



CRITICAL AREAS IMPACT ASSESSMENT AND MITIGATION PLAN

THE WOODS AT VIEWCREST PROJECT
BELLINGHAM, WA

NOVEMBER 2024

NW ECOLOGICAL SERVICES

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EXECUTIVE SUMMARY

The proposed Woods at Viewcrest project includes construction of a 38-home residential development and associated roads, driveways, trails, and utilities within the Edgemoor neighborhood of Bellingham, WA (Figure 1). Site critical areas were documented in the 2023 and 2024 reports prepared by NES and the 2024 Raedeke Associates, Inc. Wildlife Habitat Assessment (NES, 2023 & 2024) (Raedeke, 2024).

The following report addresses item #4 and the comment regarding critical areas impacts and mitigation in the August 14, 2024 Request for Additional Information (RFI) issued by the City of Bellingham (COB).

The following assessment evaluates potential impacts and specifies mitigation actions to address potential impacts to wetland and shoreline buffers. Per BMC 16.55.260, this mitigation plan supplements the critical areas report and provides a detailed summary of the project, including the impacts to the critical area associated with the proposed stormwater conveyance and outfall and trails, and details the proposed mitigation to compensate for lost functions and values.

NES QUALIFICATIONS

NES is a specialized service-oriented environmental consulting firm based in Bellingham, Washington. We provide a range of biological services to both the public and private sectors. Our services include wetland assessments, biological assessments, wetland restoration and mitigation plans, natural resource analysis, environmental regulatory compliance, landscape and ecological design, and environmental impact assessment of plants, animals, fish, and sensitive habitats. NES professionals have performed wetland and biological assessments over 36,500 acres [1991-2023] in Whatcom, Skagit, San Juan, and Snohomish Counties.

NES key staff qualifications summary:

- Collin Van Slyke is an ecologist with NES, providing environmental services for projects throughout north Puget Sound since 2014. Mr. Van Slyke obtained a Bachelor of Science in Environmental Science from Huxley College of the Environment at Western Washington University (WWU). He is certified through the Society of Wetland Scientists (SWS) as Professional Wetland Scientist (PWS) #3129.
- Molly Porter is an ecologist with NES and has provided environmental services within the north Puget Sound area since 2004. Ms. Porter obtained a Bachelor of Science in Environmental Science from Huxley College of the Environment at WWU. She is certified through SWS as PWS #2064.

DISCLAIMER

Findings within this report are based on observations of conditions at the time of the stated site visits. This report is provided for the use of the named recipient only and is not intended for use by other parties for any other purpose. This report does not guarantee agency concurrence or permit approval.

Mitigation plans are developed to meet local, state, and federal regulations. This plan requires agency concurrence prior to implementation. The recommendations are based on conditions at the time of the site visit(s) and development plans provided by the Client and Client representatives. Although the plan is carefully designed to facilitate success, no guarantees are given that the project will meet all performance standards. Project success depends on many unforeseen and uncontrollable events, achieving success can be greatly improved through:

- Ensuring a qualified ecologist is on site during mitigation project construction,
- Installing the mitigation project as specified in this report,
- Maintaining the mitigation project as specified in this report (ideally by a landscape professional that specializes in restoration and/or wetland mitigation), and
- Implementing any recommended contingency measures in a timely manner.

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1.0 INTRODUCTION

1.1 Purpose

The proposed Woods at Viewcrest project includes construction of a 38-home residential development and associated roads, driveways, trails, and utilities within the Edgemoor neighborhood of Bellingham, WA (Figure 1). Site critical areas were documented in the 2023 and 2024 reports prepared by NES and the 2024 Raedeke Associates, Inc. Wildlife Habitat Assessment (NES, 2023 & 2024) (Raedeke, 2024).

The following report addresses item #4 and the comment regarding critical areas impacts and mitigation in the August 14, 2024 Request for Additional Information (RFI) issued by the City of Bellingham (COB).

The proposed project includes impacts to wetland buffers and habitat conservation areas (HCAs) which are subject to regulation by the COB critical areas ordinance [Bellingham Municipal Code (BMC) 16.55]. Impacts include:

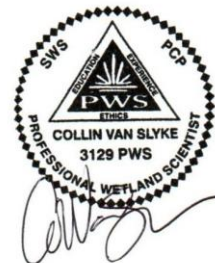
1. Development within a biodiversity area HCA
2. A stormwater conveyance and outfall within the buffer of Chuckanut Bay
3. Minor wetland buffer impacts associated with required public trails through the project site

Project plans are included as Figures 2-4. Wildlife habitat impacts associated with development within the biodiversity area HCA are addressed in the 2024 Raedeke assessment (Raedeke, 2024). The following assessment evaluates potential impacts and specifies mitigation actions to address potential impacts to wetland and shoreline buffers.

Per BMC 16.55.260, the following mitigation plan supplements the critical areas report and provides a detailed summary of the project, including the impacts to the critical area associated with the proposed stormwater conveyance and outfall and trails, and details the proposed mitigation to compensate for lost functions and values.

Report prepared by NES staff:

Collin Van Slyke, PWS
Northwest Ecological Services, LLC
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2.0 MITIGATION SEQUENCING

All projects must demonstrate Mitigation Sequencing per BMC 16.55.250 and 22.08.020 and achieve no net loss of critical area and shoreline ecological function. The following details how mitigation sequencing has been applied to the Woods at Viewcrest project, resulting in no net loss of critical area and shoreline ecological function.

A. Avoiding the impact altogether by not taking a certain action or parts of an action;

- The project avoids impacting all wetlands.
- Aside from the required public trails, all elements of the project area are located outside of wetland buffers.
- Aside from a stormwater conveyance and outfall, all project elements are outside of the marine shoreline HCA buffer.

B. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps, such as project redesign, relocation, or timing, to avoid or reduce impacts;

- Overall impacts associated with land clearing and human presence are minimized by limiting the sub-division to 38 residential lots, rather than the 82 densities at which the site is zoned.
- The lots are designed to be clustered in approximately 1/3rd of the total property, reducing the overall development footprint.
- Ground and vegetation impacts associated with the stormwater conveyance and outfall structure are minimized by mounting the pipe on the ground surface, rather than burying it. This design will avoid all significant tree removal in the conveyance corridor.

C. Rectifying the impact to wetlands, critical aquifer recharge areas, frequently flooded areas, and habitat conservation areas by repairing, rehabilitating, or restoring the affected environment to the historical conditions or the conditions existing at the time of the initiation of the project;

- No temporary impacts to site wetlands or buffers are proposed during construction.
- In order to rectify degradations to surface water runoff, the project utilizes enhanced stormwater treatment standards, exceeding the minimum required basic treatment standard.

D. Minimizing or eliminating the hazard by restoring or stabilizing the hazard area through engineered or other methods;

- Developments will comply with all geotechnical engineering recommendations for retention of trees along steep slopes.
- Sediment removal and soil stabilization BMPs will be installed prior to commencement of land disturbing activities.

- The stormwater treatment system utilizes adaptable modular wetland devices.

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

- The site wetlands, retained buffers, and entire 200-ft marine HCA buffer will be protected with a conservation easement, eliminating future development potential along the shoreline.
- This project will construct both private and public stormwater infrastructure. Operation and maintenance of publicly owned stormwater management facilities shall be the responsibility of the City of Bellingham. Private stormwater management facilities will be maintained by the Homeowner's Association in accordance with the maintenance guidelines specified in the Washington State Department of Ecology Stormwater Management Manual, 2019 edition, Volume V, Appendix A.

F. Compensating for the impact to wetlands, critical aquifer recharge areas, frequently flooded areas, and habitat conservation areas by replacing, enhancing, or providing substitute resources or environments;

- Wetland buffer impacts associated with the trail easement will be compensated by enhancing buffer through removal of invasive species and establishment of native forest vegetation.
- Impacts associated with shoreline vegetation removal will be compensated by enhancing critical area buffer through removal of invasive species and establishment of native forest vegetation.

G. Monitoring the hazard or other required mitigation and taking remedial action when necessary.

- The buffer enhancement project will be monitored for a period of 5 years after installation to ensure the project goals have been successfully met. A financial surety, as required by BMC 16.55.240, will be established to ensure the mitigation requirements are met and the plan is fully implemented to success.
- The stormwater system will be a public facility monitored and maintained after installation, ensuring it continues to function properly.

