CONCEPTUAL MITIGATION PLAN

40TH STREET NORTHEAST

MARCH 2023

Soundview Consultants
Environmental Assessment
Planning + Land Use Solutions

CONCEPTUAL MITIGATION PLAN

CREEKSIDE

MARCH 3, 2023

PROJECT LOCATION
7808, 7811, 7715, AND 7627 40TH STREET NE AND 4106 76TH DRIVE NE
MARYSVILLE, WA 98270

PREPARED FOR
HORIZON VIEW HOLDINGS
6443 NE 181ST STREET
KENMORE, WA 98028

PREPARED BY
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Soundview Consultants
Environmental Assessment
Planning + Land Use Solutions

Executive Summary

Soundview Consultants LLC (SVC) has been assisting Horizon View Holdings (Applicant) with a wetland and fish and wildlife habitat assessment for a proposed single-family residential development of a 18.7-acre site located at 7808, 7811, and 7715 40th Street Northeast and 4106 76th Drive Northeast in the City of Marysville, Washington. The subject property consists of three tax parcels that are situated in the Northeast ¼ of Section 2, Township 29 North, Range 05 East, W.M. (Snohomish County Tax Parcel Numbers 29050200100200, 29050200100300, and 29050200100400).

SVC investigated the subject property for potentially-regulated wetlands, waterbodies, fish and wildlife habitat, and/or priority species in May and June of 2022. Using current methodology, the site investigation identified eight potentially regulated wetlands (Wetlands A – E, G, Pond A, and Pond B) and one stream (Stream Z) onsite. Wetlands A, C – E, G, Pond A, and Pond B are rated as Category III wetlands per Marysville Municipal Code (MMC) 22E.010.100.4 and are subject to a standard 75-foot buffer per MMC 22E.010.100.4. Wetland B is rated a Category II wetland and is subject to a standard 100-foot buffer per MMC 22E.010.100.4. Stream Z is a Type F stream and is subject to a standard 150-foot buffer per MMC 22E.010.220. Additionally, a 15-foot building setback is required from the outer edge of all critical areas or their buffers per MMC 22E.010.380. No other potentially regulated wetlands fish and wildlife habitat were identified within 300 feet of the subject property.

The Applicant proposes to redevelop the subject property with 51 single-family residences and associated infrastructure on the subject property including internal access roads, a stream crossing, utilities, and stormwater facilties for water quality treatment. The project was carefully designed to avoid impacts to critical areas to the greatest extent feasible by fully utilizing developable upland areas on the western and central portions of the site. However, in order to provide required site access from the northwest and southeast corners of the subject property, space for stormwater facilities, a 10-foot wide public utility easement on both sides of the proposed roads onsite, and required residential units to meet density requirements and make the development financially feasible, direct and indirect wetland impacts are necessary and unavoidable. As such, the project requires the unavoidable partial fill of Wetlands A and E, and the total fill of Wetland Pond B. Additionally, the project proposes indirect impacts to Wetland A and Wetland E.

Buffer averaging per MMC 22E.010.100(5)(a) and MMC 22E.010.220(4) is also proposed for the buffers associated with Wetlands A, B, C, D, E, Pond A, and Stream Z to reduce permanent wetland and stream buffer impacts, which will result in a net increase in wetland buffer area and function, and net zero loss of stream buffer area and function. The project proposes minor permanent buffer impacts associated with the Stream Z and Wetland G buffers for the installation of a storm water outfall within the buffer area, and permanent buffer impacts to Stream Z and Wetland G are proposed due to the construction of the required access road on the southeast portion of the site, which will also require the installation of a bottomless box culvert for Stream Z.

The proposed site design avoids impacts to Wetland B, which is the largest and highest functioning wetland onsite. Alternate site plans to avoid impacts and provide road access from Snohomish County Tax Parcel 29050200100700 to the northwest of the subject property were assessed and proved not feasible. No other feasible option in design would result in less impacts to the identified critical areas while allowing reasonable development of the subject property given the need for safe site access and

the required two access roads from the northwest and southeast. Furthermore, the use of a bottomless culvert at the required stream crossing avoids all direct stream impacts.

Direct wetland impacts will be compensated onsite through a combined approach of wetland creation and wetland enhancement, stand alone wetland creation, and purchase of mitigation bank credits. Per MMC 22E.010.120(3), mitigation will be provided through wetland enhancement and creation will be provided at a 2:1 and 1:1 ratio, respectively. Due to the intact nature of most of the onsite wetlands, enhancement opportunities are limited and the combined wetland creation and enhancement approach cannot compensate for all proposed impacts. Stand alone wetland creation will be provided at a 2:1 ratio to the extent possible onsite to offset the remaining proposed impacts, and the mitigation deficit that will be compensated through the purchase of mitigation bank credits from the SHWMB. Additionally, due to site constraints and limited wetland mitigation opportunities onsite, credits will be purchased from SHWMB to mitigate for indirect wetland impacts. Non- compensatory wetland enhancement is also proposed within Wetland B.

The required access road from 79th Avenue Northeast will require permanent buffer impacts that cannot be mitigated for onsite. Compensation for these impacts will be provided through the purchase of mitigation credits from SHWMB. The project proposes the restoration of buffer areas currently impacted by non-conforming uses. Additionally, wetland and stream buffer enhancement is proposed throughout the majority of the site to provide improved water quality functions, structural diversity, and habitat accessibility to the existing wetlands and stream onsite. The proposed wetland and stream buffer enhancment and restoration with encompass all the remaining wetland and stream buffer areas on the subject property.

The proposed use of onsite wetland creation, onsite wetland enhancement, onsite buffer enhancement and restoration in combination with a mitigation bank was determined to be the best strategy that will result in a net gain in ecological functions within the project area and Snohomish River Watershed (Water Resource Inventory Area 7). A Mitigation Plan is included in Chapter 2 of this report. The table below identifies the onsite critical areas and summarizes the potential regulatory status by local, state, and federal agencies.

Wetland Name	Size Onsite (square feet)	Category[1]	Regulated Under MMC Chapter 22E.010	Regulated Under RCW 90.48	Regulated Under Section 404 of the Clean Water Act
Wetland A	33,375	III	**Yes**	**Yes**	**Likely**
Wetland B	78,969	II	**Yes**	**Yes**	**Likely**
Wetland C	398	III	**Yes**	**Yes**	**Likely**
Wetland D	3,084	III	**Yes**	**Yes**	**Likely**
Wetland E	2,658	III	**Yes**	**Yes**	**Unlikely**
Wetland G	2,698	III	**Yes**	**Yes**	**Likely**
Pond A	Offsite	III	**Yes**	**Yes**	**Likely**
Pond B	1,139	III	**Yes**	**Yes**	**Likely**
Stream Z	627 linear feet	F	**Yes**	**Yes**	**Likely**

Note:

1. Current Washington State Department of Ecology (WSDOE) wetland rating system (Hruby, 2014) per MMC 22E.010.060.

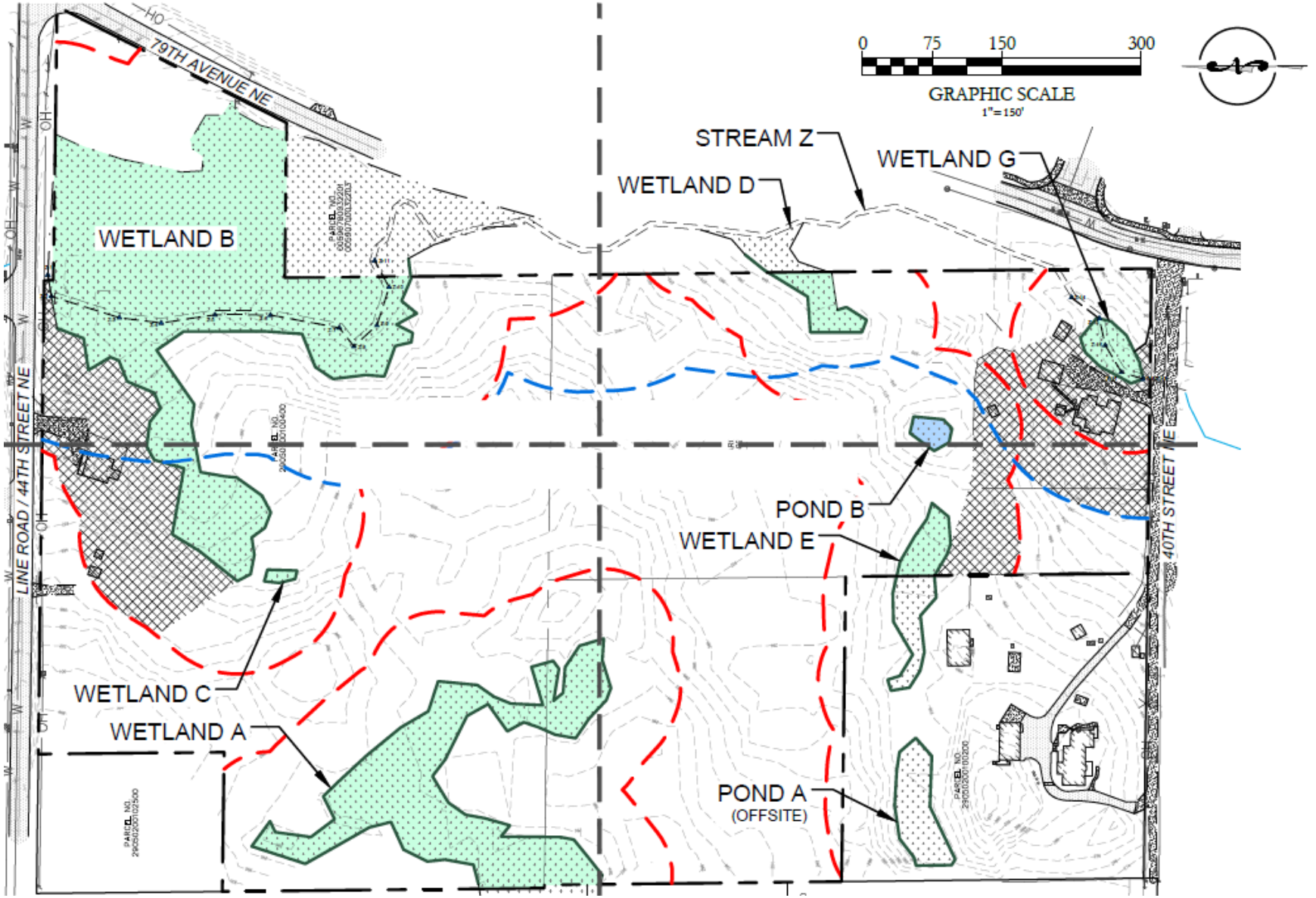
The table below summarizes the proposed buffer and direct and indirect critical area impacts.

Type of Impact	Impact Area
Direct Permanent Wetland Impacts (Fill)	16,028 SF
Indirect Wetland Impacts	11,919 SF
Wetland Buffer Averaging	13,001 SF decrease- 13,160 SF increase Net gain 159 SF
Stream Buffer Averaging	10,088 SF decrease- 10,088 SF increase Net zero loss
Permanent Buffer Impacts for Stormwater	25 SF
Permanent Buffer Impacts for Access Roads	17,010 SF

The table below summarizes the proposed compensatory and non-compensatory mitigation to offset the proposed critical area impacts.

Mitigation Type	Mitigation Area
Wetland Mitigation	
Compensatory Wetland Creation	16,110 SF
Compensatory Wetland Enhancement	8,130 SF
Non-Compensatory Wetland Enhancement	9,607 SF
Skykomish Habitat Wetland Basin Mitigation Bank	0.28 acres
Buffer Mitigation	
Buffer Enhancement and Buffer Creation	116,233 SF
Buffer Restoration	74,256 SF
Skykomish Habitat Wetland Basin Mitigation Bank	0.078 acres

Site Map


79TH AVENUE NE
LINE ROAD / 44TH STREET NE
40TH STREET NE
0
75
150
300
GRAPHIC SCALE
1" = 150'
STREAM Z
WETLAND G
WETLAND D
WETLAND B
POND B
WETLAND E
WETLAND C
WETLAND A
POND A
(OFFSITE)

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CHAPTER 1. REGULATORY CONSIDERATIONS

The site investigations in spring and summer of 2022 identified eight potentially regulated wetlands (Wetlands A-E and G, Pond A and Pond B) and one stream (Stream Z) on the subject property. No other potentially regulated wetlands, waterbodies, fish and wildlife habitat, or priority species were identified within 300 feet of the subject property during the site investigations.

1.1 Local Critical Area Requirements

1.1.1 Standard Buffer Requirements

MMC 22E.010.060.1 has adopted the current wetland rating system for western Washington (Hruby, 2014). Category IV wetlands have the lowest level of functions and are often heavily disturbed. Category III wetlands are wetlands with a moderate level of functions, as characterized by a score ranging from 16 to 19 points. Generally, these wetlands have been disturbed in some ways and are often less diverse or more isolated from other natural resources in the landscape than Category II wetlands. Category II wetlands are wetlands that perform functions well, as characterized by a score of 20 to 22 points. Category II wetlands are difficult, though not impossible, to replace and provide high levels of some functions.

Wetlands A, C, D, E, G, Pond A, and Pond B are classified as Category III wetland, which are subject to standard 75-foot buffers per MMC 22E.010.100(4). Wetland B is classified as a Category II wetland and is subject to a standard 100-foot buffer per MMC 22E.010.100(4).

Stream Z is recognized as a Type F stream with a standard 150-foot buffer per MMC 22E.010.220.1.a. Per MMC 22E.010.380, an additional 15-foot building setback is required from the edge of all critical area buffers.

