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Wetland Buffer Mitigation Plan
Regional Treatment Facility North
PFN 22-102230 CUP

This memo was prepared in order to present the mitigation for the impacts to wetland buffers which will occur for the construction of the Regional Treatment Facility North necessary for compliance with the Snohomish County Code (SCC).

Project Location

The project area is located at 29901 and 29919 80th Avenue Northwest north of the City of Stanwood in Snohomish County, Washington; within the legal geographic area of Township 32 N; Range 4E; Section 18. See Figure 1.

Wetland Functions

The wetlands onsite were categorized in accordance with the Washington State Wetland Rating System for Western Washington functions (Hruby 2014, Soundview Consultants 2022). The wetlands which will have permanent buffer impacts are moderately functioning Category III palustrine emergent wetlands. These wetlands are dominated by grasses which are typical of those in grazed including colonial bentgrass and tall fescue. Invasive species cover is low within the wetlands. They have a low to medium scores for functions due to the grazed vegetation, lack of water storage, surrounding development, and lack of habitat diversity.

Wetland Buffers

The SCC 30.62A.320(1)(a) defines standards wetland buffer widths based on overall wetland category as well as land use and habitat scores. The surrounding area does not qualify for the lower widths assigned to low intensity land use and mitigation measures for high intensity land uses will be implemented to allow use of the standard buffer widths. This will include measures such as preventing untreated runoff from parking lots and development from entering the wetland, directing lighting away from the wetland, and locating noise generating activities away from the wetland as much as feasible.

Wetland A is classified as a Category III wetland with a moderate habitat score which has a standard buffer width of 110 feet. Wetland B is a Category III wetland with a low habitat score which has a standard buffer width of 60 feet. A 25 percent reduction in the standard buffer width is allowed due to the installation of a permanent fence along the wetland buffer and the placement of the wetland into a separate tract/easement or other protected open space per SCC 30.62A.320(1)(f). Both of these minimization measures will occur for Wetland B. Wetland A will not be placed in an easement, but a fence shall be installed. This would allow for a 15 percent reduction in the buffer width for Wetland A.