3.0 IMPACT ASSESSMENT

While critical area impacts have been largely avoided through strategic layout of the lots and roads, buffer impacts associated with the required public trail and the stormwater conveyance and outfall are unavoidable. **Up to 9,100 sf of buffer impact is anticipated (Figure 5).**

Trails: The public trails extending through the buffers of Wetland A and B will result in up to 3,291 sf of buffer impact. Impact calculations include the full 20-ft easement width within the buffer, even though the trails are likely to be narrower and result in less impact. The trails are located in the outer 50% of the buffers.

Stormwater Conveyance: The stormwater outfall pipe will result in up to 5,809 sf of impact to the HCA buffer associated with Chuckanut Bay. The 12-in diameter pipe will be anchored to the ground with steel rods every 25 ft, resulting in insignificant ground disturbance and minimal vegetation removal. However out of an abundance of precaution, this report accounts for and includes mitigation for up to 10-ft of vegetation disturbance along the length of the pipe that could potentially occur during installation of the pipe. However actual vegetation disturbance is anticipated to be much less.

3.1 Functional Assessment

Per BMC 16.55.210(C)(2)(c) and 16.55.480(C)(4), the following provides an assessment of potential impacts to critical area functions associated with the project.

3.1.1 Hydrology/Drainage Alterations

Existing Condition:

The Preliminary Stormwater Management Report details existing drainage paths of the site:

The topography is steep and generally slopes downward to the south towards Chuckanut Bay, with some slopes exceeding 30%. Stormwater from the site generally follows this flow path, and sheet flows directly to Chuckanut Bay. Two small portions of the site drain either to the north towards Viewcrest Dr. or to the west towards S. Clarkwood Dr. and then flow into City of Bellingham storm sewers which discharge to Chuckanut Bay. The discharge locations for these basins are separated by a minimum of 0.38 miles, therefore the project site is considered to be three separate Threshold Discharge Areas (TDA's). The area of the site that sheet flows directly to Chuckanut Bay is identified as TDA 2, the area that drains to the Viewcrest Rd storm sewer is identified as TDA 1, and the area draining to the west into S. Clarkwood Dr. is identified as TDA 3 (PSE, 2024).

Overall the site is forested, with shallow soils atop sandstone bedrock. Water (precipitation, overland flow, and groundwater) flowing through the site is anticipated to generally flow perpendicular to the surface contours- all of which ultimately flow to Chuckanut Bay. The hydrogeomorphic (HGM) classifications of the site wetlands are slope (NES, 2023). The predominant source of water to slope wetlands is groundwater or interflow discharging at the land surface. Precipitation is often a secondary contributing source of water to slope wetlands (Brinson, 1993). Portions of the site currently flowing towards the site wetlands include proposed Lots 36 – 38.

Post-Developed Condition:

All site stormwater will continue to flow to Chuckanut Bay after receiving enhanced treatment via the existing outfall at Arbutus Place and the new on-site outfall along the shoreline.

While the trail is located within the buffer of Wetland A, it is downslope from the wetland and will therefore have no effect on the hydrologic functions of Wetland A.

Ground disturbing activities and infrastructure have the potential to alter the flows of both ground and surface water. Therefore, development activity upslope from site wetlands has the

potential to alter hydrologic inputs and could result in impacts to the wetlands. There are two wetlands which will have new development activities up slope: Wetlands B and D.

Proposed development upslope from Wetland B includes a driveway and single-family home on Lot 36 as well as a public trail. This infrastructure will require cut and fill, potentially disrupting surface and groundwater flow into Wetland B. Therefore, the project includes an outfall for dispersion of treated stormwater below the driveway and house, maintaining flow to the wetland.

The trail extending through the Wetland B buffer also has the potential to disrupt hydrologic inputs to Wetland B. Therefore, it shall contain a culvert to permit the passage of water under the trail, maintaining its flow path into Wetland B.

While located outside the buffer of Wetland D, construction of the trail will likely involve some degree of cut and fill along the slope. This has the potential to disrupt or divert subsurface flow away from Wetland D, specifically at the northwest corner of Lot 37, where the trail traverses a shallow topographic draw which drains towards Wetland D. Therefore, the trail will include a culvert to permit the conveyance of water in this location and preserve the surface and subsurface drainage pattern.

With this approach, hydrologic inputs to Wetlands B and D will be maintained, and no hydrologic impacts to the wetlands are anticipated.

The proposed site improvements will result in increased impervious surface and runoff due to the reduction in tree canopy. This has the potential to result in a slight increase to the volume of water input to Wetland B. Increasing water input to wetlands can have the potential to alter vegetation composition and habitat conditions by flooding out trees, which are generally less tolerant of sustained inundation compared to some herbaceous species. However, as noted in the 2023 Critical Areas Report, Wetland B is a forested slope wetland, containing no surface depressions capable of ponding. The wetland is hydrated by groundwater discharge, maintaining saturated conditions throughout much of the year. An increase in surface water input is expected to continue to flow through the wetland, without resulting in increased ponding or presenting a risk to trees within the wetland. Therefore, this is not anticipated to result in impacts to habitat via hydrologic effects.

The stormwater volume effects from the trail above Wetland D are anticipated to be negligible due to the reasons stated above as well as the small size in canopy reduction compared to the wetland's contributing basin.

3.1.2 Water Quality

Existing Condition:

The subject site exists in an undeveloped, forested condition, currently containing no pollutant sources aside from humans and dogs which currently utilize unauthorized informal trails through the property. Chuckanut Bay is the receiving waterbody for the entire Chuckanut Creek watershed, as well as stormwater infrastructure collecting untreated stormwater from a portion of the surrounding Edgemoor Neighborhood and Chuckanut Village (total basin ~5,085 acres).

Chuckanut Creek is on the Ecology 303-D list of impaired waters for fecal coliform and dissolved oxygen (likely resulting from elevated levels of bacteria such as fecal coliform). However these impairments are not mapped to extend into Chuckanut Bay, presumably due to dilution associated with mixing of the much larger marine waters. However, a public shellfishing closure exists within Chuckanut Bay, due to biotoxins and pollution- specifically bacteria. Furthermore, all of Bellingham Bay, Chuckanut Bay, and Padilla Bay are closed due to biotoxins (WADOH, 2024).

Fecal coliform is an indicator of bacterial contamination from waste from humans and other warm-blooded animals (Ecology, 2005). Sources of this bacteria within the Chuckanut Creek watershed likely include malfunctioning septic systems, pets, and wildlife. Much of this watershed is not serviced by a sanitary sewer system, and houses are on septic systems.

Post-Developed Condition:

Stormwater associated with this project will be the only development discharging to Chuckanut Bay that will provide any level of engineered treatment. Impervious surfaces generating stormwater from the site account for 0.1% of the bay's watershed. This project is required to meet basic water quality treatment standards per BMC 15.42. However, this project has elected to increase the level of stormwater treatment and meet the enhanced treatment standard using modular wetland devices.

The trail and stormwater outfall buffer impacts will not further contribute to water quality impairments of Chuckanut Bay or the site wetlands. These infrastructure elements are considered non-pollutant generating. However, trail users (specifically pets) can be sources of pollutants (fecal coliform) if they are not leashed and cleaned up after. Therefore all trail users should abide by the animal restrictions in parks, as required by BMC 8.04.070.

Furthermore, the development will be serviced by sanitary sewer, eliminating the potential for further fecal coliform impairment associated with the residences.

No trails or other pollutant generating activities encroach within 200 ft of the shoreline, providing a forested buffer for water quality improvement to all untreated runoff from yards or trails prior to reaching the bay. This buffer size exceeds that recommended for sediment (30-100 ft, nitrogen (100-180 ft), and phosphorus (30-100 ft) removal (Environmental Law Institute, 2008).

3.1.3 Habitat

Existing Condition:

The site functions as a relatively undisturbed forested habitat containing wetlands and connectivity to the Chuckanut Bay shoreline. However, some degree of degradation exists from humans and pet usage (including a human-induced forest fire) and noise from nearby houses, roads, and trains.

The trails and stormwater conveyance/outfall pipe are located within forest habitat adjacent to site wetlands and the marine shoreline

Post-Developed Condition:

The project has the potential to result in impacts to habitat functions from stormwater, noise, human presence, and vegetation removal.