1.1.2 Mitigation Sequencing

The proposed residential redevelopment will result in direct impacts due to the partial fill of Wetlands A and E and the total fill of Pond B. Indirect impacts to Wetlands A and E will result from the direct wetland fill impacts to these wetlands. Temporary wetland and stream buffer impacts are proposed due to the construction of the access roads on the northwest and southeast corner of the subject property from 44th Street Northeast and 79th Avenue Northeast, temporary grading and access impacts for the wetland creation area adjacent to Wetland B, and due to the insallation of retaining walls, utilities, and the removal of non-conforming uses within the buffers onsite. Permannt stream and wetland buffer impacts are proposed due to the need to construct the access road from 79th Avenue Northeast in the southeast corner of the subject property and to install a stormwater outfall within the Stream Z and Wetland G buffers. Buffer averaging will also be utilized on Wetlands A, B, C, D, E, and Stream Z to reduce further permanent buffer impacts. Impacts to wetlands and their associated buffers are permitted provided that the proposed activity will be designed to ensure no net loss of critical area functions and values. As impacts to Wetlands A, E, Pond B and Stream Z are unavoidable, mitigation sequencing as described per MMC 22E.010.110(1) and MMC 22E.010.230(1) is outlined below.

a. *Avoiding impacts altogether by not taking a certain action or parts of an action.*

The Applicant proposes residential redevelopment of the subject property to include 51 single-family residential lots, internal access roads, recreational areas open space, and associated utilities and infrastructure. The project was carefully designed to avoid impacts to critical areas to the greatest extent feasible by fully utilizing developable upland areas on the western and central portion of the site. However, in order to provide required site access from 40th Street Northeast and from 44th Street Northeast, along with stormwater treatment facilties onsite, and required residential units to meet density requirements and make the development financially feasible, direct wetland and wetland buffer impacts are necessary and unavoidable. As such, the project requires the unavoidable partial fill of the onsite portions of Wetlands A and E, and the total fill of onsite Pond B. In addition, indirect impacts to Wetlands A and E are proposed due to the partial fill of the onsite portions of these wetlands.

The access road layout was designed to avoid impacts to Wetland B, which is the highest functioning wetland onsite. Buffer averaging per MMC 22E.010.100(5)(a) is also proposed for the buffers associated with Wetlands A, B, C, D, and E to reduce permanent wetland buffer impacts. Additionally, stream buffer averaging per MMC 22E.010.220.(4) is proposed for the buffer areas associated with Stream Z to reduce permanent stream buffer impacts. The current-proposed site design reduces impacts to the larger, higher functioning Wetland B.

The proposed site design minimizes impacts to Wetland B, which is the largest and highest functioning wetland onsite. Alternate site plans to avoid impacts and provide road access from Snohomish County Tax Parcel 29050200100700 to the northwest of the subject property were assessed and proved not feasible. No other feasible option in design would result in less impacts to the identified critical areas while allowing reasonable development of the subject property given the need for safe site access and the required two access roads from the northwest and southeast..

b. *Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts.*

As described above, the proposed direct and indirect impacts and the permanent and temporary impacts are the minimum necessary to allow safe site access to the subject property from 44th Street Northeast and from 79th Aevnue Northeast. To minimize impacts, the lower intensity development (i.e. stormwater tracts and park) are located adjacent to the critical areas as feasible to provide greater separation between the wetlands and streams and the high intensity development. Many of the lots were reduced in size in order to reduce impacts to the wetlands and stream onsite. The wetlands proposed to be filled onsite are lower functioning and more isolated. Furthermore, no direct or indirect impacts are proposed to Weltand B, which is the largest and highest functioning wetland onsite. The proposed non-compensatory wetland enhancment will provide improved water quality functions, structural diversity, and habitat accessibility to the existing wetlands and stream onsite. In addition, all appropriate best management practices (BMPs) and temporary erosion and sediment control (TESC) measures consisting of silt fencing, seeding of disturbed soils, and items outlined in the project's erosion and stormwater control plans, to be prepared by a Project Engineer prior to clearing and grading activities, will be implemented throughout the duration of the proposed project.

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

Mitigation for the direct impacts to Wetlands A, E, and Pond B will be compensated through onsite combined wetland creation and wetland enhancement, stand alone wetland creation, and the remaining deficit will be compensated through the purchase of mitigation bank credits from the Skykomish Habitat Wetland Mitigation Bank (SHWMB). Additionally, given limited mitigation opportunities and site constraints, indirect impacts to Wetlands A and E will also be compensated through the purchase of mitigation bank credits from SHWMB.

Non-compensatory wetland enhancement is proposed within Wetland B as necessary perimeter buffers cannot be accomodated. Wetland and stream buffer enhancement is proposed to provide improved water quality functions, structural diversity, and habitat accessibility to the existing wetlands and stream onsite. Finally, the project proposes buffer restoration to restore the areas impacted during the removal of the non-conforming residential uses onsite, the installation of retaining walls, and the installation of the access roads construction from 79th Avenue Northeast and 40th Street Northeast.

The proposed use of a mitigation bank in combination with onsite wetland creation, onsite wetland enhancement, and onsite buffer enhancement and restoration was determined to be the best strategy that will result in a net gain in ecological functions within the project area and Snohomish River Watershed (Water Resource Inventory Area 7).

d. *Reducing or eliminating the impact over time by preservation and maintenance operations.*

Impacts to critical areas and their buffers have been avoided and minimized to the exten practicable. Appropriate compensatory and non-compensatory actions are proposed to offset these impacts. The proposed project does aim to eliminate existing impacts to buffers through the removal of non-conforming land uses. The remaining wetlands, streams, and associated buffers onsite will be protected via a critical areas tract, conservation easement, or other protective mechanism acceptable by the City of Marysville to limit development in perpetuity. In addition, critical areas fencing and signage will be placed around the wetlands and buffer areas post-development to limit intrusion into the areas as required per MMC 22E.010.370.

e. *Compensating for the impact by replacing or providing substitute resources or environments.*

Please refer to section c above. Compensatory mitigation for the direct impacts will be provided through onsite combined wetland creation and enhancement, stand alone wetland creation, and the remaining deficit will be compensated through the purchase of mitigation bank credits from the SHWMB. Additionally, all indirect wetland impacts will be mitigated through purchase of bank credits from SHWMB. All remaining wetland and stream buffer areas onsite will be fully enhanced. Finally, non-compensatory weltand enhancement is proposed to increase the hydrologic and habitat functions within Wetland B.

f. *Monitoring the impact and taking appropriate corrective measures.*

The proposed wetland creation, wetland enhancement, buffer enhancement/restoration will be maintained and monitored for a period of 5 years as requested by the City of Marysville and wetland creation areas will be monitored for a period of 10 years as requested by the USACE. Appropriate contingency measures will be implemented if monitoring indicates that goals and performance standards of the enhanhcement/restoration actions are not being met. Additional

mitigation to compensate for the deficit for the direct impacts to Wetlands A, E, and Pond B and indirect wetland impacts to Wetlands A and E will be provided through the purchase of mitigation bank credits from the SHWMB and therefore, will not require permittee-responsible mitigation monitoring. The mitigation areas provided will be maintained and monitored through the mitigation banking program for an appropriate timeline to ensure success of the mitigation actions.

1.1.3 Mitigation Performance Standards

According to MMC 22E.010.120, adverse impacts to wetland functions and values shall be mitigated. Mitigation actions shall be implemented in the preferred sequence identified in MMC 22E.010.110(1) (see Section 1.1.2 above). Proposals which include less preferred or compensatory mitigation shall demonstrate that:

1. *All feasible and reasonable measures will be taken to reduce impacts and losses to the original wetland;*

See responses to criteria *a* and *b* under Section 1.1.2 above for details regarding avoidance and minimization measures for the project.

2. *No overall net loss will occur in wetland functions, values and acreage; and*

Direct wetland impacts are due to the necessary and unavoidable partial fill of Wetlands A and E, and the total fill of Pond B resulting from the required road access from 44th Street Northeast and 79th Avenue Northeast, along with the onsite stormwater treatment facilities. Direct impacts will be compensated onsite through a combined approach of wetland creation and wetland enhancement, stand alone wetland creation, and purchase of mitigation bank credits. Per MMC 22E.010.120(3), mitigation will be provided through wetland enhancement and creation will be provided at a 2:1 and 1:1 ratio, respectively. Due to the intact nature of most of the onsite wetlands, enhancement opportunities are limited and the combined wetland creation and enhancement approach cannot compensate for all proposed impacts. Stand alone wetland creation will be provided at a 2:1 ratio to the extent possible onsite to offset the remaining proposed impacts, and the mitigation deficit that will be compensated through the purchase of mitigation bank credits from the SHWMB. Additionally, due to site constraints and limited wetland mitigation opportunities onsite, credits will be purchased from SHWMB to mitigate for indirect wetland impacts.

Non-compensatory wetland enhancement is also proposed within Wetland B through the removal of non-native invasive vegetation, namely reed canarygrass (*Phalaris arundinacea*) and yellowflag iris (*Iris pseudacorus*). Wetland and stream buffer enhancement is proposed to provide improved water quality functions, structural diversity, and habitat accessibility to the existing wetlands and stream onsite. Finally, the project proposes buffer restoration to restore the areas impacted during the removal of the non-conforming residential uses onsite, the installation of retaining walls, and the installation of the access road construction from 44th Street Northeast and 79th Avenue Northeast.

The proposed use of onsite wetland creation, onsite wetland enhancement, onsite buffer enhancement and restoration in combination with a mitigation bank was determined to be the best strategy that will result in a net gain in ecological functions within the project area and Snohomish River Watershed (Water Resource Inventory Area 7).

3. *The restored, created or enhanced wetland will be as persistent and sustainable as the wetland it replaces.*

The mitigation provided through the onsite wetland creation and wetland enhancement, along with the purchase of credits from the SHWMB will be much higher functioning than the existing degraded wetlands proposed to be impacted, as Wetlands A and E and Pond B are isolated Cateogry III wetlands and the proposed wetland creation and enhancment will occur within and adjacent to Wetland B (Category II), which is the largest and highest functioning wetland onsite. Therefore, the proposed onsite mitigation will provide a higher level of function than the impacted features. The 260-acre Skykomish Habitat Wetland Mitgation Bank in Snohomish County consists of wetland restoration, wetland rehabilitation, wetland enhancement adjacent to the Skykomish River and side channels, which will establish ideal habitat conditions for a wide range of fish and wildlife species.

1.1.4 Wetland Buffer Averaging Plan

The proposed residential development will require buffer averaging for the buffers associated with Wetlands A, B, C, D, and E to allow the necessary space for the required access roads from 44th Street Northeast and 79th Avenue Northeast, stormwater infrastructure, and to allow for the site to be economically feasible for residential development. According to MMC 22E.010.100.5.a, buffer width averaging shall be allowed when the applicant demonstrates that the averaging will not impair or reduce the habitat, water quality purification and enhancement, storm water detention, ground water recharge, shoreline protection and erosion protection and other functions of the wetland and buffer; that lower-intensity land uses would be located adjacent to areas where buffer width is reduced; and that the total area contained within the buffer after averaging is no less than that contained within the standard buffer prior to averaging.

The proposed wetland buffer averaging plan will result in a net gain in contiguous wetland buffer area, which will ensure no net loss in ecological functions. The proposed site plan has gone through multiple alterations and has been designed for the lower intensity stormwater and open space areas to be situated next to the wetlands to provide additional separation between the wetlands and high intensity residential lots. As the onsite Wetland B buffer is degraded by the presence of non-native invasive species and non-conforming land uses, the buffer area will be fully restored/enhanced to increase ecological functions and will provide increased habitat functionality and protection. Therefore, the modified buffer will continue to provide adequate screening as well as water quality, hydrologic, and habitat functions post-development.

1.1.5 Stream Buffer Averaging Plan

The proposed residential development will require buffer averaging for the buffer areas associated with Stream Z to allow the necessary space for the required access roads from 44th Street Northeast and 79th Avenue Northeast, stormwater infrastructure, and to allow for the site to be economically feasible for residential development. According to MMC 22E.010.220(4), buffer width averaging shall be allowed only where the applicant demonstrates to the community development department that the averaging will not impair or reduce habitat, water quality purification and enhancement, storm water detention, ground water recharge, shoreline protection and erosion protection and other functions of the stream and buffer, that lower intensity land uses would be located adjacent to areas where buffer width is reduced, and that the total area contained within the buffer after averaging is no less than that contained within the standard buffer prior to averaging.

The proposed stream buffer averaging plan will result in the equivalent amount of contiguous stream buffer area, which will ensure no net loss in ecological functions. The proposed buffer reduction and buffer increase areas will result in a net zero loss of onsite stream buffer area. The proposed site plan has gone through multiple alterations and has been designed for the lower intensity stormwater and open space areas to be situated next to the stream buffers to provide additional separation between the wetlands and high intensity residential lots. As the onsite Stream Z buffer is degraded by the presence of non-native invasive species and non-conforming land uses, the buffer area will be fully restored/enhanced to increase ecological functions and will provide increased habitat functionality and protection. Therefore, the modified buffer will continue to provide adequate screening as well as water quality, hydrologic, and habitat functions post-development.

1.1.6 Wetland Mitigation Banks

The project proposes the purchase of mitigation bank credits from the SHWMB in order to compensate for the impact deficit that is not possible to mitigate for onsite resulting from the necessary, unavoidable direct impacts to Wetlands A, E, and Pond B. Per MMC 22E.010.130, when mitigation bank use is proposed it shall be conducted in accordance with the following requirements:

1. *Credits from a wetland bank may be approved for use as compensation for unavoidable impacts to wetlands when:*
   (a) *The bank is certified under Chapter 173-700 WAC;*

   The Skykomish Habitat Wetland Mitigation Bank was certified for use on August 12, 2005.

