

# TYPE 3 STREAM – BUFFER PLANTING PLAN

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**Parcel #893234  
Kittitas County, Washington**

*Prepared for:*

Paul Hoskins

6632 Elizabeth Loop SE  
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*Prepared by:*

GG Environmental

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December 2, 2021



**GG Environmental**

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# Introduction

Paul Hoskins (Applicant) is planning to construct a tiny home on parcel #567935, situs address 26 Kearny Drive, Snoqualmie Pass, WA 98068 (**Figure 1**).

The parcel is located between State Route 906 (SR 906) and Interstate 90 in unincorporated Kittitas County. Falling within Section 9 of Township 22 North, Range 11 East, the approximate center of the parcel is latitude 47°24'49.94"North and longitude 121°24'47.01"West (WGS84).

**Figure 1. Parcel Location**



An unmapped, narrow, and incised stream flows across the parcel, confirmed by the Washington Department of Fish and Wildlife (WDFW)<sup>1</sup> to be a Type 3 stream. The county has approved a setback (“buffer”) of 20 feet from the ordinary high water mark (OHWM) of this stream.<sup>2</sup>

The Applicant proposes to construct a gravel driveway across the creek to provide access to the buildable east end of the parcel. This action will require a culvert to be added to the creek channel.<sup>3</sup>

Construction will result in a permanent disturbance footprint of 673 square feet (ft<sup>2</sup>) within a 20-ft radius of the OHWM (**Attachment 1**).

To compensate for the buffer disturbance, the Applicant proposes buffer averaging per the Kittitas County Critical Areas Ordinance (CAO).<sup>4</sup> To comply with the Hydraulic Project Approval (HPA) issued by the WDFW, the Applicant will avoid/minimize disturbance to existing woody vegetation along the OHWM and will add native woody plants where few to none exist.

To this end, the Applicant retained the services of GG Environmental (Geoffrey Gray, MA, PWS #3162) to conduct a site visit on November 9, 2021 and prepare a planting plan to satisfy the regulatory requirements of both the county CAO and WDFW HPA.

The objective of the planting plan is to ensure that construction of the driveway and tiny home, including landscaping with native plants, will not adversely impact existing riparian habitat functions and values.

## Baseline Riparian Functions and Values

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Due to existing development in close proximity to the stream and high levels of human and vehicular disturbance in the vicinity, terrestrial habitat along the stream reach is fragmented and unsuitable for wildlife<sup>5</sup> except for transitory use by birds and small mammals.

The incised stream does not typically overflow its banks nor engage with a floodplain. As such, there is no hydrologic diversity associated with the stream; no wetlands or other aquatic resources are present within the vicinity.

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<sup>1</sup> Per Mr. Hoskins in an email dated 11/2/2021 11:47 AM

<sup>2</sup> Kittitas County PSA-21-00519 (10/7/2021).

<sup>3</sup> A Hydraulic Project Approval (HPA) will be issued by the WDFW for the culvert.

<sup>4</sup> CAO 17A.07.010

<sup>5</sup> The WDFW Priority Habitats and Species (PHS) (WDFW 2021) and United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) (USFWS 2021) databases were queried to determine whether sensitive species may be present within the parcel vicinity. It is determined that the action proposed by the Applicant will not affect the species listed (Canada lynx, gray wolf, marbled murrelet, northern spotted owl, yellow-billed cuckoo, bull trout, Monarch butterfly, and whitebark pine), due to lack of suitable habitat.



Due to significant downcutting (**Figure 2**), dense overhead tree cover, and steep, coniferous terrain to the west, the sun does not shine directly on flowing water where the driveway crossing is proposed. No vegetation is rooted in the stream channel; rather, the banks are stabilized by the roots of adjacent large conifers and shrubs.

The streambanks are steep and also undercut. Little vegetation is rooted along the creekbanks where the culvert installation is proposed (**Figure 2**). Overall, baseline riparian functions and values for the immediate stream reach are low to none.

**Figure 2.** Incised stream channel at proposed driveway crossing



## **Baseline Ecological Condition of Parcel 567935**

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The parcel terrain slopes gently toward the east, with the stream bisecting it as it flows toward the south. Surrounding disturbance includes SR 906 at the parcel's west end, an active gravel road that bisects the parcel parallel to SR 906, and existing homes constructed in very close proximity to the parcel's northern, eastern, and southern limits.

A variety of large trees are present including grand fir (*Abies grandis*), western hemlock (*Tsuga heterophylla*), western red cedar (*Thuja plicata*), and Pacific silver fir (*Abies amabilis*).