- Stormwater. The stormwater conveyance pipe and outfall will result in up to a 10-ft wide swath of vegetation impacts within the 200-ft wide preserved shoreline buffer. This is anticipated to have insignificant effect on the habitat buffering function between the upslope residences and the marine shoreline.
- The stormwater conveyance is not anticipated to require maintenance after installation. The outfall dispersion T may require occasional clean-out, but this is expected to be infrequent. This maintenance will not exceed the current level of human disturbance along the shoreline, which is frequently visited by people.
- Noise. Wildlife utilizing the site wetlands and shoreline are likely well adapted to noise disturbances associated with the train and nearby houses. After construction, the project will not exceed the background noise levels of the abutting neighborhood and train. During construction, elevated noise will occur from machinery and tools, however there are no known sensitive species within the vicinity of the trails and stormwater outfall.
- Human presence. The addition of 38 homes will increase the overall human presence on site. However, the homes are anticipated to be located close to proposed roadways and existing development within the Edgemoor neighborhood and will not result in impacts to wetland or shoreline HCA buffers.

Human/pet impacts to wildlife function utilizing the wetlands may occur if they do not remain on the trail and leashed.

- Vegetation Removal. Removal of vegetation affects available habitat and reduces wildlife refugia and foraging opportunities. The stormwater conveyance and outfall may result in minor disturbance of vegetation during construction. Impacts are anticipated to be limited to trimming, and very minimal ground disturbance is anticipated for installation of the anchors. The mitigation plan accounts for up to a 10-ft wide swath of vegetation impacts within the 200-ft wide preserved shoreline buffer. At least 98.4% of the shoreline buffer vegetation will remain undisturbed. Nonetheless, the project proposes mitigation for 5,809 sf of vegetation impacts, described below.

Vegetation removal associated with the trail within the Wetland A and B buffer reduces available habitat due to the proposed buffer reduction. Therefore, the proposal includes compensatory mitigation to replace native trees and shrubs, resulting in no net loss of habitat structure and wildlife habitat functions within the site.

4.0 MITIGATION STRATEGY

BMC 15.55.240 states that when alteration to a critical area [or buffer] is unavoidable, all adverse impacts shall be mitigated so as to result in no net loss of critical area functions and values. The following provides an overview of the proposed mitigation intended to offset the critical area impacts identified above and achieve no net loss of functions and values.

4.1.1 Buffer Enhancement

Impacts identified above are limited to the loss of vegetation and habitat structure within site buffers. Therefore, consistent with 16.55.340(E), buffer impacts will be compensated on a 1:1 ratio by removing noxious weeds (Himalayan blackberry) and planting native trees, shrubs, and groundcovers in areas within the wetland buffers currently lacking sufficient cover and therefore providing limited function. The mitigation proposed serves to replace impacted vegetation and habitat structure.

The native plantings shall occur within the Wetland B buffer, between the trail and the wetland (Figure 5). This area was disturbed by a small forest fire several years ago and the native vegetation is sparse and has not recovered to the condition of the surrounding unaffected forest. Noxious Himalayan blackberry and other weedy species dominate this area, providing opportunity for removal and re-establishment of native trees and shrubs.

4.1.2 Site Protection

The following measures are proposed to ensure permanent protection of retained critical areas per BMC 16.55.340(C2)(2)(e):

- Fencing shall be installed in the location shown in Figure 5 to restrict access from the public trails into the retained wetland buffers.
- The buffers will be identified with native growth protection signage. Two metal protective signs a minimum of 12 inches by 18 inches (12"x18") in size, will be placed in the approximate locations along the fence shown in Figure 5. The signs shall indicate the area is a protected area where vegetation removal and dumping are prohibited.
- The site wetlands, retained buffers, and the 200-ft shoreline buffer will be protected through establishment of a conservation easement.

4.1.3 Site Management Recommendations

In addition to the buffer enhancement mitigation, the following site management recommendations shall be implemented to ensure no net loss of critical area functions result from the proposed project (16.55.480(C)(6)).

1. Prioritize retention of trees along steep slopes and comply with all Geotech recommendations.
2. Abide by the project Stormwater Management Report, including implementation of BMPs, during and after construction.

3. Monitor, maintain, and continue to implement best available science for stormwater infrastructure to ensure proper functionality.
4. Educational signage, pet waste stations, and/or fencing along the public trails
5. Install culverts under the trails to maintain natural drainage flow paths, especially above Wetlands B and D.

5.0 MITIGATION METHODS AND PROCEDURES

5.1 Contractor Qualifications

Actions and tasks defined in this Mitigation Plan (including site preparation and planting) shall be conducted by a qualified contractor that can demonstrate a minimum of five years of experience with restoration or wetland mitigation installation projects in Whatcom or Skagit County. They must be able to provide an on-site staff member that can identify native plants.

5.2 Biological Construction Oversight

The general contractor shall contact NES or the project biologist prior to start of work. At a minimum, the project biologist must be on-site for a pre-construction meeting prior to any work on site.

5.3 Site Preparation

The following are required site preparation tasks and are listed in the order in which they shall be performed:

- Mark work area. Disturbance shall be minimized by staking clearing limits, including construction staging areas and ingress/egress routes, with a high visibility construction fence or silt fencing prior to vegetation clearing. No additional vegetation clearing or land disturbance shall encroach further within the buffers than as shown in Figure 5. The clearing limits and construction fencing shall be approved by the project biologist or COB staff prior to any clearing or grading in the buffer.
- Follow Best Management Practices (BMPs). All phases of construction shall follow construction BMPs detailed in the current Stormwater Manual, this mitigation plan, and any other BMPs listed in the construction documents to prevent erosion and sediment entering surface waters including, but not limited to, silt fences, straw rolls, temporary construction entrances, catch basin inserts, and tree protection.
- Removal of Noxious Weeds. Noxious weed removal should occur in early fall (Sept-Oct) prior to installation of the mitigation plantings (which occurs in the winter). Himalayan blackberry (*Rubus armeniacus*) should be cut and the roots dug up. Remove any noxious weeds from the planting area prior to plant installation.

5.4 Mitigation Protection

Fencing shall be installed in the location shown in Figure 5 to restrict access from the public trails into the retained wetland buffers.

The buffers will be identified with native growth protection signage. Two metal protective signs a minimum of 12 inches by 18 inches (12"x18") in size, will be placed in the approximate locations along the fence shown in Figure 5. The signs shall indicate the area is a protected area where vegetation removal and dumping are prohibited.

The site wetlands, retained buffers, and the 200-ft shoreline buffer will be protected through establishment of a conservation easement.

5.5 Mulch

Wood chip mulch should be installed around all installed plants, as detailed below.

- The installer shall apply woodchip mulch rings around all installed plants (3ft diameter, 3 inches thick).
- No mulch shall be placed within one (1) inch of the plant stems but shall cover the rootballs to the maximum possible extent;
- Mulch shall consist of clean hogfuel, woodchips with greens, woodchips with no greens, or coarse shredded bark (no beauty bark, no stump grindings);
- Woodchip size shall average between 1/4 and 1/2 inches thick and 1 to 3 inches long (thin cut pulp chips are ideal); and
- Mulch must be clean, free of materials detrimental to plant health and free of invasive plant seeds and soil.

5.6 Plant Installation

Installation Standards

- Installation must be done according to the agency-approved mitigation plan. Any changes must be approved by the project biologist.
- All plants should be installed with blue protective tubes to prevent rodent herbivory.
- All trees should be installed with 5ft tall wire caging (3-ft diameter) to prevent deer herbivory.

Plant Installation Timing

- Preferred planting timing is during the dormant season (between October 15th and April 1st). Bare root material may only be used between December 1st and March 15th.
- If planting occurs outside of this window, additional care (watering) will be necessary to ensure plant survival.
- The contractor shall contact the project biologist to inspect plant material prior to installation.

- The contractor shall contact the project biologist **prior** to installation to consult on placement. Minor modifications to the exact placement of plants in the vicinity of the planting area depicted in Figure 5 may be recommended.

Source of Plant Material

- Plant material shall be obtained from native plant nurseries growing stock from the Puget Sound lowlands. When possible, obtain plants from a local, Whatcom or Skagit County nursery.
- Any species substitutions must be approved by the project biologist.

Planting Guidelines

- Remove any garbage and debris from planting areas.
- A hole should be dug 1.5 times the size of the plant pot, to prevent the plant from becoming root bound. Actual planting shall follow the digging of holes as closely as possible to prevent the excavated soil from drying.
- Each plant shall be placed in a hole, and the hole shall be backfilled with native soil. Backfill shall be tamped down to remove voids in the soil. Excess soil shall be smoothed and firmed around plants, creating a slight depression to collect water.
- Do not install plants too deep or too shallow. Care should be taken to not bury the root crown of trees (the top-most root of root ball) as this can harm the long-term growth and life of the tree. The root crown should be placed at the ground level. Plants should also be installed deep enough in the soil that the root ball is not exposed.
- Avoid planting tangled-up roots or up-turned roots (“J” roots) as this may cause the plant to grow poorly or die.
- All plants shall be watered immediately after planting unless soils are heavily wet.
- Mulch shall be installed around all plants per specifications below.
- After installation, the contractor shall coordinate with NES to schedule a site inspection to verify all plants were installed according to design and are in good health.