   (b) *The community development director determines that the wetland mitigation bank provides appropriate compensation for the authorized impacts;*

   Utilization of a mitigation bank is the most ecologically practicable mitigation option for the migitgation deficit that is not feasible to compensate for onsite. Onsite wetland creation area is limited by perimeter buffers, development site constraints, and limited areas onsite that would provide successful wetland hydrology. Thus, the use of a mitigation bank will likely provide a higher level of ecological lift than small onsite or offsite, in-kind permittee responsible mitigation especially with the established resources for maintenance and monitoring over a longer term to ensure success of the mitigation actions. Creating and maintaining small areas of wetland are also more difficult due to a higher probability of the area becoming overtaken by non-native invasive plants. Further, many of the areas potentially available for onsite mitigation between the existing wetlands are currently forested and would provide greater function as upland connections between the existing aquatic areas. As such, the use of a mitigation bank for the remaining mitigation deficit that is not feasible to mitigate for onsite, was determined to be the most preferable option that will provide watershed-level benefits while simultaneously providing the maximum level of functional mitigation onsite.

   (c) *The proposed use of credits is consistent with the terms and conditions of the bank's certification.*

   The purchase of credits will be consistent with the terms and conditions of the bank's certification.

2. *Replacement ratios for projects using bank credits shall be consistent with the terms and conditions of the bank's certification.*

   Direct impacts will first be mitigated for onsite through combined wetland creation (1:1 ratio) and enhancement (2:1), then stand alone wetland creation (2:1), and the remaining deficit will be

compensated through the purchase of mitigation credits from SHWMB. Per the SHWMB mitigation banking instrument (Skykomish Habitat, LLC, 2006), impacts for Category III wetlands require a 1:1 ratio of credits from the bank.

All proposed indirect wetland impacts to the Category III wetlands onsite will also be compensated through the purchase of mtigiation credits from SHWMB at half the allotted ratio per current mitigation guidance (WSDOE et al, 2021), resulting in a 0.5:1 ratio of credits for indirect wetland impacts.

Permanent buffer impacts due to the necessary access road from 79th Avenue Northeast cannot be compensated for onsite and will be provided through the purchase of credits from SHWMB. Per the mitigation banking instrument (Skykomish Habitat, LLC, 2006), riparian buffers are compensated for at a 0.2:1 ratio.

Table 1 below shows the ratio at which each impact type will be purchased through credits from SHWMB.

Table 1. Summary of SHWMB Replacement Ratios

Impact Area	Impact Area Classification	Type	Mitigation Ratio
Wetland	Category III	Direct	1:1
Wetland	Category III	Indirect	0.5:1[A]
Buffer	Riparian	Direct	0.2:1

Notes:
A: Provided ration is one half the required 1:1 ratio for Category III wetlands per indirect wetland impact mitigation guidance (WSDOE et al, 2021).

3. *Credits from a certified wetland mitigation bank may be used to compensate for impacts located within the service area specified in the bank's certification. In some cases, bank service areas may include portions of more than one adjacent drainage basin for specific wetland functions.*

The purchase of credits from the SHWMB will be utilized to compensate for the direct wetland impacts to Wetlands A, E, and Pond B, indirect impacts to Wetlands A and E, and permanent riparian buffer impacts to Stream Z and Wetland G located within the service area in WRIA 7 – Snohomish River Watershed. The purchase of credits will result in much higher functioning wetlands when compared to the existing critical areas proposed to be impacted.

1.1.7 Buffer Enhancement Requirements

Per MMC 22E.010.100(3), buffer enhancement/restoration will be provided for all remaining onsite buffers that are currently degraded due to disturbances or non-native invasive vegetation, or where enhancement could significantly improve buffer function. The southeastern and northern portions of the subject property are currently developed with single family residences, associated infrastructure, and access roads, which will all be removed and fully restored, except for the area required for the installation of the proposed access road from 79th Avenue Northeast. Removal of these non-conforming uses and full buffer restoration in these areas will establish higher functioning buffer areas associated with Wetland B, Wetland G, and Stream Z. The proposed non-compensatory buffer restoration/enhancement will result in increased functions and protection of the wetlands and stream buffers from the proposed development. The proposed

buffer enhancement and restoration actions will remove non-native invasive species and replant the degraded or sparsely vegetated buffer with a variety of native plants to selectively increase plant species diversity which will provide improved habitat conditions and function through establishing diverse vertical and horizontal vegetation strata beneficial to wildlife. The addition of diverse native trees and shrubs is anticipated improve water quality functions by increasing retention of sediments and pollution assimilation. The proposed buffer enhancement/restoration actions will result in net increase in ecological functions, including hydrological, biological, physical, and chemical functions, both onsite and in the greater watershed.

1.2 State and Federal Considerations

In a December 2, 2008 memorandum from the Environmental Protection Agency (EPA) and USACE, joint guidance is provided that describes waters that are to be regulated under section 404 of the CWA (USACE, 2008). This memorandum was amended on February 2, 2012 where the EPA and USACE issued a final guidance letter on waters protected by the CWA.

The 2012 guidance describes the following waters where jurisdiction would be asserted: 1) traditional navigable waters, 2) interstate waters, 3) wetlands adjacent to traditional navigable waters, 4) non-navigable tributaries of traditional navigable waters that are relatively permanent meaning they contain water at least seasonally (e.g. typically three months and does not include ephemeral waters), and 5) wetlands that directly abut permanent waters. The regulated waters are those associated with naturally occurring waters and water courses and not artificial waters (i.e. stormwater pond outfalls).

The 2012 memorandum further goes on to describe waters where jurisdiction would likely require further analysis: 1) Tributaries to traditional navigable waters or interstate waters, 2) Wetlands adjacent to jurisdictional tributaries to traditional navigable waters or interstate waters, and 3) Waters that fall under the "other waters" category of the regulations.

In addition, the 2012 guidance identifies thirteen waters or areas where jurisdiction will not be asserted: 1) Wet areas that are not tributaries or open waters and do not meet the agencies regulatory definition of "wetlands", 2) Waters excluded from coverage under the CWA by existing regulations, 3) Waters that lack a "significant nexus: where one is required for a water to be jurisdictional, 4) Artificially irrigated areas that would revert to upland if the irrigation ceased, 5) Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing, 6) Artificial reflecting pools or swimming pools excavated in uplands, 7) Small ornamental waters created by excavating and/or diking dry land to retain water for primarily aesthetic reasons, and puddles, 8) Water-filled depressions created incidental to construction activity, 9) Groundwater, including groundwater drained through subsurface drainage systems, 10) Erosional features (gullies and rills), 11) Non-wetland swales, 12) Ditches that are excavated wholly in uplands, drain only uplands or non-jurisdictional waters, and have no more than ephemeral flow, and 13) Ditches that do not contribute flow, either directly or through other waterbodies, to a traditional navigable water, interstate water, or territorial sea.

Stream Z flows directly into Ebey Slough, a traditionally navigable water, and would be regulated as WOTUS under Category 4 above. Wetlands B, D, and G have a direct surface water connection to the onsite stream and would also be regulated as WOTUS under Category 3 above. Wetlands A, E, Pond A, and Pond B are identified depressional wetlands that do not have surface water connectivity to traditionally navigable waters or associated tributaries. However, given their proximity to other

potentially regulated WOTUS, such as Stream Z and an offsite stream to the west downgradient of these features, they may be considered to have a "significant nexus" and therefore subject to federal regulation. An Approved Jurisdictional Determination (AJD) from USACE is necessary to determine if these wetlands would be subject to Section 404 regulations. In order to expedite the permitting process, federal jurisdiction of all identified features is presumed. All the identified wetlands are also considered natural waters that are likely regulated by the WSDOE through the Revised Code of Washington (RCW) 90.48.

CHAPTER 2. CONCEPTUAL MITIGATION PLAN

The proposed compensatory mitigation actions for the project attempt to strike a balance between achieving project goals as well as a positive result in terms of ecological lift. In general, joint USACE and EPA rules have been established that require more careful mitigation planning efforts utilizing a watershed approach in site selection, establishment of enforceable performance standards, and preference for use of mitigation banks or in-lieu fees (ILF's) whenever ecologically appropriate (USACE & EPA, 2008). The proposed wetland impacts and compensatory mitigation actions attempt to closely adhere to these rules while also utilizing the best available science (Granger et al., 2005; Hruby et al., 2009; Sheldon et al., 2005; WSDOE et al., 2006; and WSDOE et al., 2021) and adhering to the requirements of MMC Chapter 22E.010. This chapter presents the mitigation details for the proposed residential development project.

2.1 Purpose and Need

The purpose of the proposed project is to provide additional housing units within the City of Marysville and help alleviate the shortage of residences in the greater Seattle area.

2.2 Description of Impacts

The Applicant proposes residential redevelopment of the subject property to include 51 single-family residential lots, internal access roads, stormwater infrastructure, recreational open space areas, and associated utilities and infrastructure. The project was carefully designed to avoid impacts to critical areas to the greatest extent feasible by fully utilizing developable upland areas on the western and central portions of the site. However, in order to provide required site access from the northwest and southeast corners of the subject property, space for stormwater facilities, a 10-foot wide public utility easement on both sides of the proposed roads onsite, and required residential units to meet density requirements and make the development financially feasible, direct and indirect wetland impacts are necessary and unavoidable. As such, the project requires the unavoidable partial fill of Wetlands A and E, and the total fill of Wetland Pond B. Additionally, the project proposes indirect impacts to Wetland A and Wetland E resulting from the wetland fill actions within these wetlands.

Wetland and stream buffer averaging per MMC 22E.010.100(5)(a) and MMC 22E.010.220.(4) is also proposed for the buffers associated with Wetlands A, B, C, D, E, Pond A, and Stream Z to reduce permanent wetland and stream buffer impacts, which will result in net increase in wetland buffer area and function, and net zero loss of stream buffer area and function. The project proposes minor permanent buffer impacts associated with the Stream Z and Wetland G buffers for the installation of a storm water outfall within the buffer area, and permanent buffer impacts to Stream Z and Wetland G are proposed due to the construction of the required access road on the southeast portion of the site, which will also require the installation of a bottomless box culvert for Stream Z

Alternate site plans and road access from parcel 29050200100700 to the northwest of the subject property were assessed and proved not feasible. The current-proposed site design minimizes impacts to Wetland B, which is the largest and highest functioning wetland onsite. No other feasible option in design would result in less impacts to the identified critical areas while allowing for the reasonable residential development of the subject property given the need for safe site access.

2.2.1 Wetland Impacts

Please refer to the Existing Conditions and Proposed Exhibits provided in Appendix A. Table 1 below summarizes the proposed impacts.

Table 2. Summary of Wetland Impacts

Impacted Wetland	WSDOE Rating[1]	Cowardin Class[2]	HGM Class[3]	Impact Type	Impact Area
Wetland A	III	PFO/SSBC	Depressional	Direct (Partial fill)	12,024 SF 0.28 acre
Wetland E	III	PSS/EMBC	Depressional	Direct (Partial fill)	2,865 SF 0.07 acre
Pond B	III	PEM/AB/BH	Depressional	Direct (total fill)	1,139 SF 0.03 acre
				Total Direct Wetland Impacts	**16,028 SF 0.37 acre**
Wetland A	III	PFO/SSBC	Depressional	Indirect	9,360 SF 0.21 acre
Wetland E	III	PSS/EMBC	Depressional	Indirect	2,559 SF 0.06 acre
				Total Indirect Wetland Impacts	**11,919 SF 0.27 acre**

Notes:
1. Rating based on current WSDOE wetland rating system for Western Washington (Hruby, 2014).
2. Cowardin et al. (1979); Federal Geographic Data Committee (2013); class based on vegetation: PFO = Palustrine Forested; PSS = Palustrine Scrub-Shrub, PEM = Palustrine Emergent; Modifiers for Water Regime: A = Temporarily Flooded; B = Seasonally Saturated; C = Seasonally Flooded; H = Permanently Flooded.
3. HGM classification based on current WSDOE wetland rating system for Western Washington (Hruby, 2014).

The proposed project will result in the partial fill of Category III wetlands (Wetlands A and E) and the total fill of Pond B onsite. Indirect impacts are also required to Wetlands A and E due to the partial fill of the onsite portions of these wetlands. A wetland function impact analysis is provided below for Wetlands A, E and Pond B.

- **Water Quality:** Wetlands A and E are depressional wetlands that exhibit seasonal flooding and saturation. Pond B is a depressional wetland that exhibits permanent flooding and seasonal flooding. In general, the wetlands provide moderate to high water quality improvement potential as Wetlands A, E, and Pond B lack outlets, which slows filtration and retains water for a period conducive to filtering pollutants. Additionally, the wetlands are located in proximity to land uses that generate pollutants, and water quality functions provided by the wetlands have increased value to society due to the presence of a 303(d) water in the sub-basin and a TMDL in the watershed. However, water quality improvement functions are limited due to their isolated locations within the landscape and lack of stormwater input. The onsite wetland creation, wetland enhancment, and purchase of mitigation bank credits from the SHWMB will result in a net increase in water quality functions within the Snohomish River Watershed when compared to the small and isolated wetlands proposed to be filled.

- **Hydrologic:** The primary sources of hydrology for Wetlands A, E , and Pond B are direct precipitation, surface sheet flow from adjacent uplands, and a seasonally high groundwater table. In general Wetlands A, E, and Pond B provide moderate levels of hydrologic functions due to the wetlands having storage depths of 0.5 to 2-feet. Additionally, Wetlands A, E, and Pond B are

depressional wetlands that lack outlets, allowing them to aid in floodflow retention and attenuation. However, these functions are limited due to the wetland units isolated nature within the landscape, lack of stormwater input, and limited intensive human land uses within the contributing basin. The onsite wetland creation, wetland enhancement, and purchase of mitigation bank credits from the SHWMB will result in a net increase in hydrologic functions within the Snohomish River Watershed when compared to the small, isolated wetlands proposed to be filled.

- **Habitat:** Wetlands A, E, and Pond B provide moderate habitat functions due to Wetlands E and Pond B having three priority habitats and Wetland A having one priority habitat nearby. However, the wetlands are located within an area surrounded by high intensity land use where accessibility to habitat and habitat interspersion is limited. Due to the moderate functioning habitat conditions, the wetland fill and indirect impact actions will result in limited habitat removal, and additional wetland habitat functions will be replaced and increased through onsite wetland creation, onsite wetland enhancement, and through the purchase of mitigation bank credits from the SHWMB.