Shrubs rooted in patches along the stream include alder (*Alnus* sp., likely *viridis*) and willow (*Salix* sp.), while in sunlit portions of the parcel, dominants include Douglas' meadowsweet (*Spiraea douglasii*), black elderberry (*Sambucus nigra*), and salmonberry (*Rubus spectabilis*). Numerous conifer seedlings and small trees are also present in the understory.

Several herbaceous/groundcover species were also observed, but due to the late time of year and six inches of snow on the ground, these species were not identified.

No bird nests were observed in the shrubs or trees. No wildlife was present except several passerine birds. No sign of persistent (pooled) water or surface erosion was observed on the parcel inferring that infiltration is rapid and no surface flow enters the stream other than immediate snowmelt.

Although the parcel supports a mix of native plant species, it is very small and isolated in the midst of disturbance on all sides. As such, its ecological value is low to none.

## Planting Plan

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In order to compensate for 673 ft<sup>2</sup> of riparian buffer disturbance, the Applicant proposes 735 ft<sup>2</sup> of buffer averaging per the CAO (**Attachment 1**).

To comply with the HPA, the Applicant proposes to avoid all existing woody vegetation along the OHWM. To compensate for the driveway footprint over the stream, native woody plants will be installed along the stream left bank where there are currently few or none.

Since the baseline riparian and ecological functions and values of the parcel are low to none, the addition of native, woody vegetation is expected to maintain, or improve, existing functions and values by providing additional habitat for wildlife and protecting water quality through improved soil stabilization.

The following measures shall be implemented:

1. Avoid existing trees and shrubs to the greatest extent practicable.
2. Minimize disturbance to trees and shrubs to the greatest extent practicable by trimming,<sup>6</sup> rather than grubbing. This will allow existing native plants to rapidly resprout.
3. Enhance the vegetative baseline by installing native plants within the buffer averaging zone and along the left bank of the stream.

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<sup>6</sup> Shrubs shall be trimmed no less than six inches above the ground surface to allow for maximum regrowth.

**Task 1: Plant installation**

A mixed palette of native trees, shrubs, and/or groundcover species including, but not limited to, the suggested plants in **Tables 1 and 2**, shall be installed within the buffer averaging zone and left streambank<sup>7</sup> as illustrated in **Attachment 1**. The suggested<sup>8</sup> plants are adapted to dry, shady conditions. The ideal time of year to install plants would be in the fall (mid-October to late November),

**Task 2: Weed control**

Non-desirable weeds will be managed throughout the parcel via mechanical, manual, barrier, and/or chemical methods.

**Table 1. Suggested Native Plant Palette – Buffer Averaging Zone (5’ on center)**

Common Name	Scientific Name	Type	Max Height (ft)	Minimum #
snowberry	<i>Symphoricarpos albus</i>	shrub	5	5
low Oregon grape	<i>Mahonia nervosa</i>	shrub	3	5
sword fern	<i>Polystichum munitum</i>	shrub	3	5
bleeding heart	<i>Dicentra formosa</i>	groundcover	1.5	10
salal	<i>Gaultheria shallon</i>	shrub	5	5
wood sorrel	<i>Oxalis oregana</i>	groundcover	0.5	10
trillium	<i>Trillium ovatum</i>	groundcover	1.5	10

Minimum total plants: 50

**Table 2. Suggested Native Plant Palette – Left Streambank (3’ on center)**

Common Name	Scientific Name	Type	Max Height (ft)	Minimum #
Douglas’ meadowsweet	<i>Spiraea douglasii</i>	shrub	6	3
sword fern	<i>Polystichum munitum</i>	shrub	3	3
salal	<i>Gaultheria shallon</i>	shrub	5	4

Minimum total plants: 10

<sup>7</sup> The streambank already includes established woody shrubs that will be avoided. The only two streambank areas that would benefit from additional plantings (3’ OC) are as illustrated in **Attachment 1**.

<sup>8</sup> The final plant palette will be determined at the discretion of the Applicant.

## Monitoring Plan

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Plants shall be monitored for three years after installation. Revegetation goals, and the performance standards for each goal, are outlined below.

### **Goal 1 – Increase native woody vegetation within the buffer averaging zone**

#### **Objective:**

Enhance the buffer averaging area by adding a minimum of 50 native trees, shrubs, and/or groundcover species, at an average<sup>9</sup> density of five feet on center (5' OC), across the planted zones (**Table 1, Attachment 1**).