Actual size of plant material may vary depending on availability. Table 1 details the planting specifications for the mitigation area.

Table 1. Planting Specifications for the Buffer Enhancement Area (9,100 sq. ft.)

Scientific Name	Common Name	Condition	Grade (min.size)	Spacing	# Plants
Trees <i>Abies grandis</i>	Grand fir	B/C	18" minimum or one gallon	15' OC	10
<i>Picea sitchensis</i>	Sitka Spruce	B/C			10
Shrubs <i>Rosa gymnocarpa</i>	Baldhip rose	B/C		5' OC	50
<i>Symphoricarpos albus</i>	Snowberry	B/C			50
<i>Holodiscus discolor</i>	Oceanspray	B/C			50
<i>Oemleria cerasiformis</i>	Osoberry	B/C			50
<i>Amelanchier alnifolia</i>	Serviceberry	B/C			25
<i>Corylus cornuta</i>	Beaked hazelnut	B/C			25
Ferns <i>Polystichum munitum</i>	Sword Fern	C	one gallon	5' OC	100
Total					370

OC = On-center, B = bare-root, C = container

6.0 POST-INSTALLATION MITIGATION MANAGEMENT

6.1 As-Built Documentation

After plant installation is complete, the contractor shall contact the project biologist to conduct an as-built inspection. An as-built report shall be provided to the COB within 90 days after the planting phase of the project is complete. The as-built report shall be prepared by the project biologist and the summary memorandum shall document where minor site design changes to the mitigation plan were necessary, the final planting schedule, receipts of all installed plants, and photographs.

The as-built shall include documentation of completion of the following tasks per this mitigation plan and project civil drawings:

- Installation of all plants and mulch
- Installation of caging and blue tubes
- Record of conservation easement
- Installation of signage and fencing

6.2 Monitoring

Monitoring shall occur annually for a five-year period following completion and acceptance of the as-built. A monitoring report will be produced for each sampling year by a qualified biologist or by the applicant. The monitoring report shall evaluate the project's success based on the project performance standards contained in this report. Data collected during monitoring visits will be summarized in a technical memo and provided to regulatory agencies each monitoring year.

Vegetation Monitoring

Vegetation monitoring shall include qualitative (general site observations) data collection. Data in the monitoring report shall include at minimum:

- Percent survivorship and cover of installed plant material
- A species list of volunteer native species
- Species list and management recommendations for invasive plant cover
- An overall qualitative assessment of plant material
- An assessment of how the project is meeting mitigation goals
- Recommendations for any additional work or maintenance needed to meet project goals and/or performance standards.
- Photos taken from established photo points

The following are the goals, objectives, and performance standards for the compensatory mitigation. The following performance standards shall be used to measure project success during the five-year monitoring period.

Goal 1. Replace lost buffer habitat functions by enhancing the retained wetland buffer with native vegetation.

Objective 1a. Improve wildlife habitat functions through increased structural diversity within the buffer enhancement areas by installing native trees, shrubs, and groundcovers.

Performance Standard 1.a.1 Vegetation in the wetland and buffer enhancement areas shall meet the vegetation survival OR cover standards in Table 2.

Table 2. Performance standards for installed vegetation in the Mitigation Areas

Rated Item	Year 1	Year 2	Year 3	Year 4	Year 5	Long Term
Survival (%) (using container plant material quantity)	100	≥80				Natural Mortality
Cover of native vegetation (mean % cover)	n/a	≥5	≥15	≥30	≥50	≥80

Performance Standard 1.a.2 A minimum of one tree species and three shrubs species shall be present within the buffer enhancement area at the end of the five-year monitoring period.

Performance Standard 1.a.3 The mitigation area shall be free of Class A noxious weeds. Class B and C noxious weeds shall cover no more than 10 percent of the enhancement areas. Weed classifications are based on the current Whatcom County Weed List by the Whatcom County Noxious Weed Control Board.

Goal 2. Preserve retained wetland and buffer on the project site.

Objective 2.a. Preserve on-site mitigation areas by installing protective fencing and critical areas signage.

Performance Standard 2.a.1. Split rail fencing (or an approved alternative) and nine NGPA signs shall be installed between development and retained buffer as detailed in Figure 10. These features shall be maintained in good condition.

6.3 Maintenance

The applicant shall provide the maintenance activities detailed in this report and subsequent annual monitoring memos throughout the monitoring period. Maintenance shall be performed each year after the as-built report is approved. Table 3 details general maintenance tasks.

Table 3. Maintenance Tasks

Task	Description	Schedule
Invasive species removal	Remove invasive plant material	As needed to meet performance standards
Weed suppression	Remove herbaceous weeds around installed plants as needed during the growing season (May to Sept.). Do not remove volunteer native shrub or tree sprouts.	3 times per growing season in Years 1 and 2 2 times per growing season in Year 3 Annually in Years 4 and 5
Replace dead plants	Request plant substitutions if necessary	Replace ALL dead plants in Year 1 Replace as needed in remaining years to meet performance standards
Irrigation	New plant material shall be irrigated once per week whenever less than one inch of rainfall occurs over any two-week period from June 1 through August 15; once every other week from August 6 through September 30	Year 1

6.4 Contingency Plans

If there is a significant problem with the mitigation achieving its performance standards, the project proponent shall work with NES or another qualified biologist to develop a Contingency Plan. Contingency Plans can include, but are not limited to: additional plant installation, erosion control, modifications to hydrology (excavation work), and plant substitutions of type, size, quantity, and location. Such Contingency Plan shall be submitted to applicable regulatory agencies by October 1st of any year when deficiencies are discovered.

6.5 Surety

As required by the City of Bellingham, a bond will be posted for 150% of the estimated construction costs of the mitigation plan. The following items are included in the financial surety amount for this project:

• Invasive species removal	\$3,000.00
• Plants-installed: (370 plants x \$11.50/plant)	\$4,255.00
• Mulch-installed: (30 CY x \$38/ CY)	\$1,140.00
• Fencing (205 ft x \$12/ft)	\$2,460.00
• NGPA Sign (2 signs x \$48.50)	\$97.00
• As-built Report	\$1,000.00
• Monitoring (Year 1= \$1,000, Years 2-5 = \$800)	\$4,200.00
• Maintenance (\$500/ year for 5 years)	\$2,500.00
<hr/>	
subtotal	\$18,652.00
x (50%)	\$9,326.00
<hr/>	
Total Bond:	\$27,978.00

APPENDIX A: REFERENCES

References

- Brinson, M. 1993. A Hydrogeomorphic Classification for Wetlands. U.S. Army Corps of Engineers, Washington D.C. Tech. Report WRP-DE-4.
- Environmental Law Institute. 2008. *Planner's Guide to Wetland Buffers for Local Governments*. Washington D.C.
- Hruby, T. 2013. *Update on Wetland Buffers: The State of the Science, Final Report*. Publication #13-06-011. Washington Department of Ecology. Olympia, WA.
- Northwest Ecological Services. 2023. *Wetland Delineation Update & Critical Areas Summary for the Woods at Viewcrest Project*. Bellingham, WA.
- Pacific Surveying and Engineering. 2024. *Preliminary Stormwater Management Report for the Woods at Viewcrest*. Bellingham, WA.
- Raedeke Associates, Inc. 2024. *Woods at Viewcrest (fka Jones Family Long Subdivision) Wildlife Habitat Assessment*. Seattle, WA.
- Washington Department of Ecology. 2005. *Focus on Fecal Coliform Bacteria from Ecology's Water Quality Program*. Olympia, WA.
- Washington Department of Ecology. Water Quality Atlas. Online at [<https://apps.ecology.wa.gov/waterqualityatlas/wqa/map>] Accessed October 21, 2024.
- Washington Department of Health. Shellfish Safety Map. Online at [<https://fortress.wa.gov/doh/biotoxin/biotoxin.html>] Accessed October 31, 2024.