2.2.2 Buffer Impacts

Please refer to the Existing Conditions and Proposed Exhibits provided in Appendix A. Table 3 below summarizes the proposed buffer impacts.

Table 3. Buffer Impact Summary

Impact Area	Feature	Impact Type	Impact Area
Buffer	Stream Z/Wetland G	Permanent	17,010 SF

In addition to the proposed direct and indirect wetland impacts, permanent buffer impacts are required to accommodate the site design. While an existing access road (40th Street Northeast) currently exists immediately south of the site, the City is requiring the secondary access for the development from 79th Avenue Northeast to be realigned to improve sightlines and overall traffic safety. As a result, the new access road requires a crossing over Stream Z, which will utilize a bottomless culvert to avoid direct impacts, but will also result in unavoidable permanent impacts to the Stream Z and Wetland G buffers. Per MMC 22E.010.110(3)(c) and 22E.010.230(3)(b), appropriate mitigation through purchase of credits from SHWMB is proposed to compensate for these impacts and result in no net loss of buffer functions.

An additional 25 square feet of permanent buffer impacts are required in order to install a single stormwater outfall within the Stream Z and Wetland B buffer. Due to necessary grades, the outfall cannot be relocated outside of the buffer. However, restoration of the nearby buffer area through the removal of non-conforming land uses and plantings, and enhancement of the surrounding buffer areas through invasive species removal and native plantings are anticipated to fully mitigate for these minor impacts.

2.3 Mitigation Strategy

The proposed mitigation actions are intended to compensate for lost critical area functions and values by providing an overall improvement in the quality of water, hydrologic, and habitat functions according to the needs of the site, local sub-basin, and overall watershed.

2.3.1 Onsite Mitigation

The proposed onsite, in-kind mitigation has been designed utilizing interagency guidance and local requirements per MMC 22E.010.120 to ensure no net loss of ecological functions onsite and within the greater Snohomish River Watershed (WRIA 7).

Direct wetland impacts will be compensated onsite through a combined approach of wetland creation and wetland enhancement, stand alone wetland creation, and purchase of mitigation bank credits. Per MMC 22E.010.120(3), mitigation will be provided through wetland enhancement and creation will be provided at a 2:1 and 1:1 ratio, respectively. Due to the intact nature of most of the onsite wetlands, enhancement opportunities are limited and the combined wetland creation and enhancement approach cannot compensate for all proposed impacts. Stand alone wetland creation will be provided at a 2:1 ratio to the extent possible onsite to offset the remaining proposed impacts, and the mitigation deficit that will be compensated through the purchase of mitigation bank credits from the SHWMB (see Section 2.3.2 for additional information regarding use of the mitigation bank).

The wetland creation area will be excavated to provide necessary depressions to hold sufficient hydrology to generate wetland conditions. Any existing fill material will be removed from the proposed creation area. The creation area will be excavated to the existing groundwater table if possible. Organic topsoil, likely from an offsite supplier but potentially sourced onsite, will then be placed to provide a suitable substrate for the proposed native plantings. The newly created wetland area will be installed in the same environment that provides adequate conditions for the existing wetland. By following the site preparation specifications outlined herein (e.g., excavation, topsoil installation, and plantings) the wetland creation area will maintain wetland hydrology during the growing season in most years to match the existing, functional, permanently/seasonally/occasionally flooded and saturated wetland. The proposed native species have been carefully selected to ensure the plants take root and thrive in the newly created wetland environment. With implementation of the required monitoring and maintenance actions, the creation area is projected to be a highly functional, persistent, and successful wetland. The wetland creation area will be much higher functioning than the existing wetland area proposed to be impacted. The existing wetland buffer area is degraded due to the extent of non-conforming residential uses surrounding the wetland, associated trash and debris, and dominance of non-native invasive species. Wetland creation will remove these degradations and create a functional wetland area through the establishment of native plant species that will improve water quality, hydrologic, and habitat conditions. As such, the proposed wetland creation will provide a net lift in ecological functions when compared to the existing degraded condition of the wetland proposed to be indirectly impacted.

In addition to the required compensatory wetland enhancement and wetland creation mitigation described above; the Applicant proposes wetland and stream buffer enhancement as well as buffer restoration to restore non-conforming residential uses. The existing buffer areas onsite are degraded by the presence of non-conforming residential land uses and non-native invasive species. Thus, the onsite buffer area will be restored and enhanced by removing existing impervious surfaces, trash and

debris, and non-native invasive species, adding suitable topsoil, and replanting with a suite of native trees, shrubs, and groundcover. Removing wetland buffer degradations such as impervious surfaces and non-native invasive vegetation and replacing with native plantings within the buffer will restore the habitat functions and critical area protection provided by the site and improve the hydrology and quality of water leaving the project site. A diverse herbaceous layer will be established to provide browse, cover, and nesting for small mammals, which in turn provide prey for raptors and other small mammals. In addition, the proposed buffer restoration/enhancement actions will provide additional screening from the proposed development and result in a net gain in buffer function.

A mitigation summary is provided in Table 5. Refer to Appendix A for a detailed mitigation and planting plan.

Table 4. Summary of Onsite Proposed Mitigation

Mitigation Type	Mitigation Ratio[1]	Mitigation Area Provided	Beginning Deficit	Remaining Deficit
Combined Wetland Creation and Enhancement	1:1 (Creation) 2:1 (Enhancement)	(C) 4,065 SF (E) 8,130 SF	16,028 SF	12,045 SF
Wetland Creation (Stand alone)	2:1	12,154 SF	11,963 SF	5,941 SF
Non-Compensatory Wetland Enhancement	No credit[2]	9,607 SF	5,941 SF	5,941 SF
Non-Compensatory Buffer Enhancement	No credit[2]	116,233 SF	5,941 SF	5,941 SF
Non-Compensatory Buffer Restoration	No credit[2]	74,194 SF	5,941 SF	5,941 SF

1. Wetland mitigation will first utilize the combination ratios to the extent practicable; the remainder of onsite mitigation will utilize the standard mitigation ratios.
2. Non-credit generating mitigation actions

The wetland creation, wetland enhancement and buffer restoration andenhancement actions will include, but may not be limited to, the following recommendations:

- Pre-treat invasive plants with a Washington Department of Agriculture approved herbicide. After pre-treatment, grub to remove the invasive plants and replant all cleared areas with native trees, shrubs, and ground covers listed in Appendix A; Pre-treatment of the invasive plants should occur a minimum of two weeks prior to removal;
- Excavate an area contiguous with Wetland B for wetland creation that will hold sufficient wetland hydrology;
- Replant all mitigation areas with native trees, shrubs, and groundcovers listed in Appendix A, or substitutes approved by the responsible Project Scientist to help retain soils, filter stormwater, and increase biodiversity;
- Install special habitat features, such as large woody debris (LWD) and snags, to provide increased habitat structures for wildlife;
- An approved native seed mix will be used to seed the disturbed areas after planting;

- Maintain and control invasive plants annually, at a minimum, or more frequently if necessary. Maintenance to reduce the growth and spread of invasive plants is not restricted to chemical applications but may include hand removal, if warranted;
- Provide dry-season irrigation as necessary to ensure native plant survival;
- Direct exterior lights away from the critical areas wherever possible; and
- Place all activities that generate excessive noise (e.g., generators and air conditioning equipment) away from the remaining critical areas where feasible.

Perimeter Buffers

All compensatory mitigation areas will be protected by an established perimeter buffer as applicable. Per Table 6C-3 of the joint mitigation guidance (WSDOE et al., 2021). Proposed compensatory mitigation for the fill of Category III wetlands will be provided through the expansion of a Category II wetland (Wetland B) onsite. Category II wetlands with moderate habitat functions typically receive a 150-foot buffer for adjacent high land use intensity, 110-foot buffers for adjacent moderate land use intensity, and a 75-foot buffer for adjacent low land use intensity. However, the project will implement additional measures to reduce the required perimeter buffers adjacent to the onsite development from the buffer width required for high intensity to the buffer required for moderate intensity land use. Such measures will include planting a dense screen of native plantings along the development side to provide increased screening, filtration of sediments and pollutants, and slow surface runoff, as well as installing large woody debris for additional habitat suitability and complexity for a wide range of urban fauna. Additionally, the parcel directly east of Wetland B is entirely encumbered by Stream Z and Wetland B. Due to the encumberance of critical areas, it is unlikely this parcel will be developed to moderate or high intensity land uses. Therefore, the mitigation areas associated the creation of additional wetland surrounding Wetland B will receive a 110-foot perimeter buffer adjacent to the development and a 75-foot buffer to the east; this is consistent with the WSDOE perimeter buffer requirements for Category II wetlands based on moderate and low intensity land uses.

2.3.3 Mitigation Bank Use Plan

Joint USACE and EPA rules (USACE & EPA, 2008) and interagency guidance (WSDOE et al., 2006; WSDOE et al., 2021); and Hruby et al., 2009) require more careful mitigation planning efforts utilizing a watershed approach in site selection, establishment of enforceable performance standards, and preference for use of mitigation banks or ILFs wherever most ecologically practicable. The subject property is located in the SHWMB service area (see Appendix B), thus allowing the project to utilize the approved mitigation banking program for compensatory mitigation within the same watershed as project impacts. Offsite and onsite permittee-responsible wetland mitigation has been carefully considered to compensate for the remaining mitigation deficit that cannot be compensated for through onsite wetland enhancement and creation; however, permittee-responsible mitigation is not an ecologically beneficial or a practical option. The use of a mitigation bank will likely provide a higher level of ecological lift than small onsite or offsite, in-kind permittee responsible mitigation especially with the established resources for maintenance and monitoring over a longer term to ensure success of the mitigation actions. Creating and maintaining small areas of wetland are also more difficult due to a higher probability of the area becoming overtaken by non-native invasive plants. Further, many of the areas potentially available for onsite mitigation between the existing wetlands are currently forested and would provide greater function as upland connections between the existing aquatic areas. As such, the use of a mitigation bank is the most preferable option that will provide watershed-level benefits, more than what could be provided onsite.

The overarching mitigation goal of the SHWMB is to protect and enhance salmonid populations using a watershed approach, which will in turn benefit other aquatic species. The purchase of mitigation banking credits will allow the project to achieve no net loss of aquatic resource functions. Wetland functions targeted for use in the SHWMB include improving water quality, flood storage, flow reductions, and habitat for plant and animals on a 260-acre site focusing on wetland restoration, wetland rehabilitation, wetland enhancement adjacent to the Skykomish River and associated side channels.

The SHWMB, administered by Mitigation Banking Services, creates a "comprehensive, equitable, and consistent" program to ensure successful mitigation actions. Oversight of this mitigation banking program is provided by an Interagency Review Team (IRT) that includes representatives from the USACE, WSDOE, tribes, and other federal, state, and local regulatory agencies.

The wetland impacts will result in the purchase of credits outlined in Table 5 below. The credits outlined below will be available for purchase from the SHWMB based on communication with the administrator.

Table 5. Replacement Ratios and Calculation of Bank Credits Required

Feature	Category/ Type[1]	SHWMB Mitigation Ratio[2]	Impact Area	Bank Credits Needed (acre-credits)
Wetlands A, E, and Pond B (direct impacts)	III	1:1	5,995 SF (0.14 acre)[3]	0.14 acres
Wetlands A, E (indirect impacts)	III	0.5:1	11,919 SF (0.27 acre)	0.14 acres
Stream Z/ Wetland G	Riparian Buffer	0.2:1	17,010 SF (0.39 acre)	0.078 acre
		Total	**34,899 (0.80 acre)**	**0.358**

Notes:
1. Current Washington State Department of Ecology (WSDOE) wetland rating system (Hruby, 2014) per MMC 22E.010.060(1).
2. Credit calculation methods are derived from the SHWMB MBI document (Habitat Bank LLC, 2016). Per WSDOE et al. (2021), direct impacts typically get compensated at a 1:1 ratio for Category III wetlands.
3. Impact area based on remaining deficit from onsite mitigation.

Negotiations of terms of the mitigation bank credit purchase will be made with IRT staff with preliminary approvals of the project by the City and the USACE, after formal approval of the Mitigation Plan by all appropriate regulatory agencies. Proof of credit purchase and transfer will be provided via a Statement of Sale from the Applicant. Prior to any impacts to wetlands, the Statement of Sale will be provided to the City and the USACE.

2.4 Approach and Best Management Practices

The restoration plan includes the use of onsite wetland creation, wetland enhancement, and wetland and stream buffer restoration and enhancement to provide increased wetland and stream protection by maintenance or improvement of critical area functions both onsite and in the greater Snohomish River watershed. Mitigation actions should occur immediately after grading is complete. TESC measures will be implemented that consist of high-visibility fencing (HVF) installed around native vegetation along the reduced perimeter of the buffer, silt fencing between the graded areas and

undisturbed buffer, plastic sheeting on stockpiled materials, and seeding of disturbed soils. These TESC measures should be installed prior to the start of development or restoration actions and actively managed for the duration of the project.

All equipment staging and materials stockpiles should be kept outside of critical areas and associated buffers, and the area will need to be kept free of spills and/or hazardous materials. All fill material for site preparation and road surfacing should be sourced from upland areas onsite or from approved suppliers and will need to be free of pollutants and hazardous materials. Construction materials along with all construction waste and debris should be effectively managed and stockpiled on paved surfaces and kept free of the remaining wetland buffer area. Following completion of the development, the entire site should be cleaned and detail graded using hand tools wherever necessary, and TESC measures will need to be removed.