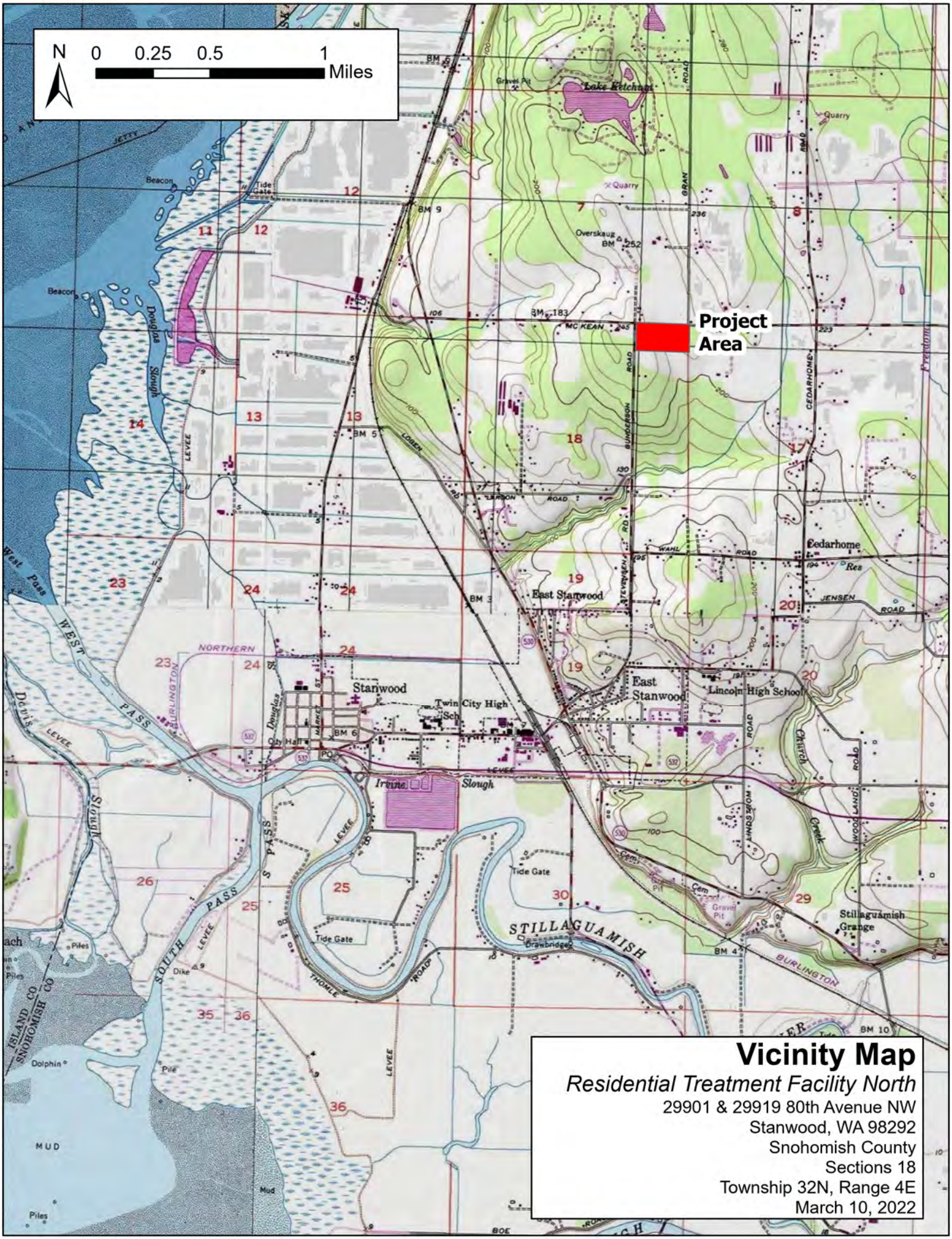
In addition to the reductions, averaging of buffer width surrounding the wetlands, by reducing the width of a portion of the buffer and increasing the width of another portion of the same buffer, is allowed. No portion of the buffer may be less than 50 percent of the standard required width and the total buffer area on the property must be equal to the area required if averaging had not occurred. An area of 13,200 square feet on the east boundary of Wetlands A and B will be reduced and replaced with additional designated buffer on the west side of Wetland B. This area is currently grazed pasture equivalent to the area being averaged. This area will be fenced from access by horses following the project completion. No additional planting is proposed.

Avoidance and Minimization Measures

In order to minimize adverse impacts to wetlands and buffers, standard erosion control techniques will be used during construction and vegetation removal will be kept to a minimum. An existing concrete culvert under the access road between Wetland A and B will be replaced in the same location in order to maintain the water flow through the wetland. No impacts will occur to the wetland.

Several site layouts have been considered during the development of this project which would have significant wetland impacts. In order to reduce impacts, the southern building has been skewed from the east to west orientation to better fit the upland area, the footprint of the buildings and stormwater facilities have been reduced, and the water storage facilities are placed in the narrower available area near the southern property line. This allows the buildings and parking facilities to fully utilize the northern areas and fill the available site more effectively. The proposed site plan avoids all wetland impacts and reduces the buffer impacts by up to 75% from previous site plans.

Impacts to the buffers to Wetland A and B were unavoidable and will be mitigated in accordance with Snohomish County requirements. Fencing will be placed along the wetland buffer adjacent to the development to discourage access.



Vicinity Map

Residential Treatment Facility North

29901 & 29919 80th Avenue NW
Stanwood, WA 98292
Snohomish County
Sections 18
Township 32N, Range 4E
March 10, 2022

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Unavoidable Wetland Buffer Impact Acreage

Permanent Impacts

Wetland buffers will be impacted in order to construct the necessary parking, fill slopes, and building facilities. Impacts to areas within the existing access road between Wetland A and B provide limited function due to ongoing maintenance and division from the wetlands by fencing. However, the herbaceous vegetation will be removed to place gravel on the roadway and install a conveyance pipe to the septic field west of Wetland B.

Wetland buffer impacts required are summarized below in Table 1. Impacts quantities due to the access road improvements are assigned to Wetland B. See Figure 2 for the location of all wetland buffer impacts.