APPENDIX B: FIGURES



ECOLOGICAL



Vicinity Map (Google Maps)

The Woods at Viewcrest
Impact Assessment and Mitigation Plan

Figure 1

Nov 2024

LEGAL DESCRIPTION:

LOT B, AS DELINEATED ON ROGAN JONES 2 SHORT PLAT, ACCORDING TO THE SHORT PLAT RECORDED APRIL 10, 1992, UNDER AUDITOR'S FILE NO. 920410201, RECORDS OF WHATCOM COUNTY, WASHINGTON; EXCEPT THAT PORTION LYING WITHIN THE BOUNDARIES OF THE TRACT OF LAND DESCRIBED IN DEED TO DARRELL G. KAPP, ET UX., RECORDED JUNE 15, 1973, UNDER AUDITOR'S FILE NO. 1140332.

THE EAST 750 FEET OF THE NORTH 700 FEET OF GOVERNMENT LOT 1, SECTION 13, TOWNSHIP 37 NORTH, RANGE 2 EAST W.M.; EXCEPT LOT 3, BLOCK 16, AMENDED MAP OF SOUTH FAIRHAVEN, IN THE CITY OF FAIRHAVEN, WASHINGTON, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 4 OF PLATS, PAGE 49, AND THAT PORTION OF QUINALT STREET ON THE NORTH AND THAT PORTION OF THE VACATED ALLEY ON THE SOUTH WHICH INURED TO SAID LOT 3 UPON THE VACATION THEREOF; FURTHER EXCEPT THAT PORTION LYING WITHIN ROGAN JONES 2 SHORT PLAT RECORDED UNDER AUDITOR'S FILE NO. 920410201;

FURTHER EXCEPT THAT PORTION DESCRIBED IN DEEDS TO THE CITY OF BELLINGHAM, RECORDED UNDER AUDITOR'S FILE NO. 1136193, TO DARRELL G. KAPP AND SUSAN KAPP; RECORDED UNDER AUDITOR'S FILE NO. 1140332, TO LARRY DUTTON AND LINDA DUTTON; RECORDED UNDER AUDITOR'S FILE NO. 1190072; AND TO PATRICIA A. FARIS, RECORDED UNDER AUDITOR'S FILE NO. 1245873; FURTHER EXCEPT 40-FOOT WIDE CHUCKANUT AVENUE AS SHOWN ON THE PLAT OF ROGAN JONES 2 SHORT PLAT.

THAT PORTION OF THE OSUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 12, TOWNSHIP 37 NORTH, RANGE 2 EAST, W.M., LYING SOUTH OF VIEWCREST ROAD AND WEST OF THE WEST LINE OF THAT CERTAIN TRACT OF LAND DESCRIBED IN DEED TO PATRICIA A. FARIS, RECORDED MARCH 23, 1977, UNDER AUDITOR'S FILE NO. 1245873.

LOTS, BLOCKS, VACATED STREETS AND ALLEYS IN THE AMENDED MAP OF SOUTH FAIRHAVEN, IN THE CITY OF FAIRHAVEN, WASHINGTON, ACCORDING TO THE PLAT THEREOF, RECORDED IN VOLUME 4 OF PLATS, PAGE 49, DESCRIBED AS FOLLOWS:

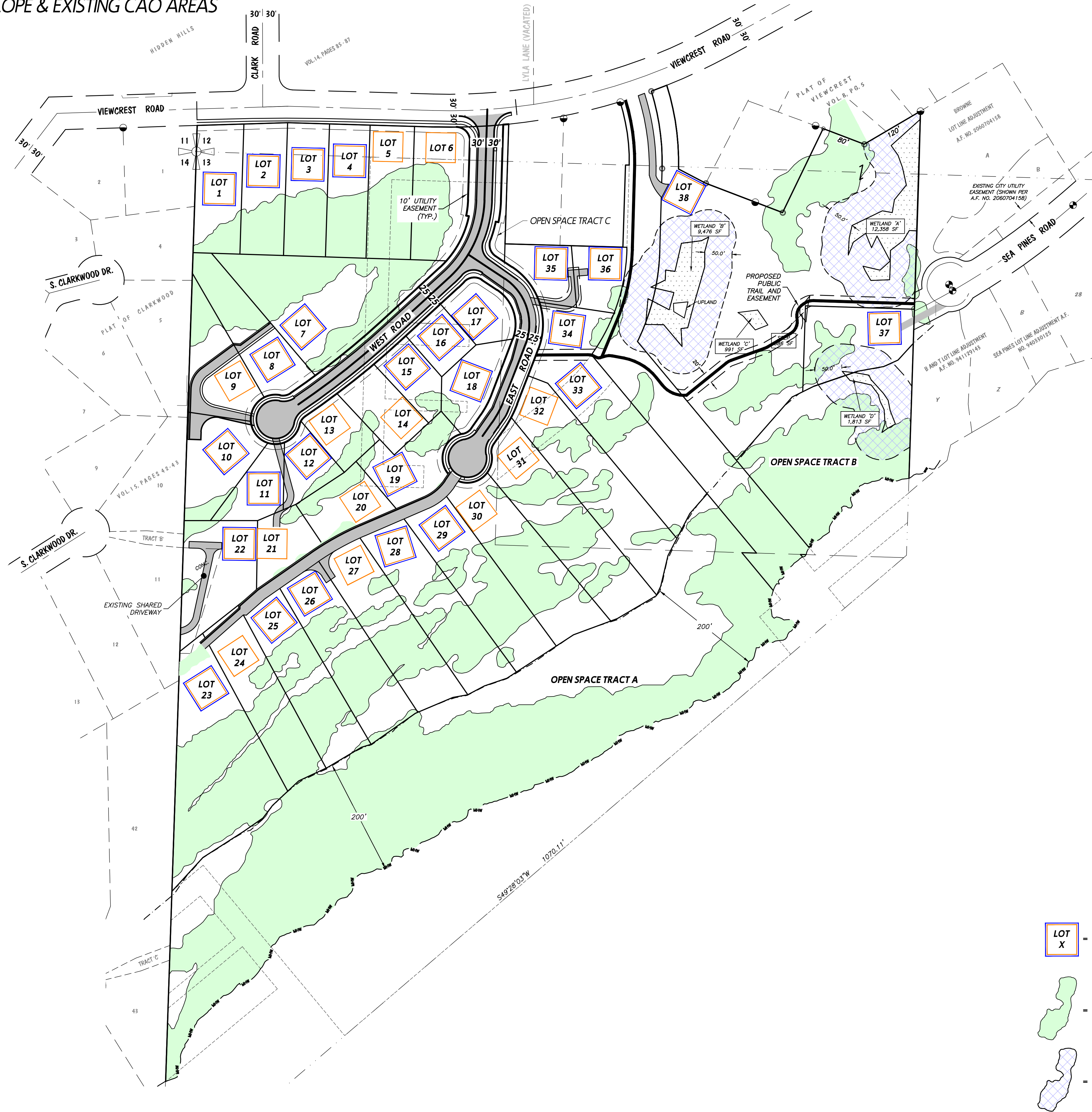
BLOCKS 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16 AND 17; ALL OF BLOCKS 3, EXCEPT LOT 1 AND LOT 2; TOGETHER WITH ALL ALLEYS IN THE ABOVE-DESCRIBED BLOCKS VACATED BY RESOLUTION OF THE CITY COUNCIL OF BELLINGHAM, WASHINGTON, RECORDED JULY 19, 1912 IN VOLUME 1 OF ORDINANCES, AND ALL STREETS AND PARTS OF STREETS VACATED BY THE SAID RESOLUTION, EXCEPT THE SOUTHEASTERLY HALF OF CHUCKANUT AVENUE ABUTTING ON LOTS 1 AND 2, BLOCK 3.

FURTHER EXCEPT THE EAST 750 FEET OF THE NORTH 700 FEET OF GOVERNMENT LOT 1,
SECTION 13, TOWNSHIP 37 NORTH, RANGE 2 EAST, W.M.

FURTHER EXCEPT THAT PORTION, IF ANY, LYING WITHIN LOTS OR BLOCKS 113, 114 AND 115, FAIRHAVEN TIDELANDS, OWNED BY THE CITY OF BELLINGHAM.