2.5 Goals, Objectives, and Performance Standards

The goals and objectives for the proposed mitigation actions are based on replacing wetland functions lost by the proposed direct impacts to Wetlands A, E, and Pond B through providing additional habitat and protection for the onsite wetlands and stream, and providing supplementary water quality and hydrological functions. The mitigation actions are capable of improving habitat function for the wetlands and stream over time by establishment of a dense native vegetation barrier between the project and the critical areas. The goals and objectives of the mitigation actions are as follows:

Goal 1 – Partially compensate for 16,028 square feet (0.368 acres) of direct Category III wetland impacts by providing a minimum of 16,110 square feet (0.370 acres) of compensatory creation area that provide a moderate level of water quality and habitat functions.

Objective 1.1 – Establish a minimum of 16,110 square feet (0.370 acres) of compensatory wetland creation area adjacent to Wetland B.

Performance Standard 1.1.1 – The wetland creation areas will measure at least 16,110 square feet (0.370 acres) in size as demonstrated by wetland delineations in the final year of the 10-year monitoring period required by the USACE.

Objective 1.2 – Establish wetland hydrology in the creation area by the removal of approximately 12 to 18-inches of material comprised of existing soil/fill to establish depressions/benches that intersect shallow groundwater elevations similar to nearby wetlands.

Performance Standard 1.2.1 – The compensatory wetland creation areas will have seasonally saturated soils (or greater hydroperiod) within 12-inches of the surface over all the wetland creation areas that persists for a minimum of 14 consecutive days during the growing season in years with normal precipitation levels over the monitoring period.

Objective 1.3 – Establish forested and scrub-shrub wetland habitat with diverse horizontal and vertical vegetation structure and species richness to provide habitat for wetland-associated wildlife.

Performance Standard 1.3.1 – In Year 1, survival of installed woody vegetation will be at least 80 percent in the wetland creation areas.

Performance Standard 1.3.2 – Native woody vegetation in the wetland creation areas will provide at least 25 percent total cover by Year 3, at least 30 percent total cover by Year 5, at least 50 percent total cover by Year 7, and 75 percent total cover by Year 10.

Performance Standard 1.3.3 – At least 5 native shrub and/or tree species will be present in the creation areas in all monitoring years.

Objective 1.4 – Effectively control and/or eliminate non-native invasive species from the wetland creation areas.

Performance Standard 1.4.1 – Non-native invasive plants will not make up more than 20 percent total cover in any growing season during all monitoring years. Any state-listed noxious weeds and other non-native invasive species including Himalayan blackberry and reed canarygrass observed at any time during construction, monitoring and maintenance activities within the wetland creation areas will be marked for immediate treatment and/or removal.

Goal 2 – Partially compensate for 16,028 square feet (0.368 acres) of direct Category III wetland impacts by providing a minimum of 8,130 square feet (0.19 acres) of compensatory wetland enhancement to existing degraded portions of a Category II wetland to increase ecological functions and provide greater screening.

Objective 2.1 – Enhance a total of 8,130 square feet of existing emergent wetland area in Wetland B with a suite of native trees and shrubs to create diverse horizontal and vertical vegetation structure and additional wildlife habitat.

Performance Standard 2.1.1 – By the end of Year 5, the wetland enhancement areas will have at least 3 native tree species and 5 native shrubs species; native volunteer species will be included in the count. To be considered, the native species must make up at least 5 percent of the vegetation class.

Performance Standard 2.1.2 - Minimum plant survivorship within the wetland rehabilitation areas will be at 100 percent of installed trees and shrubs at the end of Year 1 (utilization of native recruits and replacement of lost plants allowed), 85 percent at the end of Year 2, and 80 percent at the end of year 3.

Performance Standard 2.1.3 – Minimum native woody species total areal cover within the wetland rehabilitation areas will be at 20 percent total cover at the end of Year 2, 25 percent at the end of Year 3, 30 percent at the end of Year 4, 40 percent at the end of Year 5, 60 percent at the end of Year 7, and 65 percent at the end of Year 10.

Objective 2.2 – Effectively control and/or eliminate non-native invasive species from the buffer restoration/enhancement areas.

Performance Standard 2.2.1 – Non-native invasive plants will not make up more than 20 percent total cover in any growing season during all monitoring years. Any state-listed noxious weeds and other non-native invasive species including Himalayan blackberry and reed canarygrass observed at any time during construction, monitoring and maintenance activities within the wetland creation areas will be marked for immediate treatment and/or removal.

Goal 3 – Provide 190,489 square feet (4.37 acres) of wetland and stream buffer restoration/enhancement to existing degraded buffer areas to increase ecological functions and provide greater screening.

Objective 3.1 – Establish native plant cover and biodiversity within the buffer restoration/enhancement areas to create diverse horizontal and vertical vegetation structure and additional wildlife habitat.

Performance Standard 3.1.1 – Minimum plant survivorship within the buffer restoration/enhancement areas will be 80 percent of installed trees and shrubs at the end of Year 1.

Performance Standard 3.1.2 – Native plant species (including existing vegetation, planted trees/shrubs, and volunteer species) will cover at least 20 percent of the buffer restoration/enhancement areas at the end of Year 2, 30 percent at the end of Year 3, 50 percent by the end of Year 4, 60 percent at the end of Year 5, and 75 percent at the end of Year 10.

Performance Standard 3.1.3 – At least 5 native shrub and/or tree species will be present in the buffer restoration/enhancement areas in all monitoring years, including volunteer species.

Objective 3.2 – Effectively control and/or eliminate non-native invasive species from the buffer restoration/enhancement areas.

Performance Standard 2.2.1 – Non-native invasive plants will not make up more than 20 percent total cover in any growing season during the monitoring period following Year 1. Any state-listed noxious weeds and other non-native invasive species including Himalayan blackberry and reed canarygrass observed at any time during construction, monitoring and maintenance activities within the buffer enhancement areas will be marked for immediate treatment and/or removal.

Goal 3 – Protect stream processes in Stream Z by maintaining habitat connectivity for fish passage through a new bottomless crossing installation.

Objective 3.1 – Ensure an unconfined stream channel exists for fish passage.

Performance Standard 3.1.1 – The new fish-friendly culvert will be present and functioning along the channel of Stream Z.

Performance Standard 3.1.2 – Stream processes, including gravel transport and open unconstructed conveyance, will be readily observed and functional in all monitoring years.

2.6 Plant Materials and Installation

2.6.1 Plant Materials

All plant materials to be used for restoration/enhancement actions will be nursery grown stock from a reputable, local source. Only native species are to be used; no hybrids or cultivars will be allowed. Plant material provided will be typical of their species or variety; if not cuttings they will exhibit normal, densely developed branches and vigorous, fibrous root systems. Plants will be sound, healthy, vigorous plants free from defects, and all forms of disease and infestation.

Container stock shall have been grown in its delivery container for not less than six months but not more than two years. Plants shall not exhibit rootbound conditions. Under no circumstances shall container stock be handled by their trunks, stems, or tops. Seed mixture used for hand or hydroseeding shall contain fresh, clean, and new crop seed mixed by an approved method. The mixture is specified in the plan set.

All plant material shall be inspected by the Project Scientist upon delivery. Plant material not conforming to the specifications below will be rejected and replaced by the planting contractor. Rejected plant materials shall be immediately removed from the site.

Fertilizer will be in the form of Agroform plant tabs or an approved like form. Mulch will consist of sterile wheat straw for seeded areas (if necessary) and clean recycled wood chips approximately ½-inch to 1-inch in size and ½-inch thick for woody plants. The mulch material may be sourced from non-invasive woody materials sourced from the land clearing activities.

2.6.2 Plant Scheduling, Species, Size, and Spacing

Plant installation should occur as close to conclusion of the residential plat construction activities as possible to limit erosion and limit the temporal loss of function provided by the wetlands and buffers. All planting should occur between September 1 and May 1 to ensure plants do not dry out after installation, or temporary irrigation measures may be necessary.

2.6.3 Quality Control for Planting Plan

All plant material shall be inspected by the qualified Project Scientist upon delivery. Plant material not conforming to the specifications above will be rejected and replaced by the planting contractor. Rejected plant materials shall be immediately removed from the site. Under no circumstances shall container stock be handled by their trunks, stems, or tops.

The landscape contractor shall provide the responsible Project Scientist with documentation of plant material that includes the supplying nursery contact information, plant species, plant quantities, and plant sizes.

2.6.4 Product Handling, Delivery, and Storage

All seed and fertilizer should be delivered in original, unopened, and undamaged containers showing weight, analysis, and name of manufacturer. This material should be stored in a manner to prevent wetting and deterioration. All precautions customary in good trade practice shall be taken in preparing

plants for moving. Workmanship that fails to meet industry standards will be rejected. Plants will be packed, transported, and handled with care to ensure protection against injury and from drying out. If plants cannot be planted immediately upon delivery they should be protected with soil, wet peat moss, or in a manner acceptable to the responsible Project Scientist. Plants, fertilizer, and mulch not installed immediately upon delivery shall be secured on the site to prevent theft or tampering. No plant shall be bound with rope or wire in a manner that could damage or break the branches. Plants transported on open vehicles should be secured with a protective covering to prevent windburn.

2.6.5 Preparation and Installation of Plant Materials

The planting contractor shall verify the location of all elements of the restoration plan with the responsible Project Scientist prior to installation. The responsible Project Scientist reserves the right to adjust the locations of landscape elements during the installation period as appropriate. If obstructions are encountered that are not shown on the drawings, planting operations will cease until alternate plant locations have been selected by and/or approved by the Project Scientist.

Circular plant pits with vertical sides will be excavated for all container stock. The pits should be at least 1.5 times the width of the rootball, and the depth of the pit should accommodate the entire root system.

Broken roots should be pruned with a sharp instrument and rootballs should be thoroughly soaked prior to installation. Set plant material upright in the planting pit to proper grade and alignment. Water plants thoroughly midway through backfilling and add Agroform tablets. Water pits again upon completion of backfilling. No filling should occur around trunks or stems. Do not use frozen or muddy mixtures for backfilling. Form a ring of soil around the edge of each planting pit to retain water and install a 4- to 6-inch layer of mulch around the base of each container plant.

2.6.6 Temporary Irrigation Specifications

While the native species selected for enhancement actions are hardy and typically thrive in northwest conditions and the proposed actions are planned in areas with sufficient hydroperiods for the species selected, some individual plants might perish due to dry conditions. Therefore, irrigation or regular watering may be provided as necessary for the duration of the first two growing seasons, two times per week while the native plantings become established. If used, irrigation will be discontinued after two growing seasons. Frequency and amount of irrigation will be dependent upon climatic conditions and may require more or less frequent watering than two times per week.

2.6.7 Invasive Plant Control and Removal

Invasive species onsite to be removed include Himalayan blackberry and any listed noxious weeds or other invasive species that are existing or may colonize the enhancement areas. These species are found nearby; therefore, to ensure these species do not expand following the restoration/enhancement actions, invasive species within the restoration/enhancement areas will be pretreated with a root-killing herbicide approved for use in aquatic sites (e.g., Rodeo) a minimum of two weeks prior to being removed from the wetland buffers. The pre-treatment with herbicide should occur prior to all planned restoration/enhancement actions, and spot treatment of any surviving other invasive vegetation should be performed again each fall prior to leaf senescence for a minimum of five years.

2.7 Maintenance and Monitoring Plan

The conceptual maintenance and monitoring plan is described below in accordance with MMC 22E.010.160. The Applicant is committed to compliance with the wetland buffer restoration plan and overall success of the project. As such, the Applicant will continue to maintain the project, keeping the site free from of non-native invasive vegetation, trash, and yard waste. Depending on the success of the mitigation sites, maintenance frequency may be decreased or increased at the discretion of the responsible Project Scientist.

The wetland creation, wetland enhancement, and buffer enhancement and restoration plan will require continued monitoring and maintenance to ensure the actions are successful. Therefore, the project site will be monitored for a period of 10 years with formal inspections by a qualified Project Scientist. Monitoring events will be scheduled at the time of construction, 30 days after planting, early in the growing season and the end of the growing season for Year 1, twice during Year 2, and annually in Year 3, Year 4, Year 5, Year 7, and Year 10. A closeout assessment will also be conducted in Year 10 to ensure the adequate wetland creation and enhancement areas were established.

Monitoring will consist of percent cover and survival measurements at permanent monitoring stations, walk-through surveys to identify invasive species presence and dead or dying restoration plantings, photographs taken at fixed photo points, wildlife observations, and general qualitative habitat and stream function observations.

To determine percent cover, observed vegetation will be identified and recorded by species and an estimate of areal cover of dominant species within each sampling plots. Circular sample plots, approximately 30-feet in diameter (706-square feet), are centered at each monitoring station. The sample plots encompass the specified wetland buffer areas and terminate at the observed wetland boundary. Trees and shrubs within each 30-foot diameter monitoring plot are then recorded to species and areal cover. Herbaceous vegetation is sampled from a 10-foot diameter (78.5 square feet) within each monitoring plot, established at the same location as the center of each tree and shrub sample plot. Herbaceous vegetation within each monitoring plot is then recorded to species and includes an estimate of percent areal cover. A list of observed tree, shrub, and herbaceous species including percent areal cover of each species and wetland status is included within the monitoring report.

To determine percent survival of installed plants, individual native tree and shrub locations within the relevant circular sampling plots will be marked following plant installation. These installed native trees and shrubs will then be recorded as dead or alive during the years of monitoring.

2.8 Reporting

Following each monitoring event in Years 1-5, and Years 7 and 10, a brief monitoring report detailing the current ecological status of the buffer restoration actions, measurement of performance standards, and management recommendations will be prepared and submitted to the City of Marysville within 90-days of each monitoring event to ensure full compliance with the buffer restoration plan.

2.9 Contingency Plan

If monitoring results indicate that performance standards are not being met, it may be necessary to implement all or part of the contingency plan. Careful attention to maintenance is essential in ensuring that problems do not arise. Should any portions of the buffer restoration area fail to meet the success criteria, a contingency plan will be developed and implemented with City of Marysville approval. Such

plans are adaptive and should be prepared on a case-by-case basis to reflect the failed enhancement characteristics. Contingency plans can include additional plant installation, erosion control, and plant substitutions including type, size, and location. The Contingency measures outlined below can also be utilized in perpetuity to maintain the wetland associated with the proposed project site.

