engineers (USACE 1987/89, 2010) in its Wetland Manual and the Regional Supplement for Western Mountains, Valleys and Coast. The Routine Field Method for Wetlands under 5 acres in size was used as was applicable for the property at 8114 West Mercer Way.

Wetlands were staked in the field using four-foot wooden stakes or tying "Wetland Delineation" flagging on shrubs or trees. Test pits were dug and data forms prepared to document vegetation, soils and hydrological characteristics of the wetland and upland areas, as shown in the Wetland Delineation Report for the property (Westech 2018a).

GPS readings were taken to map the wetland (Wetland A). Surveying was also performed by the Applicant to more accurately represent the wetland location. The wetlands were then mapped (see Figure 4).

The Wetland was then rated in accordance with the Washington Department of Ecology (DOE) Wetland Rating System for Western Washington (DOE 2014). Geographic Positioning System (GPS) locations were taken of the Wetland A Boundary using a Garmin Montana 680t GPS Meter and mapped using Google Earth Pro Software.

2.2 REPORTS AND DOCUMENTATION

This Mitigation and Monitoring Plan is based on previous reports by C2Y Engineers submitted to the City of Mercer Island in December 2017 (C2MY Engineers 2017). It is primarily based on the Wetland Delineation Report; 8114 West Mercer Way Residential Project, Mercer Island, Washington prepared by Westech Company in April 2018 (Westech 2018a).

2.3 APPROACH

The wetland found on the Site, Wetland A, was found to be a Category IV Wetland, with significant incursions of non-native weedy species. Our approach to restoring and enhancing the buffer zone is based on creating an additional protected area to offset the area of buffer reduction at a 1:1 ratio as required by the Mercer Island City Code. This area will be approximately 1,301 square feet in size and is shown in Figure 4.

Additional restoration and enhancement will be described in Chapter 3.0 below. The approach for these improvements include protection during construction from siltation or sedimentation through Best Management Practices (BMPs) including sufficient erosion control methods. These BMPs, in combination with the proposed plantings will be sufficient to eliminate or minimize impacts to the Site and off-site impacts. Following construction, access to the wetland will be limited by construction of a split rail type fence or equivalent.

A Planting Plan using native plants will be implemented to improve buffer conditions. In addition, non-native vegetation will be removed.

The Mitigation and Monitoring Plan will be implemented. A detailed Monitoring Plan will be developed to track the survival of the new native plants added to the buffer zone as specified in the Planting Plan. This will include documentation of "As-Built" conditions following planting, as well as periodic Site checks and submission of reports (Annual or more frequent if necessary) documenting plant survival. Performance standards will be established and standardized photo-stations will be specified for uniform documentation.

The Monitoring Plan will also include a Contingency Plan in the event that plant survival falls below the specified Performance Standards. Annual reports will specify whether the Project continues to meet the Performance standards and whether there is any necessity to implement the Contingency Plan.

3.0 MITIGATION AND MONITORING PLAN

3.1 MITIGATION PLAN COMPONENTS

The Mitigation Plan for the Project includes Mitigation of Project effects and protection of the existing wetland area during and following construction of the residence and driveway. This includes the following elements:

1) **Mitigation Area:** Designate an area to offset any direct impacts to the buffer zone. An area approximately 1,301 square feet in size will be designated west of the wetland as shown in Figure 4. This will offset the reduced buffer area with an increased buffer to the north at a 1:1 ratio as required by the MICC.

2) **Silt Fence and Erosion Control:** Place a silt fence along the outer (western) edge of the designated reduced buffer zone (see Figure 4) as approved by the City of Mercer Island. This silt fence will be installed and approved by the City prior to beginning construction.

3) **Planting Plan:** Develop and Implement a Planting Plan for native plant species to restore and enhance the reduced buffer zone area and to enhance the added buffer area as appropriate and necessary. The buffer zone will be divided into planting areas and native vegetation will be installed as specified. The Planting Plan is outlined in this report in Chapter 4.0.

4) **Non-Native Species Vegetation Control:** Develop and implement a plan for removal of non-native species within the reduced buffer zone. Develop specifications and performance standards for the occurrence of non-native vegetation within these areas. Removal of non-native species should be accomplished by hand methods and not mechanized equipment. The species to be removed from the Site include, but are not limited to Himalayan blackberry (*Rubus armeniacus*) and reed canary grass (*Phalaris arundinacea*).

5) **Fencing and Signage:** Install a fence (split rail or similar) to divide the home-site from the Wetland Buffer Zone. This fence will lie along the western side of the Wetland A Buffer Zone, but at least six feet from the residential structure. The fence will extend north to 20 feet beyond the upper corner of the home (roughly to the point where the increased buffer area begins.