SURVEY NOTES:

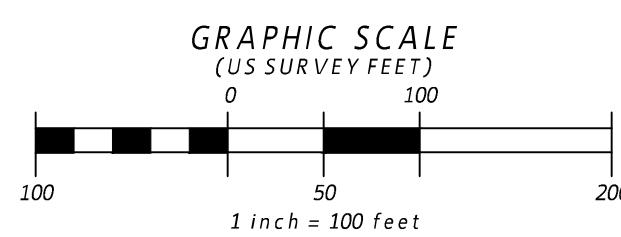
- 1) THIS TOPOGRAPHIC SURVEY WAS PERFORMED AND PREPARED IN ACCORDANCE WITH WAC 332-130-145.
- 2) DATA FOR THIS SURVEY WAS GATHERED BY FIELD TRAVERSE UTILIZING ELECTRONIC DATA COLLECTION IN JULY 2020 AND MERGED WITH DATA COLLECTED BY LBS IN 2008.
- 3) EQUIPMENT USED: THEOMAT 0'01.5"
EDM: ± 2 PPM, ± 3 MM
- 4) HORIZONTAL DATUM: NAD 83/98, WASHINGTON STATE PLANE NORTH ZONE (GRID) PER CITY OF BELLINGHAM CONTROL MONUMENTS 2047 (MONUMENTED S.I. OF VICTOR STREET & FIELDSTONE AVE.) AND 5281 (PRC IN CENTERLINE OF VICTOR STREET ROAD)
- 5) VERTICAL DATUM: NAVD88 PER CITY OF BELLINGHAM VERTICAL CONTROL BENCHMARK #2047.
ORTHO ELEVATION = 209.12
- 6) CONTOURS DEPICTED HEREON MEET OR EXCEED NATIONAL MAPPING STANDARDS FOR 1-FOOT ACCURACY TOPOGRAPHIC SURVEYS AND HAVE BEEN COMPUTED/GENERATED FROM GROUND FIELD TOPOGRAPHY GATHERED FOR THIS SURVEY UTILIZING ELECTRONIC DATA COLLECTION.
- 7) CONDUITABLE UNDERGROUND UTILITY LOCATES SERVICES WERE PERFORMED AND PAINTED BY WASHINGTON STATE 800-CALL UTILITY LOCATE SERVICE AND SURVEYED BY PSE FIELD CREWS IN JULY 2020. UTILITIES ARE KNOWN TO EXIST WITHIN THE LIMITS OF THIS SURVEY THAT WERE UNDETECTABLE. ADDITIONAL UTILITY VERIFICATION MAY BE WARRANTED IN AREAS CONSIDERED FOR CONSTRUCTION. AS-BUILTS AND RECORD DRAWINGS WERE USED TO SUPPLEMENT UTILITY INFORMATION WHERE AVAILABLE.
- 8) UTILITY LOCATION AREAS AND LEVEL OF LOCATE ACCURACY WERE DETERMINED BY SURVEYOR AND CLIENT PRIOR TO COMMENCEMENT OF FIELD SURVEY WORK.
- 9) THIS MAP IS NOT INTENDED TO REPRESENT A FORMAL BOUNDARY SURVEY, NOR DOES IT REFLECT ELEMENTS THAT A BOUNDARY SURVEY MAY DISCLOSE. BOUNDARY RELATED ELEMENTS DEPICTED HEREON ARE SHOWN PER 2008 LBS SURVEY OF SUBJECT PROPERTIES.
- 10) WETLANDS SHOWN HEREON DELINEATED IN JUNE 2020 BY NORTHWEST ECOLOGICAL AND SURVEYED BY PACIFIC SURVEYING AND ENGINEERING IN JULY 2020.



LOT X 60'X60' BUILDING ENVELOPE PURSUANT TO BMC 23.08.060.D.1. THIS AREA DOES NOT NECESSARILY REPRESENT THE ACTUAL BUILDING ENVELOPE, BUT RATHER IS INTENDED TO REPRESENT THAT THE NEW LOT HAS BEEN CONFIGURED TO MEET CITY OF BELLINGHAM "LOT DESIGN" CRITERIA. LOTS 5, 6, 9, 13, 14, 20, 21, 24, 27, 30, 31 & 32 MAY REQUIRE A DEPARTURE (10%)

= GEOLOGICALLY SIGNIFICANT CRITICAL AREA

= WETLAND BUFFER

[illegible]

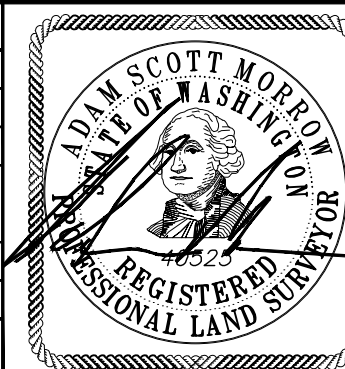
FOR ANNE C. JONES FAMILY LP
807 CHUCKANUT SHORE ROAD
BELLINGHAM, WA 98229

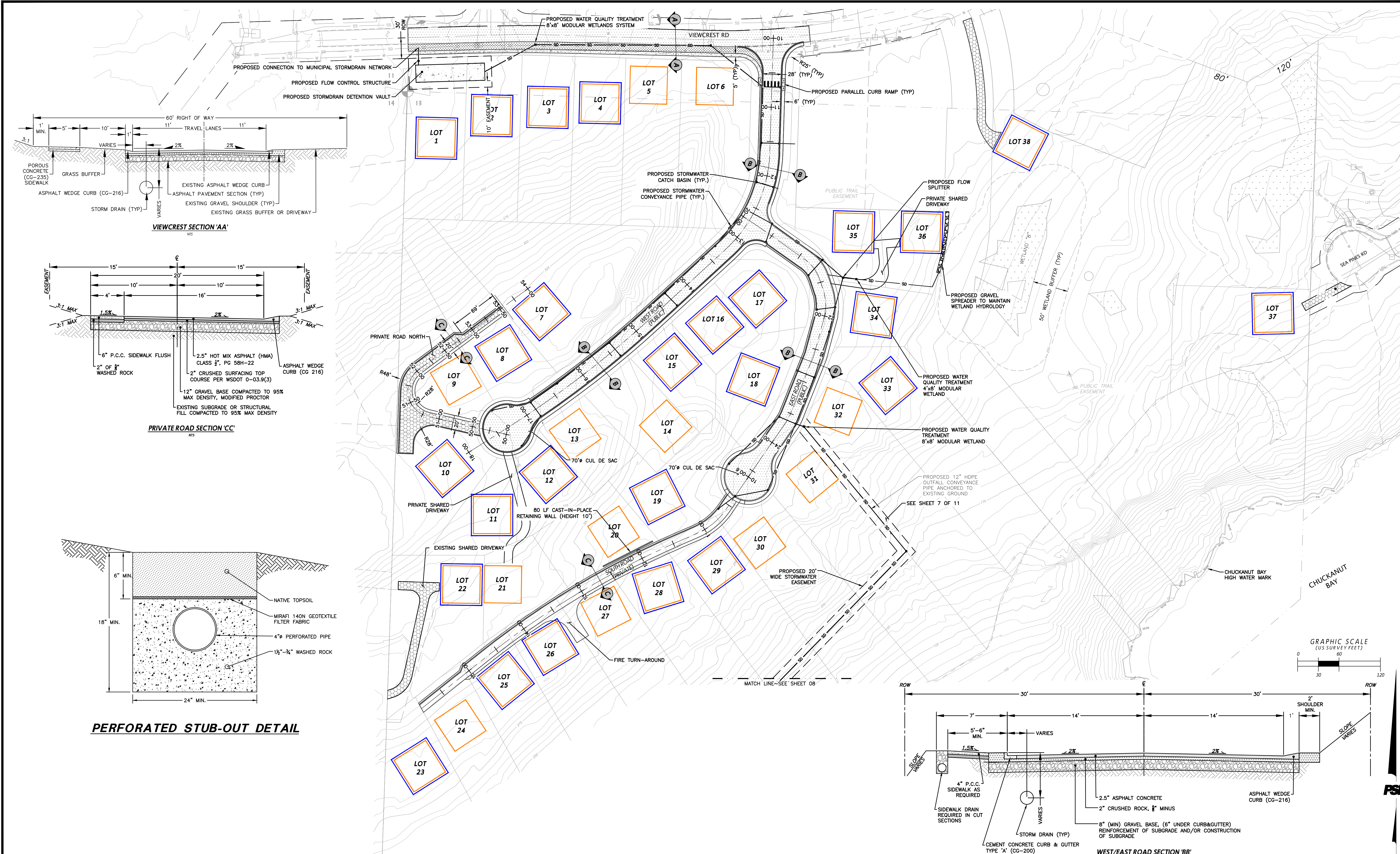
SITUATE IN A PORTION OF THE SW 1/4 OF THE SW 1/4 OF SECTION 12, AND THE
NW 1/4 OF THE NW 1/4 OF SECTION 13, TOWNSHIP 37 NORTH, RANGE 2 EAST,
CITY OF BELLINGHAM, WHATCOM COUNTY, WASHINGTON