Contingency/maintenance activities may include, but are not limited to:

1. Using plugs instead of seed for emergent vegetation coverage where seeded material does not become well established;
2. Replacing plants lost to vandalism, drought, or disease, as necessary;
3. Replacing any plant species with a 15 percent or greater mortality rate after two growing seasons with the same species or native species of similar form and function;
4. Irrigating the buffer restoration areas only as necessary during dry weather if plants appear to be too dry, with a minimal quantity of water;
5. Reseeding and/or repair of wetland areas as necessary if erosion or sedimentation occurs;
6. Spot treat non-native invasive plant species with approved aquatic herbicide; and
7. Removing all trash or undesirable debris from the buffer areas as necessary.

2.10 Conservation Easement

Long-term protection of the restoration site shall be provided by placement in a separate tract in which development is prohibited or by execution of an easement dedicated to the City of Marysville, a conservation organization, land trust, or similarly preserved through a permanent protective mechanism acceptable to the city. The location and limitations associated with the restoration area shall be shown on the face of the deed or plat applicable to the property and shall be recorded with the Snohomish County recording department.

2.11 Financial Assurances

Under MMC 22E.010.140(2)(e), performance security is required to assure that all actions approved under this mitigation plan are satisfactorily completed in accordance with the mitigation plan, performance standards, and regulatory conditions of approval. The Applicant will provide a performance bond (prior to the issuance of any building permits) and monitoring and maintenance bond in an amount equal to 150-percent of the total estimated fair market cost of labor, materials, and irrigation, as applicable per MMC 22E.010.160(2). The bond quantity worksheet will be provided under the Final Mitigation Plan.

CHAPTER 3. CLOSURE

The findings and conclusions documented in this assessment report have been prepared for specific application to this project. These findings and conclusions have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. The conclusions and recommendations presented in this assessment report are professional opinions based on an interpretation of information currently available to us and are made within the operation scope, budget, and schedule of this project. No warranty, expressed or implied, is made. In addition, changes in government codes, regulations, or laws may occur. Due to such changes, our observations and conclusions applicable to this assessment may need to be revised wholly or in part in the future.

CHAPTER 4. REFERENCES

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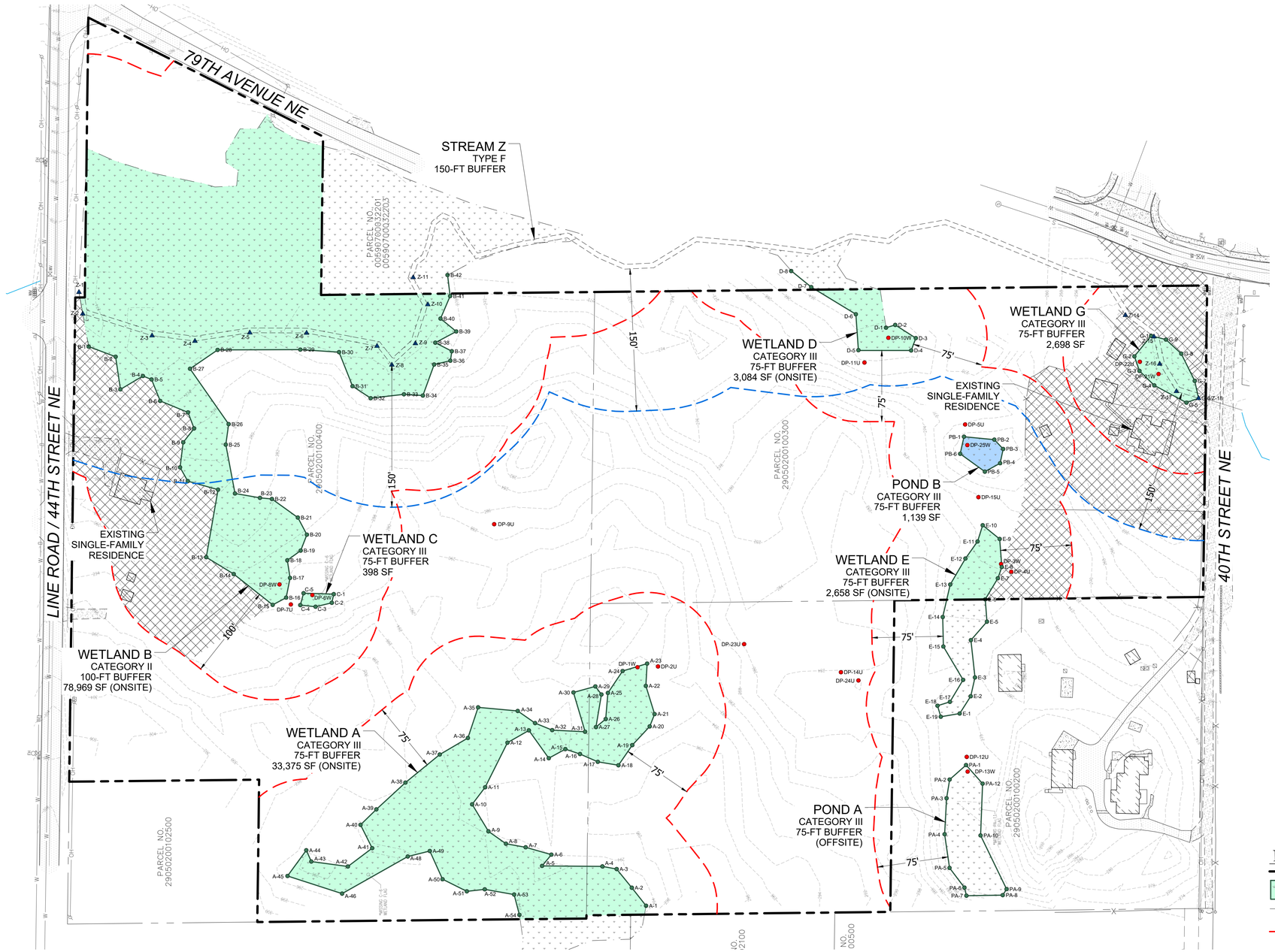
Appendix A — Existing Conditions and Site Plan Exhibits



0 60 120 240

GRAPHIC SCALE
1"= 60'

VICINITY MAP

SOURCE: ESRI (ACCESSED 1/23/2023)

LOCATION

THE NE ¼ OF SECTION 02,

TOWNSHIP 29N, RANGE 05E, WM

APPLICANT/OWNER

NAME: HORIZON VIEW HOLDINGS, INC.
ADDRESS: 6443 NE 181ST ST
KENMORE, WA 98028
CONTACT: DANIEL WICK
PHONE: (206) 551-0499
E-MAIL: HORIZONVIEWHOMES@GMAIL.COM

ENVIRONMENTAL CONSULTANT

SOUNDVIEW CONSULTANTS LLC
2907 HARBORVIEW DRIVE
GIG HARBOR, WA 98355
(253) 514-8952

SHEET INDEX

PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND BOUNDARY
- APPROXIMATED WETLAND BOUNDARY (NOT SURVEYED)
- WETLAND BUFFER
- W-# WETLAND FLAG LOCATION
- DP-# DATA PLOT LOCATION
- STREAM ORDINARY HIGH WATER LINE (OHW)
- STREAM BUFFER
- O-# STREAM OHW (ORDINARY HIGH WATER) FLAG LOCATION
- EXISTING CONTOUR
- EXISTING NON-CONFORMING RESIDENTIAL USES WITHIN BUFFERS

SOURCE: LDC | Surveying Engineering Planning
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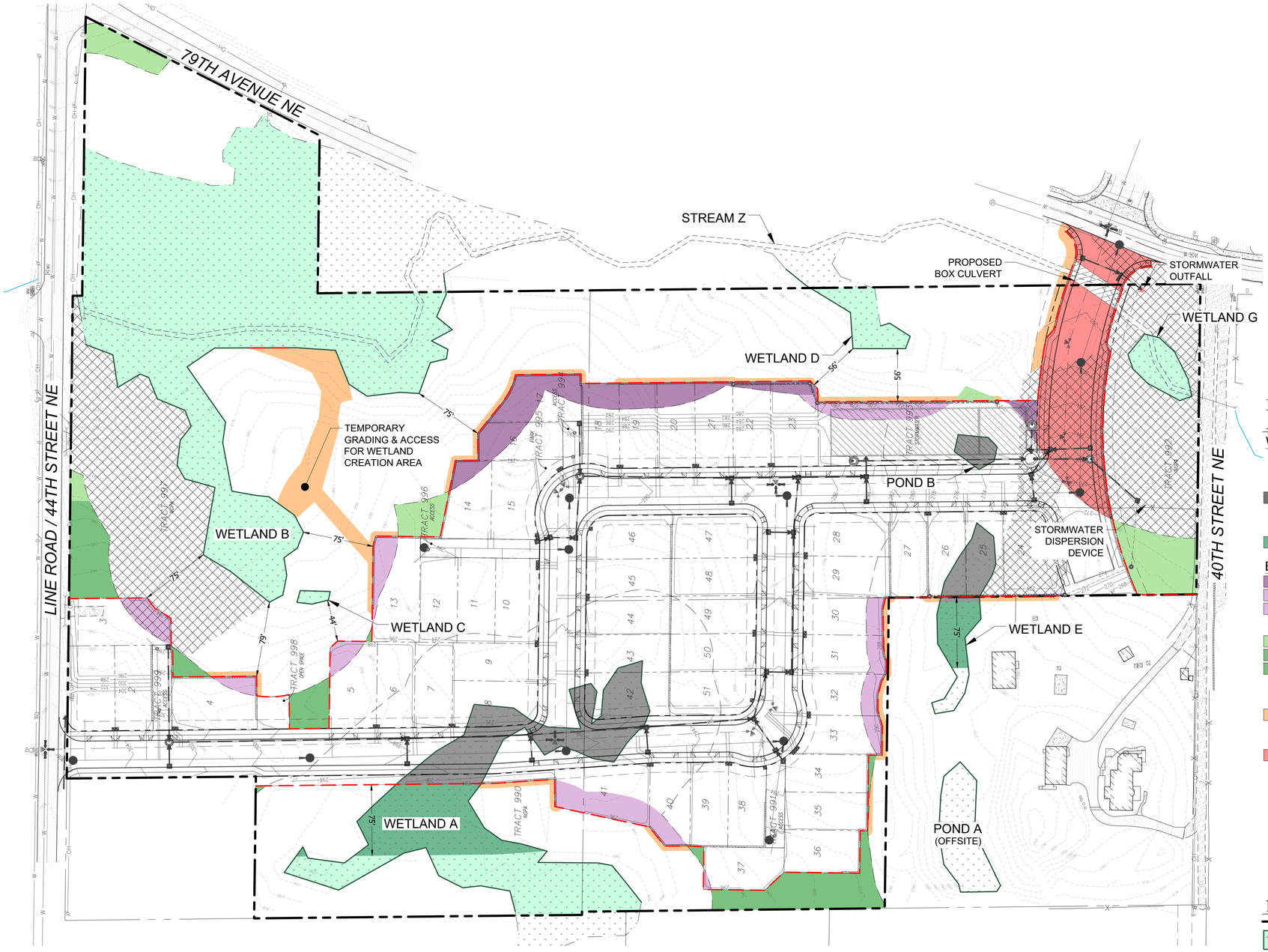
40TH STREET NE
7811 & 7715 40TH ST NE;
7808 44TH ST NE
MARYSVILLE, WA 98270

SNOHOMISH COUNTY PARCEL NUMBERS:
29050200100200, 29050200100300,
& 29050200100400

DATE: 2/16/2023
JOB: 2422.0001
BY: MW
SCALE: AS SHOWN
SHEET: 1

PROPOSED SITE PLAN, IMPACTS & MITIGATION



0 60 120 240

GRAPHIC SCALE
1"= 60'

IMPACTS & BUFFER AVERAGING LEGEND

WETLAND IMPACTS

WETLAND A FILL	12,024 SF
WETLAND E FILL	2,865 SF
POND B FILL	1,139 SF
TOTAL WETLAND FILL:	16,028 SF
WETLAND A INDIRECT IMPACTS	9,360 SF
WETLAND E INDIRECT IMPACTS	2,559 SF
TOTAL INDIRECT WETLAND IMPACTS:	11,919 SF

BUFFER AVERAGING & IMPACTS

STREAM BUFFER DECREASE	10,088 SF
EAST WETLAND BUFFER DECREASE	6,590 SF
WEST WETLAND BUFFER DECREASE	6,411 SF
TOTAL BUFFER DECREASE:	23,089 SF
STREAM BUFFER INCREASE	10,088 SF
EAST WETLAND BUFFER INCREASE	6,605 SF
WEST WETLAND BUFFER INCREASE	6,555 SF
TOTAL BUFFER DECREASE:	23,248 SF
NET BUFFER GAIN:	159 SF
TEMPORARY BUFFER IMPACTS (FOR WALLS, UTILITIES, AND REMOVAL OF NON-CONFORMING USES WITHIN BUFFERS)	15,129 SF
PERMANENT BUFFER IMPACTS (FOR STORMWATER OUTFALL & ROAD CROSSING)	17,010 SF

PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND BOUNDARY
- APPROXIMATED WETLAND BOUNDARY (NOT SURVEYED)
- STREAM ORDINARY HIGH WATER LINE (OHW)
- PREEXISTING BUFFER BOUNDARY
- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING NON-CONFORMING RESIDENTIAL USES WITHIN BUFFERS

SOURCE: LDC

LDC | Surveying Engineering Planning
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& 29050200100400