Table 1. Summary of Wetland Categories, Size, and Permanent Buffer Impacts

Wetland Name	HGM Classification	Ecology Category	Wetland Area (sq. ft.)	Wetland Buffer Width	Total Permanent Buffer Impacts (sq. ft.)
A	Depressional	III	297,146	110 feet	1,125
B	Depressional	III	94,420	60 feet	5,925
		Total	**391,566**		**7,050**

Temporary Impacts

A total of 2,400 square feet of temporary buffer impacts will be necessary. Temporary impacts will occur within the wetland buffer for the installation of a stormwater dispersion facility which is allowed in the buffer per SCC 30.62A.320(2)(b). A grass lined swale consistent with the Snohomish County standard will be installed along with conveyance lines. A total area of 2,160 square feet will be disturbed during installation.

The remaining 240 square feet of buffer impacts will be necessary for conveyance lines to the septic drain field. These impacts are within the buffer outside the permanent site grading to go around the southern building footprint. This location will minimize impacts by routing conveyance to the access road and avoiding any wetland impacts.

All temporarily impacted areas will be restored to the herbaceous vegetation equivalent to the existing conditions following construction. No additional migration is proposed for temporary impacts.

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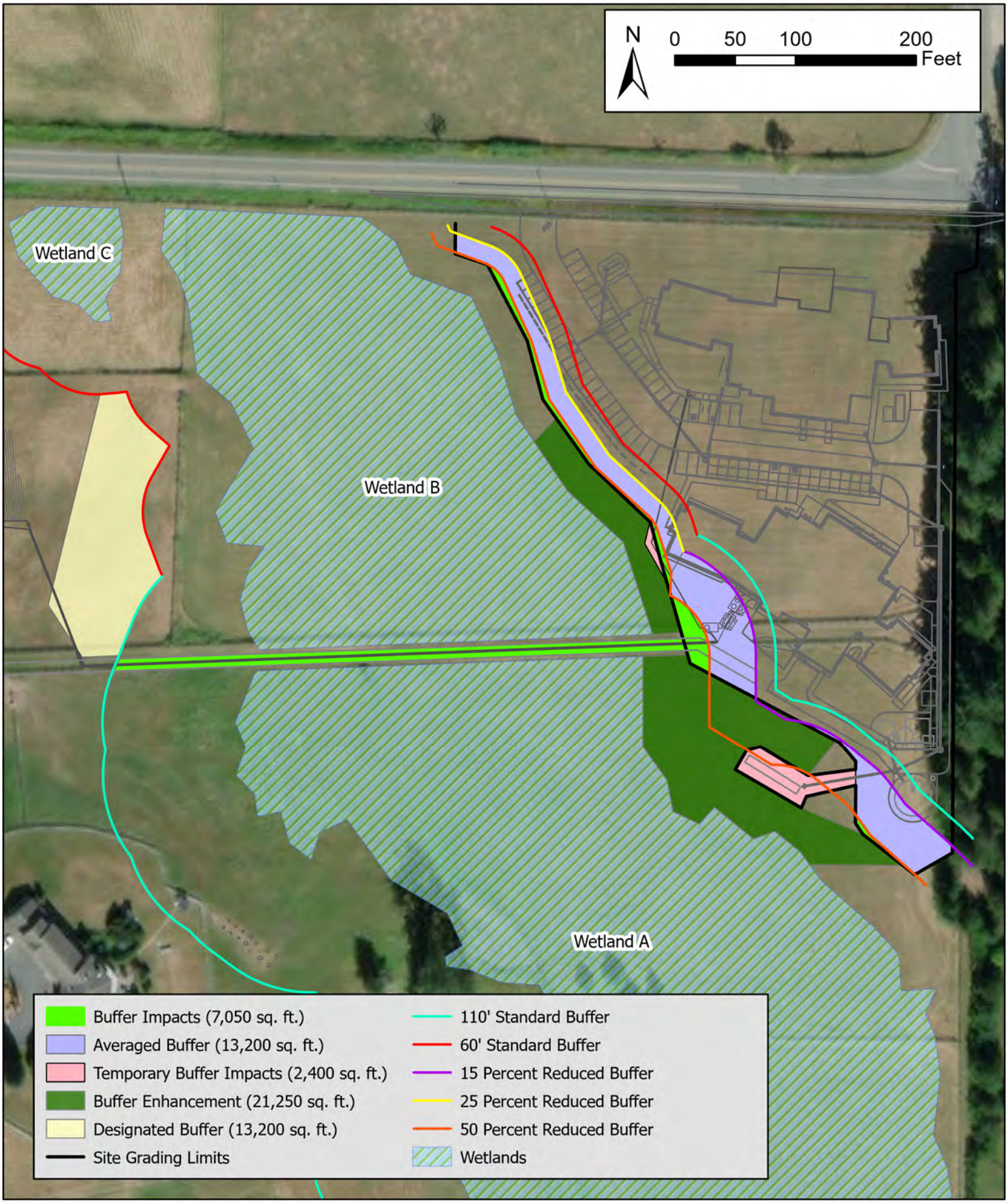