909 Squallicum Way, Suite 111 / BELLINGHAM, WA 98225
T: 360.671.7387 / F: 360.671.4685
WWW.PSESURVEY.COM / INFO@PSESURVEY.COM

DATA		DRAWN BY	CHECKED BY	FIELD BOOKS
BASE	TJM/DML	ASM	DESIGN:	
DESIGN			STAKING:	
XREF:	N/A		ASBUILT:	
DWG: 2019196-00X-PREREPLAT_BLDG+CAO				DATUM
HORIZ. SCALE: 1" = 100'				
VERT. SCALE: N/A				
JOB#: 2019196				
SHEET		5	OF	11





CALL BEFORE YOU DIG 1-800-424-5555					
REVISION	DATE	DESCRIPTION	ISSUE	DATE	DESCRIPTION
			1	9/13/2021	PRELIMINARY SITE PLAN
			2	10/18/2022	COB RFI REVISIONS
			3	6/09/2023	COB RFI 2 REVISIONS
			4	12/01/2023	COB RFI 3 REVISIONS

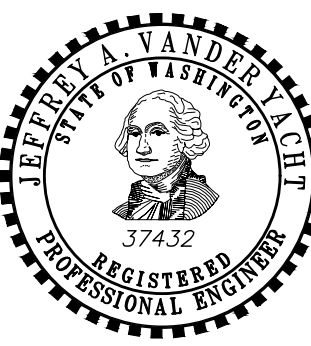
ANN C. JONES FAMILY LP
807 CHUCKANUT SHORE ROAD
BELLINGHAM, WA 98229

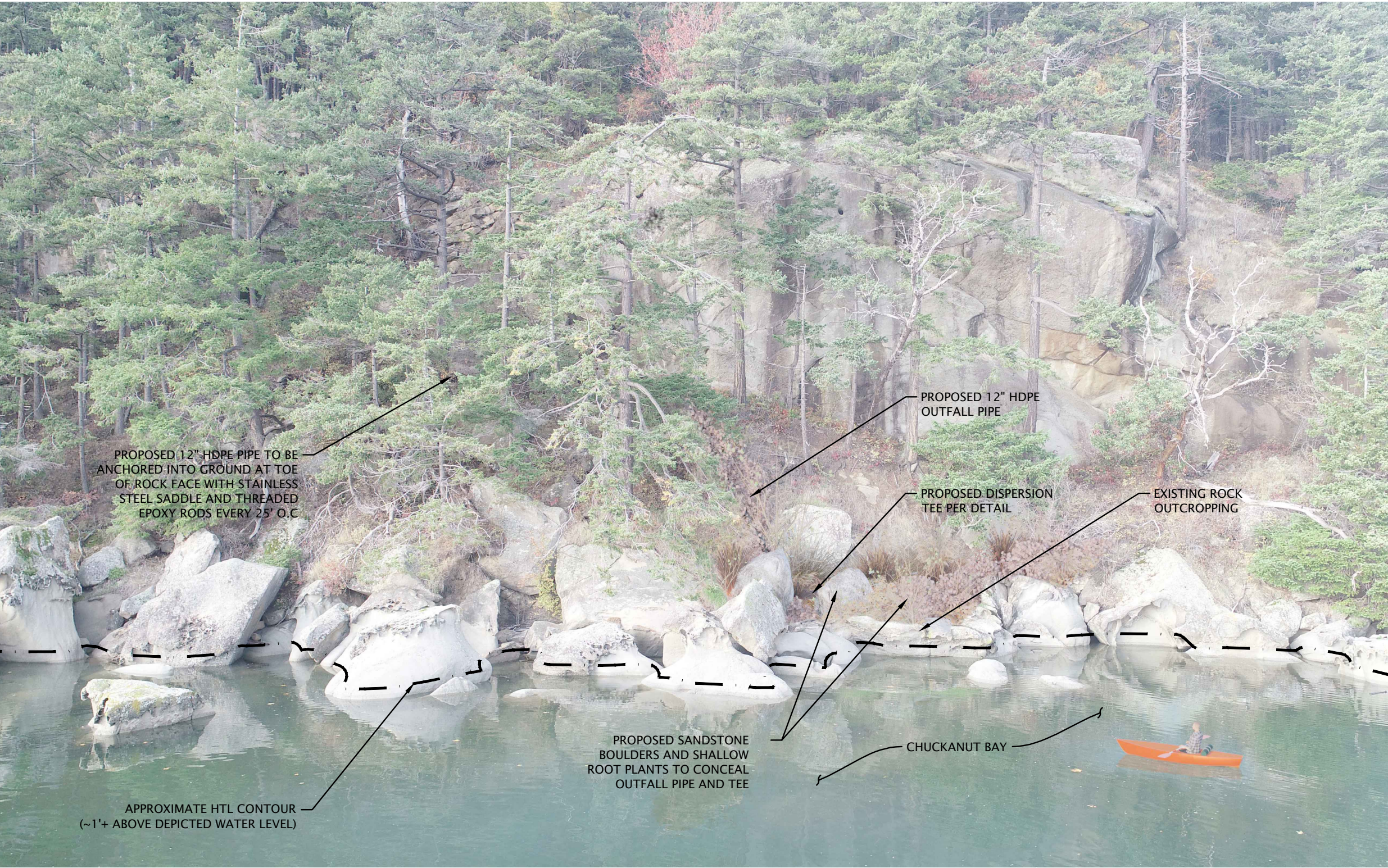
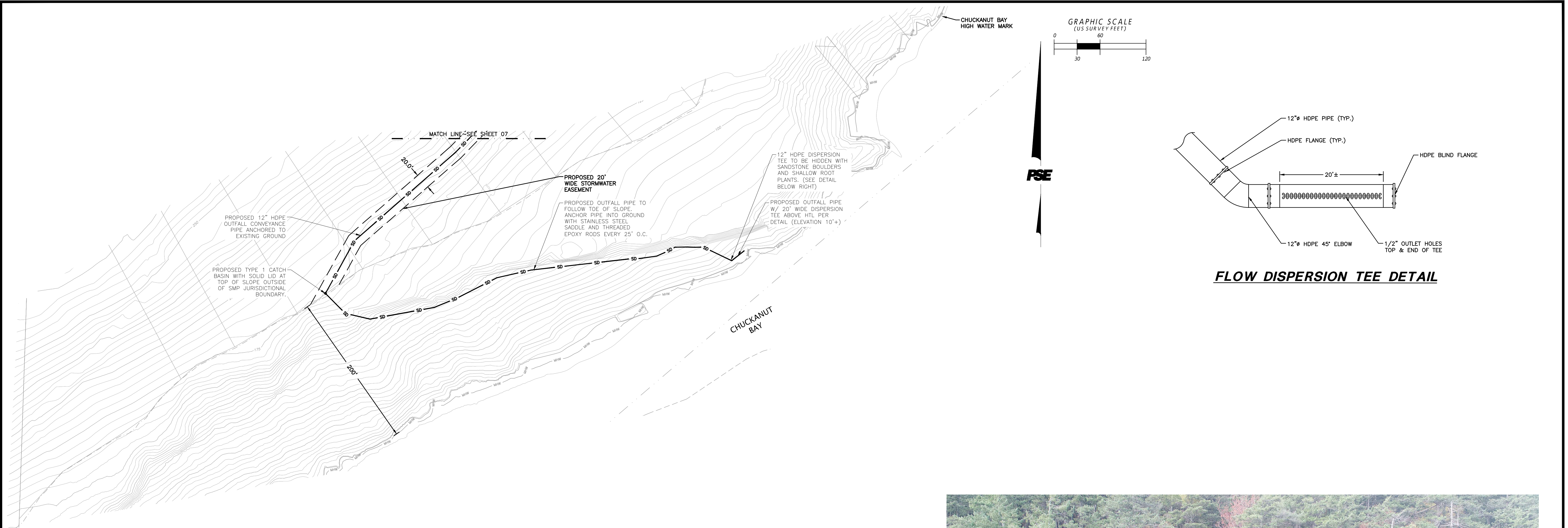
THE WOODS AT VIEWCREST
ESTATE PLANNING
SITE IMPROVEMENTS
ROAD & STORMDRAIN PLAN