DATE: 2/16/2023
JOB: 2422.0001
BY: MW
SCALE: AS SHOWN
SHEET: 2

S:\CURRENT\2422 Horizon View Holdings, Inc\2422.0001 40th Street Northeast\Graphics & Maps\CAD\A - CURRENT SVC PROPOSAL v. Current Base DWGs\2422.0001 (2023-02) base.dwg
Plotted: March 07, 2023

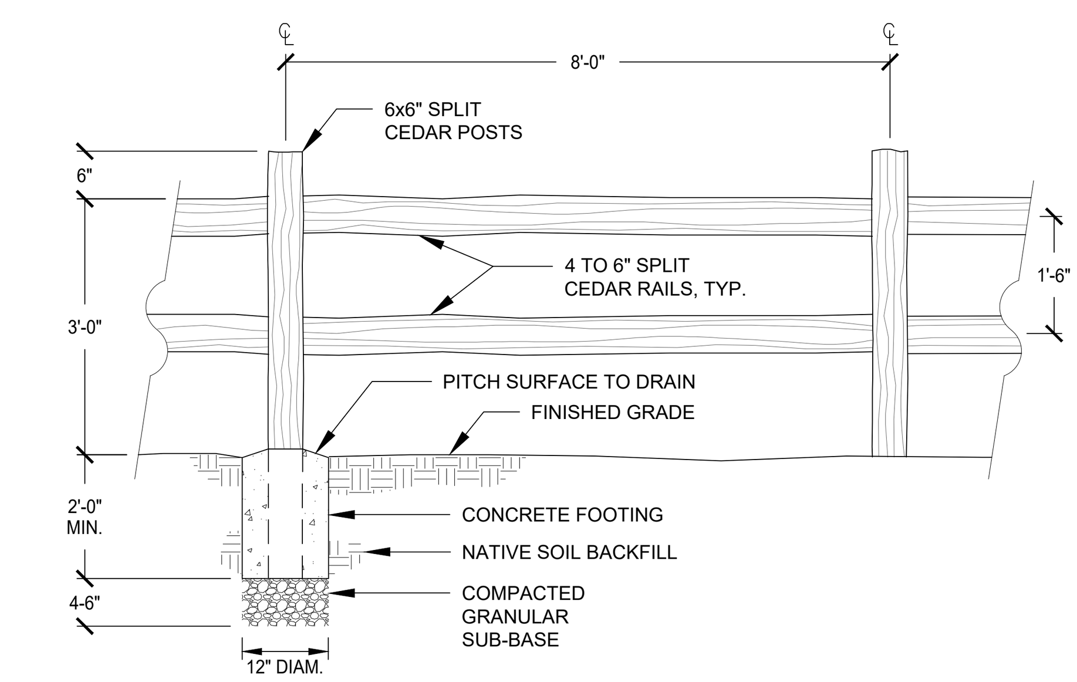
GRAPHIC SCALE

0 60 120 240

1" = 60'

SPLIT RAIL FENCE DETAIL

NOT TO SCALE

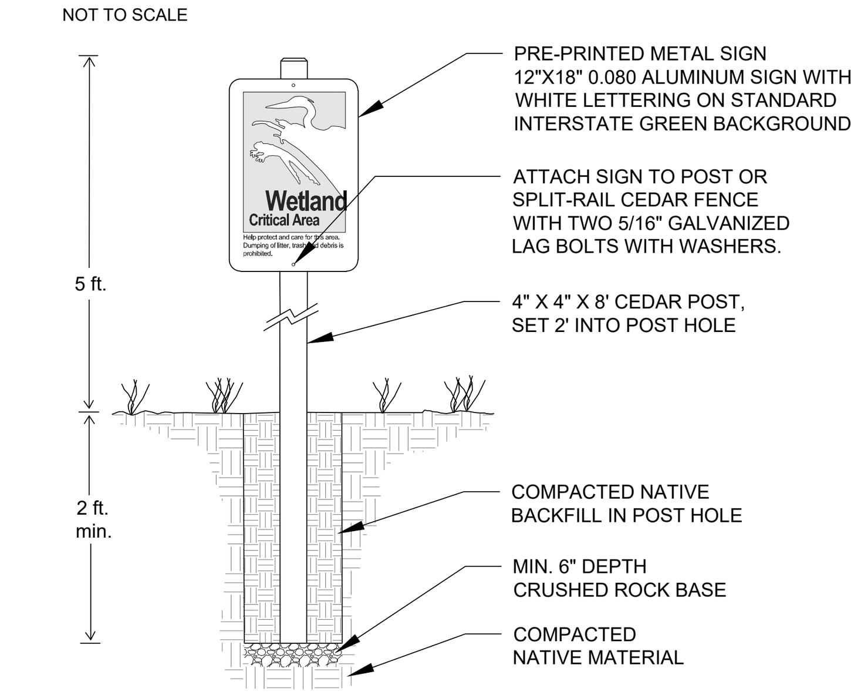


NOTES:

1. POSTS AND RAILINGS PRE-CUT FOR ASSEMBLY.
2. 3-RAIL DESIGNS ARE PERMITTED.
3. FENCE SHALL BE PLACED AT APPROVED BUFFER EDGE.

CRITICAL AREA SIGN DETAIL

NOT TO SCALE



CRITICAL AREA BOUNDARY SIGN NOTES:

1. TWO-RAIL FENCING SHALL BE CONSTRUCTED WITH PRESSURE TREATED POSTS AND RAILS AND CEMENTED INTO THE GROUND WITH EITHER CEDAR OR TREATED RAILS. ALTERNATIVE MATERIALS MAY BE USED SUBJECT TO APPROVAL BY THE CITY.
2. SIGNS DESIGNATING THE PRESENCE OF AN ENVIRONMENTALLY SENSITIVE AREA SHALL BE POSTED ALONG THE BUFFER BOUNDARY. THE SIGNS SHALL BE POSTED AT A MINIMUM RATE OF ONE EVERY 100 LINEAL FEET.
3. PRE-PRINTED METAL SIGN AVAILABLE THROUGH: ZUMAR INDUSTRIES PHONE: 1-800-426-7967, WEBSITE: WWW.ZUMAR.COM

PLANTING LEGEND

COMPENSATORY WETLAND ENHANCEMENT	8,130 SF
NON-COMPENSATORY WETLAND ENHANCEMENT	9,607 SF
WETLAND CREATION (1:1 REPLACEMENT FOR 16,028 SF OF WETLAND IMPACTS)	16,110 SF
BUFFER ENHANCEMENT (INCLUDES 12,084 SF OF BUFFER CREATION)	116,233 SF
BUFFER RESTORATION (INCLUDES 47,757 SF OF NON-CONFORMING RESIDENTIAL USES, 11,164 SF OF BUFFER CREATION, & 218 SF OF WETLAND FILL CONVERTED TO BUFFER)	74,256 SF
WETLAND CREATION BOUNDARY	
POST CONSTRUCTION BUFFER / CRITICAL AREA FENCE	3,363 LF
CRITICAL AREA SIGN	49 SIGNS

PLAN LEGEND

- PROPERTY LINE
- RETAINED WETLAND BOUNDARY
- APPROXIMATED WETLAND BOUNDARY (NOT SURVEYED)
- STREAM ORDINARY HIGH WATER LINE (OHW)
- EXISTING CONTOUR

SOURCE: LDC | Surveying Engineering Planning

Woodinville 20210 142nd Avenue NE Woodinville, WA 98072 — Kent 1851 Central Pl S, #101 Kent, WA 98030

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& 29050200100400

DATE:	2/16/2023
JOB:	2422.0001
BY:	MW
SCALE:	AS SHOWN
SHEET:	3

PLANT SCHEDULE

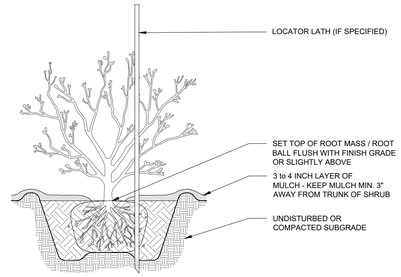
			Area (sf):	116,233	74,256	17,737	16,110	224,336				
			Cov'g (%):	50	100	50	100					
			Trees (%):	25	50	25	75					
			Shrubs (%):	75	50	75	25					
Scientific Name	Common Name	WL Status	Buffer Enhancement	Buffer Restoration	Wetland Enhancement	Wetland Creation	TOTAL	Spacing (min.)	Height (min.)	Size (min.)	Planting Area
TREES			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)				
Acer macrophyllum	bigleaf maple	FACU	26	65	0	0	**91**	**10 ft**	**3 ft**	**2 gal**	**Dry**
Frangula purshiana (Rhamnus p.)	cascara	FAC	4	9	0	0	**13**	**10 ft**	**3 ft**	**1 gal**	**Dry**
Prunus emarginata	bitter cherry	FACU	6	13	0	0	**19**	**10 ft**	**3 ft**	**2 gal**	**Dry**
Pseudotsuga menziesii	Douglas fir	FACU	68	172	0	0	**240**	**10 ft**	**3 ft**	**2 gal**	**Dry**
Salix lasiandra	Pacific willow	FACW	0	0	7	35	**42**	**10 ft**	**4 ft**	**Stakes**	**Wet**
Salix scouleriana	Scouler's willow	FAC	0	0	13	70	**83**	**5 ft**	**4 ft**	**Stakes**	**Dry**
Salix sitchensis	Sitka willow	FACW	0	0	7	35	**42**	**5 ft**	**4 ft**	**Stakes**	**Moist/Wet**
Thuja plicata	western redcedar	FAC	42	108	0	0	**150**	**10 ft**	**3 ft**	**2 gal**	**Moist - on hummock**
Tsuga heterophylla	western hemlock	FACU	26	65	0	0	**91**	**10 ft**	**3 ft**	**2 gal**	**Moist - on hummock**
		Total:	**172**	**432**	**27**	**140**	**771**				
SHRUBS			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)				
Acer circinatum	vine maple	FAC	162	138	0	0	**300**	**10 ft**	**4 ft**	**2 gal**	**Dry/Moist**
Cornus stolonifera	red-osier dogwood	FACW	101	86	62	38	**287**	**4 ft**	**3 ft**	**1 gal**	**Moist/Wet**
Corylus cornuta var. californica	western hazlenut	FACU	162	138	0	0	**300**	**10 ft**	**2 ft**	**2 gal**	**Moist**
Crataegus douglasii	Douglas hawthorn	FAC	0	0	16	10	**26**	**5 ft**	**3 ft**	**2 gal**	**Moist**
Gaultheria shallon	salal	FACU	403	343	0	0	**746**	**4 - 5 ft**	**1 ft**	**1 gal**	**Dry**
Mahonia nervosa	low Oregon grape	FACU	61	52	0	0	**113**	**4 - 5 ft**	**1 ft**	**1 gal**	**Dry/Moist**
Oemleria cerasiformis	Indian plum	FACU	202	172	0	0	**374**	**5 ft**	**2 ft**	**2 gal**	**Dry**
Ribes divaricatum	wax currant	FAC	0	0	31	19	**50**	**4 ft**	**2 ft**	**1 gal**	**Moist/Wet**
Rosa nutkana	Nootka rose	FAC	61	52	0	0	**113**	**4 ft**	**2 ft**	**1 gal**	**Dry**
Rubus parviflorus	thimbleberry	FACU	0	0	0	0	**0**	**4 ft**	**2 ft**	**1 gal**	**Moist**
Rubus spectabilis var. spectabilis	salmonberry	FAC	202	172	200	121	**695**	**4 ft**	**2 ft**	**1 gal**	**Moist**
Sambucus racemosa var. racemosa	red elderberry	FACU	162	138	0	0	**300**	**5 ft**	**2 ft**	**2 gal**	**Dry**
Symphoricarpos albus var. laevigatus	common snowberry	FACU	101	86	0	0	**187**	**4 ft**	**2 ft**	**1 gal**	**Dry**
		Total:	**1617**	**1377**	**309**	**188**	**3491**				
FERNS, LICHENS, & MOSSES			(Qty)	(Qty)	(Qty)	(Qty)	(Qty)				
Polystichum munitum	western swordfern	FACU	412	341	65	117	**935**	**4 - 5 ft**	**1 ft**	**1 gal**	**Dry/Moist**
		Total:	**412**	**341**	**65**	**117**	**935**				

SEED MIXES (www.riverrefugeseed.com)		WL Status	Buffer Enhancement	Buffer Restoration	Wetland Enhancement	Wetland Creation	TOTAL
Native Upland Grass Mix #9	**20 lbs/acre**						
Elymus glaucus	Blue wildrye	30%					
Bromus carinatus	California brome	25%					
Hordeum brachyantherum	Meadow barley	10%					
Festuca roemeri	Roemer's fescue	10%					
Deschampsia elongata	Slender hairgrass	10%					
Agrostis exarata	Spike bentgrass	5%					
Deschampsia cespitosa	Tufted hairgrass	5%					
Festuca rubra var. rubra	Red fescue	5%					
		Total (lbs):	**0**	**35**	**0**	**0**	**35**
Moist Soil Sedge & Rush Mix #11	**20 lbs/acre**						
Carex unilateralis	One-sided sedge	70%					
Carex densa	Dense sedge	12%					
Juncus effusus	Common rush	5%					
Juncus tenuis	Slender rush	5%					
Juncus bufonius	Toad rush	5%					
Carex stipata	Awl fruited sedge	2%					
Carex obnupta	Slough sedge	1%					
		Total (lbs):	**0**	**0**	**0**	**8**	**8**

1 - Scientific names and species identification taken from *Flora of the Pacific Northwest, 2nd Edition (Hitchcock and Cronquist, Ed. by Giblin, Ledger, Zika, and Olmstead, 2018).*
2 - Over-sized container plants are suitable for replacement pending Wetland Scientist approval.
3 - Alternate native plant species may be substituted or added with Wetland Scientist approval.
4 - All disturbed and bare soil areas in the buffer to be seeded with a native grass seed mix.
5 - Shrub calculations based upon 5-ft average spacing.
6 - Tree calculations based upon 10-ft average spacing.
7 - Gaultheria shallon, Mahonia nervosa, & Polystichum munitum to be planted in groups of 3-5 around the bases of trees and in areas of sparse vegetation.