The fence shall be posted at 100 foot intervals with signage consistent with the Mercer Island Code. The signs shall specify that the Wetland and its Buffer are a natural area, which should not be disturbed without proper authorization, as required by the City of Mercer Island Code.

6) **Tree Removal and Replacement:** The house Site is located near five off-site trees to the west, however, these will not interfere with home construction. Only one existing tree (red alder) more than six inches in diameter will be removed for house and driveway construction. Other brushy vegetation including native shrubs will be removed to accomplish construction of the house and driveway. This removal of one alder tree and native shrubs will be off-set by the Planting Plan shown in Chapter 4.0 in order to achieve "No Net Ecological Loss" for the Project.

3.2 MONITORING PLAN COMPONENTS

A Monitoring Plan shall also be developed, which shall track the survival of the installed plants following home construction. The Monitoring Plan will also include provisions for documentation and reporting including an "As-Built" documentation of completion of the Plantings.

There will also be provisions for annual reporting of plant survival in relationship to established Performance Standards. In the event that survival does not meet the Performance Standards during any annual period, the Monitoring Plan will call for analysis of the reasons for that lack of performance and preparation of a Contingency Plan, designed to meet those standards.

Annual Reporting will be conducted for a period of five (5) years, following the approval of the As-Built Report by the City of Mercer Island. The City shall review each Annual Report for compliance with the Performance Standards and the overall success of the Mitigation and Monitoring Plans achieving "No Net Ecological Loss".

The Monitoring Plan components shall be as follows (numbered sequentially following the Mitigation Plan components above):

6) **As-Built Documentation:** Plants will be installed as directed by a qualified botanist or environmental scientist. Once installed, the planting will be documented both by nursery receipts and by a final count documenting "As-Built" conditions of the plantings by the botanist or environmental scientist. An "As-Built" Report shall be submitted to the City of Mercer Island documenting these conditions. That report will include photographic documentation taken from at least one Photo-Station for each planting area.

7) **Annual Reporting:** Annual reports will be made for a period of five (5) years, which cover the survival of plants in relation to performance standards. Plants which are stressed or dying will be noted and, as feasible, potential reasons for these conditions will be determined. New plantings may be necessary to meet performance standards. In the event that a significant lack of survival area occurs in any planting area, it may be necessary to prepare a Contingency Plan (see below).

8) **Contingency Plan:** If planting survival falls below the Performance Standards, it may be necessary to prepare a Contingency Plan. If survival areas are near or slightly below the Performance Standards, it may be adequate in some cases, simply to replant with the same species to meet the performance standard. However, if there appears to be a lack of success by particular species, or because of physical or environmental conditions, a Contingency Plan will be necessary.

These components of the Mitigation and Monitoring Plan will be implemented by the Project Proponent. Erosion control and Best Management Practices (BMPs) will be used during construction. The plantings and "As-Built" reporting should be carried out within six months following construction either in the spring (March-April) or in the fall (September-October) timeframes, whichever is relevant. The details of the recommended Planting Plan are shown in Chapter 4.0.

3.3 PERFORMANCE STANDARDS

Performance Standards for the proposed Project have been developed based on survival of the native species planted and on the percentage of non-native species in the buffer zone. The following are the recommended performance standards:

1) During the first year following planting, 100% of the plants should survive and be in relatively good growing condition. If excessive leaf loss, root damage or other signs of morbidity or mortality are present, the plants should be checked so as to forestall significant decreases in survival. Some transplant shock is expected in the new plants, however, sufficient watering during summer months and sufficient protection of roots through use of mulch can minimize plant losses.

2) During the second and subsequent years following planting, survival of native vegetation should be over 90% of the number planted. Each planting area should be periodically inspected to ensure no excessive morbidity or mortality that would trigger the need for a Contingency Plan.

3) Non-native vegetation should be below 15% cover during the first year in each planting area. Plants in excess of this threshold should be removed by hand methods (not mechanized machinery). This particularly includes Himalayan Blackberry and Reed Canary Grass in this particular wetland buffer zone.

4) Non-native vegetation should be below 10% cover during the second and subsequent years. Both non-native plants (blackberry and reed canary grass) propagate by sub-surface roots and rhizomes and it may be necessary to employ somewhat aggressive methods to remove these. If non-native vegetation removal results in any significant bare areas, these should be temporarily covered with a native grass seed mixture to stabilize slopes and prevent erosion.

These performance standards should be checked during the "As-Built" documentation phase and again during each annual reporting period.