#### **Performance Measures**

**Year 1** (one year post-planting): Survival of the installed plants shall be 100 percent. If dead plants are replaced to achieve this threshold, the performance measure will be met. Native trees, shrubs, and/or groundcover species that volunteer within the planted zones shall count toward survivorship.<sup>10</sup>

**Year 2** (two years post-planting): Survival of the installed plants shall be at least 75 percent. Installation of new plants to achieve this threshold is acceptable in meeting the performance measure. Native trees, shrubs, and/or groundcover species that volunteer within the planted zones shall count toward survivorship.

**Year 3** (three years post-planting): Survival of the installed plants shall be at least 50 percent or at least 50 percent average aerial cover across the planted zones. Installation of additional native plants to achieve either of these thresholds is acceptable in meeting the performance measure. Native trees, shrubs, and/or groundcover species that volunteer within the planted zones shall count toward survivorship and/or average aerial cover.

### **Goal 2 – Increase native woody vegetation near the stream**

#### **Objective:**

Enhance the left streambank by adding a minimum of 10 native trees or shrub species at an average<sup>11</sup> density of three feet on center (3' OC) across the planted zones (**Table 2, Attachment 1**).

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<sup>9</sup> This means that the Applicant may choose to modify planting density based on microsite conditions.

<sup>10</sup> Survivorship may exceed 100 percent.

<sup>11</sup> This means that the Applicant may choose to modify planting density based on microsite conditions.

### ***Performance Measures***

**Year 1 (one year post-planting):** Survival of the installed plants shall be 100 percent. If dead plants are replaced to achieve this threshold, the performance measure will be met. Native trees, shrubs, and/or groundcover species that volunteer within the planted zones shall count toward survivorship.<sup>12</sup>

**Year 2 (two years post-planting):** Survival of the installed plants shall be at least 90 percent. Installation of new plants to achieve this threshold is acceptable in meeting the performance measure. Native trees, shrubs, and/or groundcover species that volunteer within the planted zones shall count toward survivorship.

**Year 3 (three years post-planting):** Survival of the installed plants shall be at least 80 percent across the planted zones. Installation of additional native plants to achieve this threshold is acceptable in meeting the performance measure. Native trees, shrubs, and/or groundcover species that volunteer within the planted zones shall count toward survivorship.

### **Goal 3 – Noxious Weed Control**

#### **Objective:**

Control the establishment and spread of noxious weeds within the parcel boundary.

#### ***Performance Measures***

**Years 1-3:** Kittitas County Class A-C noxious weeds<sup>13</sup> shall be controlled. All other non-desirable plants shall be managed such that the objectives for Goals 1 and 2 are achieved.

## **As-built and Monitoring Reports**

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An **as-built report** describing the planted baseline of the buffer averaging zones and left streambank shall be submitted to Kittitas County and WDFW within 30 days of plant installation.

A **monitoring report**, documenting progress toward meeting the annual performance measures for Goals 1-3, shall be submitted by January 1 of the year following the monitoring efforts for post-planting years 1-3.

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<sup>12</sup> Survivorship may exceed 100 percent.

<sup>13</sup> Kittitas County Noxious Weed Control Board (2021). Available online at: <https://www.co.kittitas.wa.us/noxious-weeds/list.aspx>



## **Adaptive Management**

Should plant survival and/or growth not perform on a trajectory to meet the performance measures for post-planting year 3, adaptive management may include, but is not limited to, one or more of the following:

1. Installation of additional native plants.
2. Installation of different native plant species.
3. Alternate planting areas.
4. Modified weed control methods.
5. Lengthened monitoring period.

Adaptive management measures that are implemented shall be described in the annual monitoring report.

## Resources

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Kittitas County Code Title 17A. Critical Areas. 2021. Available online at:

[https://www.co.kittitas.wa.us/boc/countycode/title17a.aspx#Chapter\\_17A.07](https://www.co.kittitas.wa.us/boc/countycode/title17a.aspx#Chapter_17A.07)

Kittitas County Compas. 2021. Available online at:

<https://kitcogis.maps.arcgis.com/apps/webappviewer/index.html?id=8bcc146d9c2847acb2e9aa239187c25e>

Kittitas County Noxious Weed Control Board. 2021. Noxious weed list. Available online at:

<https://www.co.kittitas.wa.us/noxious-weeds/list.aspx>

Google Earth. 2021. Desktop installer available online at:

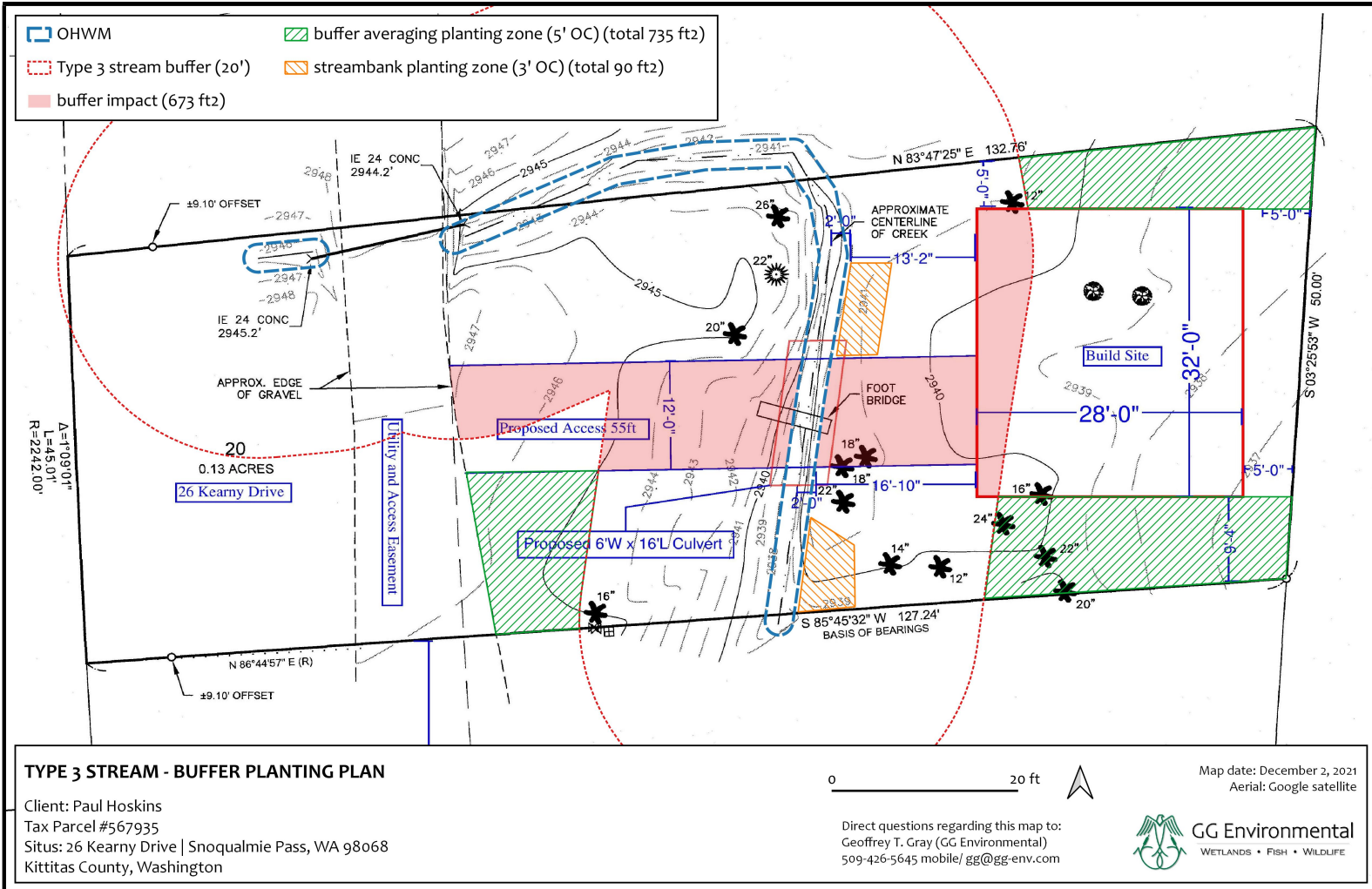
<https://www.google.com/earth/versions/#download-pro>

United States Fish and Wildlife Service. 2021. Information for Planning and Consultation (IPaC). Available online at: <https://ecos.fws.gov/ipac/>

Washington State Department of Fish and Wildlife. 2021 Priority Habitat and Species.

Available online at: <https://apps.wdfw.wa.gov/phsontheweb/>

# ATTACHMENT 1. TYPE 3 STREAM – BUFFER PLANTING PLAN



Paul Hoskins  
 Type 3 Stream – Buffer Planting Plan  
 Parcel #893234, Kittitas County

December 2, 2021