Figure 2: Buffer Impacts and Mitigation

Residential Treatment Facility North

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Proposed Mitigation

General Goals

The goal of the mitigation is to replace impacted wetland buffer functions onsite. Therefore, functions will be replaced by enhancing a portion of the wetland buffer adjacent to the proposed development in order to create a visual buffer, improved wildlife habitat, and improved water quality. The mitigation will involve enhancement of 7,365 square feet of degraded grazed buffer to forested/scrub-shrub buffer. Replacement ratios were determined in accordance with the SCC 30.62A.320(3)(d). See Table 2.

Table 2: Buffer mitigation required per the Snohomish County ratios

Impacts			Mitigation	
Location	**Category and Buffer Width**	**Impacted Area** (sq. ft.)	**Snohomish County Ratio**	**Area Required** (sq. ft.)
Wetland A Buffer	Category III Moderate Habitat Score 110 feet	1,125	3:1 Buffer Enhancement	3,375
Wetland B Buffer	Category III 60 feet	5,925	3:1 Buffer Enhancement	17,775
Total		7,050		**21,150**

Site Preparation and Grading Plan

The area of proposed planting is currently grazed pasture grasses which will not be cleared prior to planting, however any invasive species identified will be removed. In the spring or fall following construction activities, the areas of buffer enhancement shall be planted with native species, as displayed in the planting plan. See Table 3. Refer to Figure 2 for proposed planting locations.

Table 3: Buffer Enhancement (21,150 sq. ft.)

Scientific Name	Common Name	Planting Density	Proportion of Planting (%)	Size of Plants	Number of Plants
Alnus rubra	Red Alder	4’ on center	10	1 gallon	130
Physocarpus capitatus	Pacific Ninebark	4’ on center	15	1 gallon	200
Rubus parviflorus	Thimbleberry	4’ on center	20	1 gallon	265
Rosa nutkana	Nootka Rose	4’ on center	20	1 gallon	265
Oemleria cerasiformis	Indian Plum	4’ on center	15	1 gallon	200
Symphoricarpos albus	Common Snowberry	4’ on center	20	1 gallon	265

All species will be installed with three-inch bark mulch rings, three feet in diameter to reduce competition from weeds and grasses. Plantings will be monitored for damage from larger animals such as deer, with protective devices installed as necessary.

Species have been chosen based on their suitability for the site conditions. Any changes to the species composition or proportions due to lack of availability would be made at the discretion of the biologist implementing the mitigation plan. Species have been selected based on common stock at local native plant nurseries.

Functions and Values of Proposed Mitigation

The proposed mitigation allows for function and value to be improved on site as well as within the immediate vicinity of the project impacts. The proposed enhanced buffer will provide additional functions including:

Sediment Removal

The increase in vegetation within the wetland buffer will trap excess sediment and retain excess nutrients which are a threat to water quality during storms.

General Wildlife Habitat

The enhanced forested, scrub-shrub wetland buffer will be planted with various native shrubs providing habitat for songbirds and an array of mammals. It will provide a visual buffer between the proposed development and the interior of the wetland buffer and the wetland to the south.

Due to these facts, the proposed enhancement is considered highly functioning and capable of enhancing the functions and values of the wetlands onsite. This will provide higher function than the impacted buffer which is currently grazed pasture grasses.

Financial Assurances

The Tulalip Tribes are responsible for setting aside sufficient funds for the construction, monitoring, and long-term maintenance of the proposed mitigation site for the County performance period.