4.0 PLANTING PLAN

4.1 ON-SITE WETLAND

The Property at 8114 West Mercer Way contains one wetland (Wetland A). The Standard Buffer for this Wetland is 35 feet, which is proposed to be reduced to 25 feet on its western boundary and then off-set by an expanded buffer to the northeast, in a 1,301 square foot Mitigation Enhancement Area. Plantings for the restoration and enhancement of the Buffer Zone are shown in Table 1. Typical plants currently found on the Site have been documented in the Wetland Delineation Report (Westech 2018a).

4.2 BUFFER PLANTING, RESTORATION AND ENHANCEMENT AREAS

The buffer zone and the buffer expansion area (Mitigation Area) are shown in Figure 5. Three planting areas are shown in this Figure (Planting Areas A, B and C). An additional area was added at the request of the City on the north side of the driveway (Planting Area D) to offset driveway intrusion into the Mitigation Area. These planting areas are identified as follows:

A) Planting Area A is comprised of the area adjacent to the proposed residence. and driveway. It is 20 feet wide and 8 feet north to south, adjacent to the west side of the wetland. It is roughly 160 square feet in size. Table1 shows recommended plantings in that area, which focus mainly on shrubs. New plants should be intermixed with existing vegetation, with the minimum of disturbance feasible to site soils. Plants should be installed in relatively open areas, between existing shrubs or trees.

B) Planting Area B lies east of the proposed garage (with residence above). This planting area is 20-25 feet wide and roughly 30 feet north to south (650 square feet). This area is somewhat more heavily vegetated than Planting Area A, and therefore, a somewhat lower density of plants are specified, with a heavier reliance on tree species on the east side (see Table 1).

C) Planting Area C is a Buffer Restoration and Enhancement Area (Mitigation Area) which is the expansion area intended to off-set the buffer reductions for the garage entry portion of the driveway. This area is 25-30 feet in width and 20-25 feet north to south or roughly 600 square feet in size. It is proposed to be planted with a mixture of trees and shrubs to restore this portion of the enhanced buffer adding to the existing vegetation, promoting a more complete native ecological system. It is recommended that several trees be utilized in the lower (southern) end of Planting Area C,

TABLE 1. LIST OF NATIVE PLANTS FOR BUFFER MITIGATION AND ENHANCEMENT

Location	Species	Number	Scientific Name	Size
A	Red alder	2	*Alnus rubra*	3 gallon
	Western red cedar*	1	*Thuja plicata*	3 gallon
	Tall Oregon grape	4	*Mahonia aquifolium*	1 gallon
	Vine maple	4	*Acer circinatum*	3 gallon
	White pine	2	*Pinus contorta*	5 gallon
	Pacific rhododendron	2	*R. macrophyllum*	3 gallon
	Sword fern	2	*Polystichum munitum*	1 gallon
	Nootka rose	2	*Rosa nutkana*	1 gallon
	Kinnikinnick	3	*Actostaphylos uva-ursi*	1 gallon
B	Western red cedar	5	*Thuja plicata*	3 gallon
	Red alder	5	*Alnus rubra*	3 gallon
	Black cottonwood*	4	*Populus balsamifera*	3 gallon
	Tall Oregon grape	8	*Mahonia aquifolium*	1 gallon
	Salal	5	*Gaultheria shallon*	1 gallon
	Sword fern	6	*Polystichum munitum*	1 gallon
C	Red alder	5	*Alnus rubra*	3 gallon
	Western red cedar*	6	*Thuja plicata*	3 gallon
	Tall Oregon grape	8	*Mahonia aquilfolium*	1 gallon
	Salal	8	*Gaultheria shallon*	1 gallon
	Vine maple	4	*Acer circinatum*	3 gallon
D	Western Red Cedar	6	*Thuja plicata*	3 gallon
	Salal	4	*Gaultheria shallon*	3 gallon
	Tall Oregon grape	4	*Mahonia aquilfolium*	1 gallon