PACIFIC SURVEYING
& ENGINEERING, INC.
909 Squakum Way, Suite 111 | BELLINGHAM, WA 98225
T: 360.671.7387 | F: 360.671.4685
WWW.PSESURVEY.COM | INFO@PSESURVEY.COM

DATA	DRAWN BY	CHECKED BY	FIELD BOOKS
BASE	---	---	DESIGN: ---
DESIGN	RIR	JYY	STAKING: ---
XREF:	---	---	ASBUILT: ---
JOB#:	2019196	---	DATUM
HORIZ. SCALE: SEE GRAPHIC SCALE	---	---	NAD83
VERT. SCALE: AS NOTED	---	---	NAVD89
DWG: P:\Pse Project\2019196\DWGs\1_SHEET\2019196_ecP_SP.dwg	---	---	---
SHEET 7 OF 11			





STORMWATER OUTFALL PIPE RENDERING

NTS

CALL BEFORE YOU DIG 1-800-424-5555

REVISION	DATE	DESCRIPTION	ISSUE	DATE	DESCRIPTION
			1	9/13/2021	PRELIMINARY SITE PLAN
			2	10/18/2022	COB RFI REVISIONS
			3	6/09/2023	COB RFI 2 REVISIONS
			4	12/01/2023	COB RFI 3 REVISIONS

ANN C. JONES FAMILY LP
807 CHUCKANUT SHORE ROAD
BELLINGHAM, WA 98229

THE WOODS AT VIEWCREST
ESTATE PLANNING
SITE IMPROVEMENTS
STORMWATER OUTFALL

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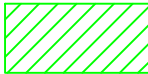

DATA	DRAWN BY	CHECKED BY	FIELD BOOKS
BASE	---	---	DESIGN: ---
DESIGN	RIR	JVY	STAKING: ---
XREF:	---	---	ASBUILT: ---
JOB#:	2019196		DATUM
HORIZ. SCALE:	SEE GRAPHIC SCALE		NAD83
VERT. SCALE:	AS NOTED		NAVD89
DWG:	P:\Pse Project\2019196\DWGs_-SHEET\2019196_ecP_SP.dwg		
SHEET	8	OF	11



CAO BUFFER MITIGATION EXHIBIT MAP

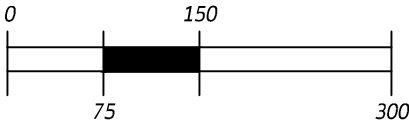
SITUATE IN A PORTION OF SECTION 12 AND SECTION 13, TOWNSHIP 37 NORTH,
RANGE 2 EAST, W.M., CITY OF BELLINGHAM, WHATCOM COUNTY, WASHINGTON

HATCHING LEGEND:

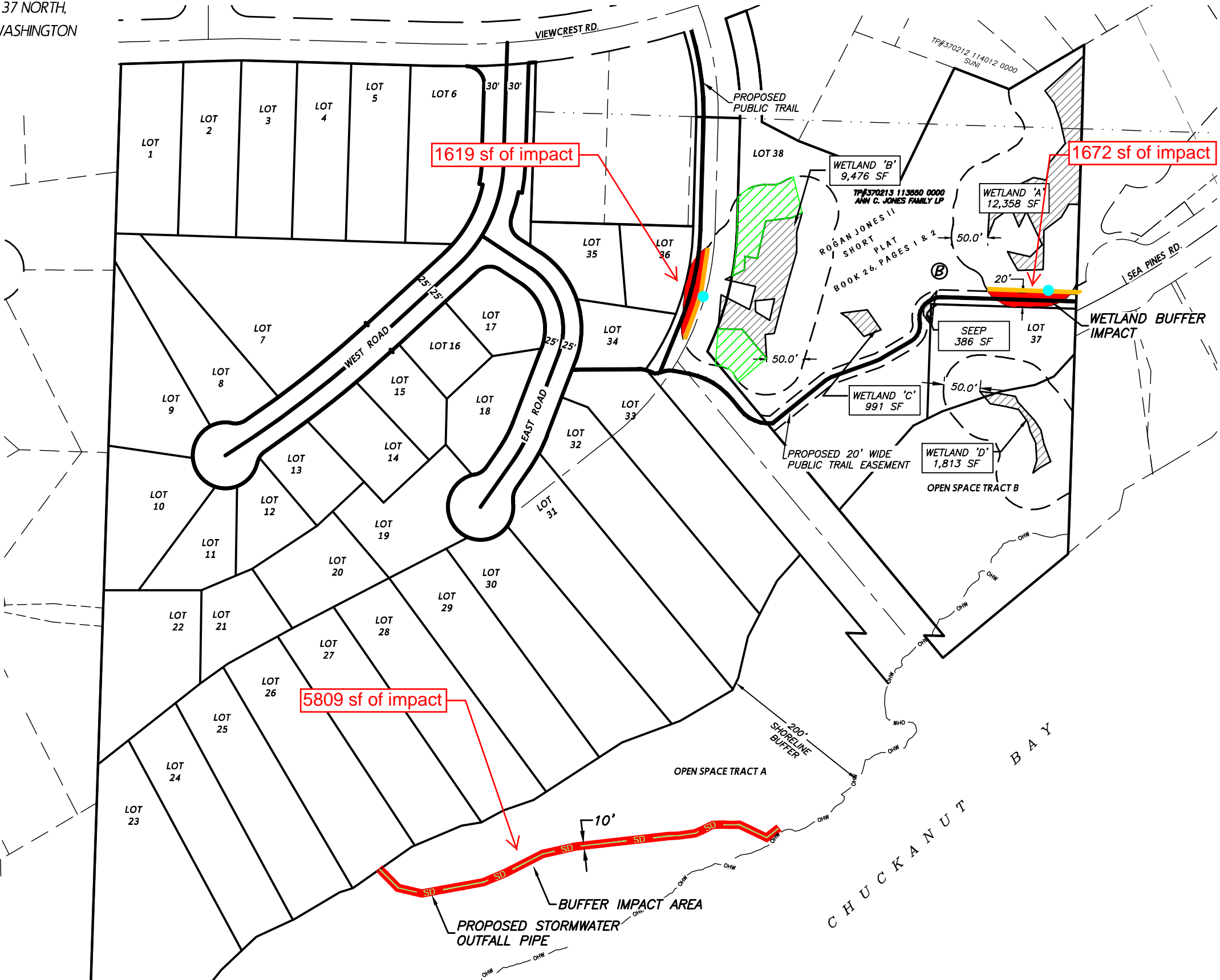
-  = WETLAND PER NORTHWEST ECOLOGICAL SERVICES DELINEATION
-  = BUFFER IMPACT AREA (9,100 SF)
-  = BUFFER ENHANCEMENT AREA (9,100 SF)
-  Wildlife permeable fence and protective signage

PSE

GRAPHIC SCALE
(US SURVEY FEET)



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& ENGINEERING, INC.**
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APPENDIX C: CONTRACTOR'S CHECKLIST

CONTRACTOR'S CHECKLIST

To: Jones Family Limited, Applicant
From: Collin Van Slyke, Northwest Ecological Services, LLC (NES)
Date: November 22, 2024
RE: Mitigation for the Woods at Viewcrest

This memorandum is intended to help you proceed with successful installation of the mitigation project associated with the Woods at Viewcrest project.

- The checklist is intended to be a summary of details from the mitigation plan. **This document is provided for the convenience of the contractor and is not a replacement for details in the mitigation plan. Please read it, in its entirety, for all information.**
- Tasks should take place after receiving approval of the mitigation plan and appropriate permits.
- Tasks in this checklist should be completed in order by the contractor, unless otherwise noted.

Approximate Date	Task	Comments
Prior to any work on-site	Install construction fencing to protect retained wetland and buffer	To be completed by General Contractor
	Install required erosion control before earthwork begins	To be completed by General Contractor
	Record conservation easement	To be completed by Applicant
Summer/ Early Fall	Order plants for fall/winter installation. Order by June 1 to ensure availability.	To be completed by Mitigation Contractor
	Noxious weed management as recommend by Biologist in early fall.	To be completed by Mitigation Contractor
Fall/Winter	Install plant material with mulch rings and blue tubes	To be completed by Mitigation Contractor
	Install split rail fencing and NGPA signs	To be completed by Mitigation Contractor
	As-built by NES upon completion	To be completed by Biologist



NW ECOLOGICAL SERVICES

2801 Meridian St, Suite 202, Bellingham, WA 98225
nwecological.com | t 360.734.9484