Monitoring

Monitoring will be conducted of the mitigation site, for five years following plant installation (monitoring years 1, 3, and 5). If success criteria are attained earlier (after a 3 year monitoring period at minimum), the County will consider lifting the monitoring requirement for the remaining years. Successful mitigation will be measured by attainment of the performance criteria described in the mitigation plan.

Success Criteria

The following list describes the thresholds that will determine site success and guide management. Performance measures are used to guide management of the mitigation area. Success standards are thresholds to be measured during the final year of the monitoring period that demonstrate the site has complied with regulatory requirements and is providing intended functions. Contingency plans describe what actions can be taken to correct site deficiencies.

Objective 1 –

Native woody shrubs will dominate the enhanced wetland buffer within the planting area.

Performance Measures

- At year one, all plant material will exhibit a survival rate of 100 percent during the summer following installation.
- At year three, aerial cover of native species will be at least 50 percent.
- At year five, aerial cover of native species will be at least 80 percent.

Success Standard

At year five or the final monitoring year, aerial cover of native species will be at least 80 percent in the enhanced native shrub buffer.

Objective 2 –

Control growth and spread of reed canarygrass, and non-native blackberries throughout the wetland buffer mitigation area to ensure the success of performance objective 1.

Performance Measures

In monitoring years one, three, and five non-native invasive species, (such as reed canarygrass, and non-native blackberries) will not exceed 15 percent coverage in any of the mitigation area.

Success Standard

At year five or the final monitoring year non-native invasive species, (such as reed canarygrass, and non-native blackberries) will not exceed 15 percent coverage in any part of the mitigation area.

Monitoring Method

'As Built' Report

Upon project completion, an 'As Built report will be submitted to the County documenting the final design of a wetland buffer mitigation site. This report will include both the proposed planting plan and the 'as built' planting plan showing densities, sizes, and locations of planted vegetation; as well as the time of plantings; locations of reference points established as photo points, sampling and monitoring sites; and provide an analysis of any changes to the mitigation plan that occurred during construction.

Monitoring Plan

The mitigation area will be monitored for five years. A site visit will be made the summer after planting and survival rates of plantings will be assessed. Formal monitoring procedures will be performed in years one, three, and five, after initial acceptance of the mitigation construction and a monitoring report will be submitted to the County.

The following data will be collected to monitor the success of the mitigation:

1. Photos from all established monitoring points (all Years).
2. Survivorship will be calculated after the first year of growth.

3. Species composition at all monitoring points (Years 3 and 5).
4. Percent cover of all species at monitoring points (all Years).

Each monitoring point will be marked with a steel stake and its location recorded using a GPS during baseline monitoring (immediately following planting). At each monitoring point total species composition and percent cover of each species will be recorded.

Weed control will occur during each monitoring period. Mulch rings around plants will be maintained in a weed and grass free condition. The entire mitigation area will be reviewed during each monitoring period for noxious weeds and other undesirable weed growth. Any areas not meeting the success standards for the site will receive treatment as approved by the County.

Monitoring reports will be prepared for each monitoring year and will be submitted to the County by December 31st of each monitoring year. Monitoring reports shall contain the following information: date of monitoring site visit, photographs of the site (taken from photo points), species composition, percent cover of species, and a description of any vandalism, replanting and/or weeding activities undertaken as a result of the monitoring. Techniques used for data collection and analysis will be in accordance with SCC and any other County recommendations. Access to the mitigation area will be given to the County for the purpose of inspection for the length of the monitoring and maintenance period.

Contingency Plan

The following contingency actions may occur if deemed necessary to promote successful development of the site:

Failure to meet a 100 percent survival rate at any of the aforementioned monitoring points one year after planting will result in the following contingency actions:

> Replanting will be conducted by the contractor to replace all dead woody plantings.

Failure to meet the aforementioned aerial cover performance measures in a given year, at any given monitoring point will result in the following contingency actions:

> Management activities such as replanting, weed control, and watering will be conducted as necessary.

Failure to meet non-native invasive species performance measures and standards in a given year, at any given monitoring point will result in the following contingency actions:

> The area will receive biological and/or mechanical weed control and if deemed necessary chemical applications will be made by professional licensed applicators with a valid aquatic endorsement in accordance with Department of Ecology guidelines, or as required by the County.

Any revisions to the mitigation and monitoring plan will be coordinated with and approved by the County prior to implementation.