Areas of Exposed Soils use Native Grass Seed Mixture as needed

*Plant near edge of wetland

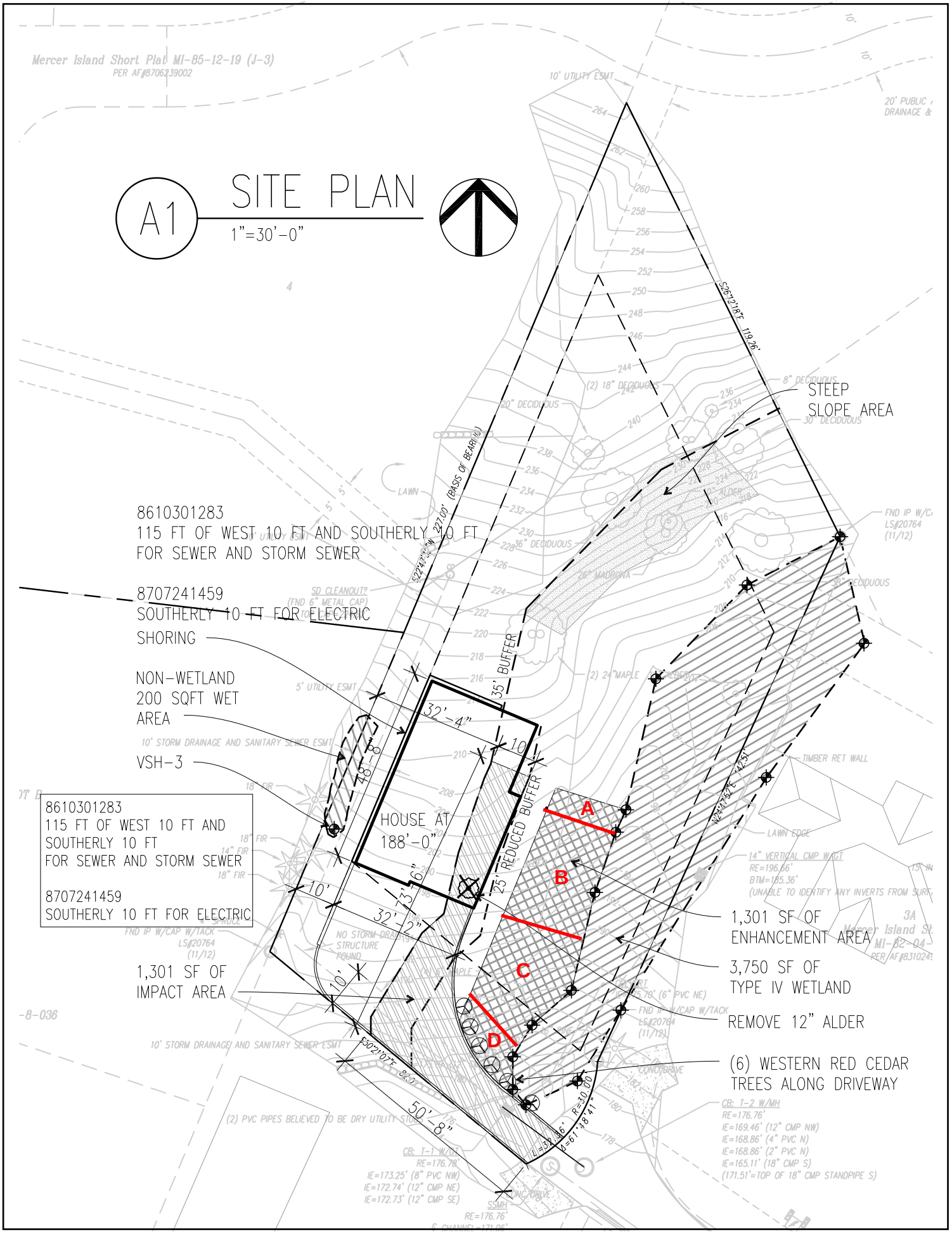

Figure 5. Planting Areas to Provide Buffer Restoration and Enhancement

Westech Company 2018

D) The entrance portion of the driveway will intrude into the existing reduced buffer zone on the southeast corner of the property. This impact will be offset by planting a line of coniferous trees along the north edge of the driveway. This planting plan recommends that six (6) western red cedar trees be planted along the driveway to offset impacts and achieve "No net ecological loss" for driveway construction and use. These trees should be placed on approximately 10 foot centers and should measure 3-4 feet in size upon planting. Best Management Practices and appropriate erosion control should be implemented when constructing the driveway to protect both the wetlands and properties downhill from the Project,

It is recommended that shrubs be planted on approximately 6-foot centers. Small tree species should be planted on 8-foot centers (for example rhododendron, ocean spray). Larger trees should be planted on 10-foot centers. All plantings should include use of topsoil as necessary to supply organic soil conditions and 3-4 inches of mulch should be added to the surface following planting.

Plants should be installed in holes which are dug at least 6-8 inches beyond the root balls. In the case of bare-root plants, at least 12 inches in excess of the root extent should be used. Top soil should be mixed as necessary with native soils, to ensure adequate aeration and soil texture. If on-site soils have sufficient organic material and aeration, topsoil addition may not be necessary.