TREE AND SHRUB PLANTING DETAIL (TYPICAL)

NOT TO SCALE



NOTES:
1. PLANT SHRUBS OF THE SAME SPECIES IN GROUPS OF 3 to 9 AS APPROPRIATE, OR AS SHOWN ON PLAN. AVOID INSTALLING PLANTS IN STRAIGHT LINES TO ACHIEVE A NATURAL-LOOKING LAYOUT.
2. EXCAVATE PIT TO FULL DEPTH OF ROOT MASS AND 2 X ROOT MASS DIAMETER. SPREAD ROOTS TO FULL WIDTH OF CANOPY. SCARIFY SIDES OF PIT.
3. MIDWAY THROUGH PLANTING ADD AGROFORM TABLET AND WATER THOROUGHLY.
4. BACKFILL TO BE COMPACTED USING WATER ONLY.
5. WATER IMMEDIATELY AFTER INSTALLATION.

LIVE STAKE PLANTING DETAIL (TYPICAL)

NOT TO SCALE

STORAGE OF LIVE STAKES:
ALL WOODY PLANT CUTTINGS COLLECTED MORE THAN 12 HR PRIOR TO INSTALLATION, MUST BE CAREFULLY BOUND, SECURED, AND STORED OUT OF DIRECT SUNLIGHT AND SUBMERGED IN CLEAN FRESH WATER FOR A PERIOD OF UP TO TWO WEEKS.

OUTDOOR TEMPERATURES MUST BE LESS THAN 50 DEGREES F AND TEMPERATURE INDOORS AND IN STORAGE CONTAINERS MUST BE BETWEEN 34 AND 50 DEGREES F.

IF THE LIVE STAKES CANNOT BE INSTALLED DURING THE DORMANT SEASON, CUT DURING THE DORMANT SEASON AND HOLD IN COLD STORAGE AT TEMPERATURES BETWEEN 33 AND 39 DEGREES F FOR UP TO 2 MONTHS.

NOTES:
1. LIVE STAKES TO BE A MIN. 1/2 INCH DIAMETER; MIN. 48 INCH LENGTH.
2. USE 1/2 INCH MIN. DIAMETER REBAR OR ROCK BAR TO MAKE PILOT HOLE WHEN PLANTING IN DENSE OR GRAVELY SOILS TO A MIN. DEPTH OF 18 INCHES.
3. MANUALLY INSERT LIVE STAKE INTO PILOT HOLE TAPERED END UP AND TEMP SOIL AROUND BASE. CUTTINGS SHOULD BE INSERTED TO A DEPTH OF AT LEAST 18 INCHES. LEAVE A MIN. OF 30" OF THE CUTTING ABOVE GROUND SURFACE TO ALLOW FOR SUCCESSFUL FOLIAGE DEVELOPMENT.
4. MINUMUM TWO BUDS ABOVE GRADE.
5. SET LIVE STAKES WITH DEAD-BLOW HAMMER.
6. WATER IMMEDIATELY AFTER INSTALLATION.

SOURCE: LDC | Surveying Engineering Planning
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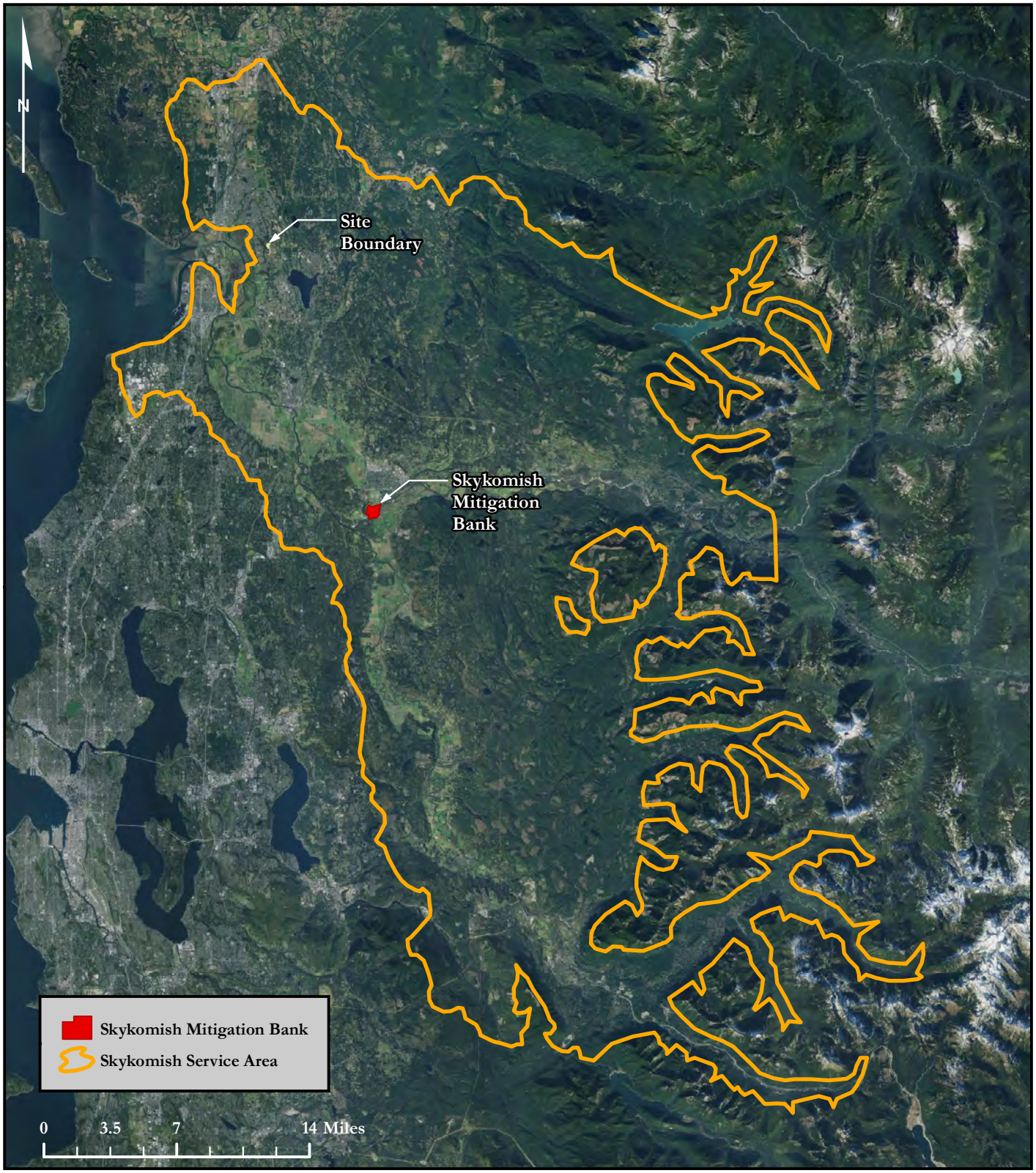
40TH STREET NE
7811 & 7715 40TH ST NE;
7808 44TH ST NE
MARYSVILLE, WA 98270
SNOHOMISH COUNTY PARCEL NUMBERS:
29052001002000, 29052001003000,
& 29052001004000

DATE: 2/16/2023
JOB: 2422.0001
BY: MW
SCALE: AS SHOWN
SHEET: 4

Appendix B — Mitigation Bank Service Area Exhibit

BANK USE EXHIBIT



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40TH STREET NORTHEAST

7808, 7811, 7715, & 7627 40TH ST NE
MARYSVILLE, WA 98270

SNOHOMISH COUNTY PARCEL NUMBERS:
29050200100500, 29050200100200, 29050200100300, & 29050200100400

DATE:	3/2/2023
JOB:	2422.0001
BY:	DDS
SCALE:	1 " = 7 mi
FIGURE NO.	1

Appendix C — Qualifications

All assessments and supporting documentation, including this ***Conceptual Mitigation Plan*** prepared for the ***Creekside*** site were prepared by, or under the direction of, Jon Picket and Lauren Templeton of SVC. In addition, report preparation was completed by Kramer Canup and additional project oversight and final quality assurance / quality control was completed by Rachael Hyland.

Jon Pickett

Associate Principal
Professional Experience: 10+ years

Jon Pickett is an Associate Principal and Senior Scientist with a diverse background in environmental and shoreline compliance and permitting, wetland and stream ecology, fish and wildlife biology, mitigation compliance and design, and environmental planning and land use due diligence. Jon oversees a wide range of large-scale industrial, commercial, and multi-family residential projects throughout Western Washington, providing environmental permitting and regulatory compliance assistance for land use entitlement projects from feasibility through mitigation compliance. Jon performs wetland, stream, and shoreline delineations and fish & wildlife habitat assessments; conducts code and regulation analysis and review; prepares reports and permit applications and documents; provides environmental compliance recommendation; and provides restoration and mitigation design.

Jon earned a Bachelor of Science degree in Natural Resource Sciences from Washington State University and Bachelor of Science and Minor in Forestry from Washington State University. Jon has received 40-hour wetland delineation training (Western Mountains, Valleys, & Coast and Arid West Regional Supplements) and regularly performs wetland, stream, and shoreline delineations. Jon is a Whatcom County Qualified Wetland Specialist and Wildlife Biologist and is a Pierce County Qualified Wetland Specialist. He has been formally trained by WSDOE in the use of the Washington State Wetland Rating System 2014, How to Determine the Ordinary High-Water Mark (Freshwater and Marine), Using Field Indicators for Hydric Soils, and the Using the Credit-Debit Method for Estimating Mitigation Needs.

Lauren Templeton

Environmental Scientist
Professional Experience: 4 years

Lauren Templeton is an Environmental Scientist with three plus years of experience in conducting wetland delineations, biological surveys, and in-situ water quality monitoring. Lauren has a background in wetland and biological assessments in various states, most notably Washington, Montana, Oregon, and New Mexico. Her project experience includes residential land use and developments, transportation, and water resources projects, working for federal, state, tribal, and private agencies. Lauren has experience developing various environmental documentation including environmental assessments, biological evaluations, mitigation reports, and permit applications at the federal, state and tribal levels. Additionally, Lauren has experience utilizing desktop and remote GIS software and equipment to collect and process data, perform data analysis, and develop delineation exhibits. Lauren currently performs wetland delineations, conducts environmental code analysis, and prepares various environmental compliance documentation including fish and wildlife habitat assessments, biological evaluations, and permit applications.

Lauren graduated from Western Washington University with a Bachelor of Arts in Environmental Science and Policy where she gained hands-on experience associated with water quality, statistical analysis, CERCLA projects, and ecological biomonitoring. Lauren has completed Basic Wetland Delineator Training with the Wetland Training Institute and received 40-hour USACE wetland delineation training. Lauren has been formally trained through the Washington State Department of Ecology, Coastal Training Program, How to Determine the Ordinary High-Water Mark and Using the Washington State Wetland Rating System. Additionally, Lauren has been trained through the Shipley Group on the National Environmental Policy Act, Endangered Species Act, National Historic Preservation Act, and Administrative Record.

Rachael Hyland, PWS, Certified Ecologist

Senior Environmental Scientist
Professional Experience: 9 years

Rachael Hyland is a Senior Environmental Scientist with extensive wetland and stream delineation and regulatory coordination experience. Rachael has a background in wetland and ecological habitat assessments in various states, most notably Washington, Connecticut, Massachusetts, Rhode Island, and Ohio. She has experience in assessing wetland, stream, riparian, and tidal systems, as well as complicated agricultural and disturbed sites. She currently performs wetland, stream, and shoreline delineations and fish and wildlife habitat assessments; conducts environmental code analysis; and prepares environmental assessment and mitigation reports, biological evaluations, and permit applications to support clients through the regulatory and planning process for various land use projects. She also has extensive knowledge of bats and their associated habitats and white nose syndrome (*Pseudogymnoascus destructans*), a fungal disease affecting bats which was recently documented in Washington.

Rachael earned a Bachelor of Science degree in Ecology and Evolutionary Biology from the University of Connecticut, with additional ecology studies at the graduate level. Rachael is a Professional Wetland Scientist (PWS #3480) through the Society of Wetland Scientists as well as a Certified Ecologist through the Ecological Society of America. She has completed 40-hour wetland delineation training for Western Mountains, Valleys, & Coast and Arid West Regional Supplement, in addition to formal training for the Northcentral and Northeast supplement, and experience with the Midwest, Eastern Mountains and Piedmont, and Atlantic and Gulf Coast supplements. She has also received formal training from the Washington State Department of Ecology in the Using the Revised 2014 Wetland Rating System for Western Washington, How to Determine the Ordinary High Water Mark, Navigating SEPA, Selecting Wetland Mitigation Sites Using a Watershed Approach, and Wetland Classification. Rachael has also received training from the Washington State Department of Transportation in Biological Assessment Preparation for Transportation Projects and is listed by WSDOT as a junior author for preparing Biological Assessments.

Kramer Canup

Staff Scientist II
Professional Experience: 6 years

Kramer Canup is a Staff Scientist II with a professional background in project management, habitat restoration, vegetation monitoring, invasive plant management, monitoring protocol development,

grant writing, tropical ecology, wildlife monitoring and environmental education. Kramer brings years of experience coordinating logistics for a variety of habitat restoration projects, vegetation monitoring programs, along with study abroad and backpacking courses. Previously, Kramer has managed riparian and upland habitat restoration projects, managed vegetation monitoring programs, and he has taught study abroad courses in the Peruvian Amazon and Andes for the University of Washington. Beyond Kramer's project management and coordination skills, he brings over 10 years of experience performing ecological field work such as vegetation monitoring, plant installation and invasive plant control.

Kramer currently prepares reports, prepares permits, and completes wetland and ordinary high water delineations and wildlife assessments.