Upon installation, the soil around each plant should be covered by a bark mulch to depths of 3-4 inches. This will help reduce drying during summer months and reduce susceptibility of the plants to cold weather including freeze damage during the winter season. Plants should be installed during the rainy season, so as to become established prior to being subjected to stress during the dry summer months. The optimal times for planting are March-April, following the last frost, or September-October, in time for the first rains (usually the period following September 15 is best).

In addition to the buffer planting areas, the area surrounding the home-site should be re-vegetated with a grass seed mixture following the completion of construction. This can be done during any season, provided temperatures are above 50 degrees during the day, to allow grass-seed germination.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

Wetland A has been mapped on the Site at 8114 West Mercer Way and found to be a Category IV Wetland. The City of Mercer Island requires a standard buffer of 35 feet for such wetlands with a minimum buffer of 25 feet. The lot is narrow; however, the house design has been modified to avoid intrusion on the minimum reduced buffers (25 feet). A reduction of the buffer for the access driveway will be necessary to provide access and use of the property similar to that of the adjacent and surrounding homes. An additional planting area, consisting of a line of coniferous trees has been added to offset this buffer intrusion and achieve "No Net Ecological Loss".

This Mitigation and Monitoring Plan has been formulated to provide measures which offset impacts to the wetland and which are expected to result in "No Net Ecological Loss" to the wetland and its buffer zone. This has been achieve through developing the Mitigation and Monitoring Plan, coupled with a Planting Plan as outlined in Chapter 3.0 and 4.0 of this report. Implementation of this plan including follow-up monitoring is expected to result in protection of the wetland and restoration and enhancement of the buffer zone, through planting native plants in the buffer zone, erosion control and use of Best Management Practices during and following construction.

These BMPs will include use of a silt fence along the southern, eastern and western edges of the construction area (where water could flow off of the construction area into the wetland or neighboring properties). In addition, straw wattles and other necessary erosion control methods should be used as necessary. Construction should be limited to the dry season (April 1 – October 15) due to the steep slope. A licensed Civil Engineer should specify adequate erosion control measures as necessary.

5.2 RECOMMENDATIONS

Westech Company recommends that this plan be implemented as approved by the City of Mercer Island for the Site at 8114 West Mercer Way. A licensed Civil Engineer should specify necessary measures to control erosion on the Site. Implementation of this Mitigation/Monitoring Plan and any necessary erosion control measures by a Civil Engineer should be part of approval of the issuance of permits for construction of the proposed residence as per Benny Kim Design.

6.0 REFERENCES

City of Mercer Island. 2018. Critical Areas Code, Title 19, Sections 16.010-19.07.080. Wetlands Code. Mercer Island, Washington.

C2MY Engineers, LLC. 2017. Letter Report on 8114 West Mercer Way, Mercer Island, WA (Lot 3B) dated December 11, 2017. Submitted to Mr. Benny Kim, Benny Kim and Lydia Design. Bellevue, Washington.

Kim, B. 2018. Personal Communications and unpublished maps of 8114 West Mercer Way, Mercer Island, Washington. Benny Kim Design. Edmonds, Washington.

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APPENDICIES

APPENDIX A

DATA FORM

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

Project/Site: 8114 West Mercer Way City/County: Mercer Island Sampling Date: 9/18/18

Applicant/Owner: Benny Kim, Architect State: WA Sampling Point: VSH-3

Investigator(s): Dr. G. Bradford Shea Section, Township, Range: T24N,R4E

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 20-30%

Subregion (LRR): N.W. Forest Lat: Long: Datum:

Soil Map Unit Name: Kitsap Silt Loam NWI classification: None-

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 100m²)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pseudotsuga menziesii*	35	Yes	FACU
2. *Alnus rubra*	10	No	FAC
3.			
4.			
	45 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10m²)			
1. *Sambucus racemosa*	25	Yes	FACU
2.			
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 10m²)			
1. *Equisetum arvense*	15	Yes	FAC
2. *Urtica dioica*	5	No	FAC
3. *Rubus ursinus*	5	No	FACU
4. *Convolvulus arvensis*	5	No	FACU
5. *Epilobium angustifolium*	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	35 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species 30	x 3 =	90
FACU species 45	x 4 =	300
UPL species	x 5 =	
Column Totals: 105 (A)		390 (B)

Prevalence Index = B/A = 3.7

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - 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 X

Remarks:

SOIL

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
0-18"	4/1 (10YR)	100	None				Silt loam	

[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: Hardpan

Depth (inches): 18"

Hydric Soil Present? Yes _____ No X

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 X Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No X

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

Remarks: