HATZIC VALLEY WATERWAYS KNOTWEED MANAGEMENT PLAN

August 2026 to August 2029

BRITISH COLUMBIA
Ministry of Environment and Parks

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INTRODUCTION

Knotweeds present a significant threat to aquatic ecosystems, including fish and wildlife habitat, bank stability and water quality. Knotweed also presents a threat to the structural integrity of infrastructure, such as bridge abutments, roads and pumps. Knotweed is present in limited amounts, and it is imperative to control these infestations while they remain small, to protect the important values of the Hatzic Valley water system.

Hatzic Valley is within Frazer Valley Regional District (FVRD) Area F. The rural population is predominately a farming community. Initial work completed by the Fraser Valley Invasive Species Society (FVISS) has identified numerous areas of knotweed along Hatzic Valley waterways, with some areas overtaking the entire riparian area. Previous work completed to treat knotweed is limited to road rights-of-ways, and has largely been managed by the FVISS. Area F currently does not participate in the FVRD Weed Control program, which includes additional homeowner incentive programs (i.e. cost-share programs, invasive bag pick-up), in addition to treatment work done on roadside/public land. The FVRD contracts the Weed Control Program to FVISS, and knotweed treatments are completed by FVISS and subcontractors. As a result, residents in Hatzic Valley currently can't participate in the Knot On My Property (KOMP) cost-share program.

This management plan seeks to support the proposed Pesticide Use Permit (PUP) required to treat knotweed infestations within the Pesticide Free Zone (PFZ) adjacent to Legace Creek, Eng/McNab Creek, North and South Herford Creeks, Allen Lake, roadside and agricultural ditches and other pluvial flow potential sites within the Hatzic Valley using aquatic herbicide Habitat Aqua (a.i. imazapyr) for foliar applications and Roundup WeatherPRO (a.i. glyphosate) foliar and stem injection applications.

The 2026 to 2029 PUP will use both Habitat Aqua and Roundup WeatherPRO to protect the Hatzic Valley water system from knotweed. This management plan proposes to treat all knotweed clones detected growing in the riparian areas adjacent to Legace Creek, Eng/McNab Creek, North and South Herford Creeks, Allen Lake, roadside and agricultural ditches and other pluvial flow potential sites within the Hatzic Valley. Wherever feasible, foliar application methods will be used to limit the volume of herbicide entering the environment. Stem injection using Roundup WeatherPRO may be required in some instances if the knotweed foliage cannot be effectively accessed using foliar application. Habitat Aqua is specifically formulated for use in and adjacent to aquatic environments and will be the preferred product for knotweed treatments during the 2026 to 2029 treatment period. These treatments will occur as foliar applications. The use of Habitat Aqua is an important strategy not only for treatment efficacy, but also to limit the risk of knotweed developing herbicide resistance, as Habitat Aqua (a.i. imazapyr) chemistry and modes of action are different from that of the glyphosate products previously used for primary treatment in this project. Habitat Aqua is well-suited for knotweed treatments not only to water's edge but also emergent, wetted plant applications. All foliar treatment applications will be made as targeted spot treatments with the intention of limiting drift and non-target vegetative damage.

The extent of knotweed adjacent to Legace Creek, Eng/McNab Creek, North and South Herford Creeks, Allen Lake, roadside and agricultural ditches and other pluvial flow potential sites within the Hatzic Valley is currently limited to a total area of 3.21 ha. The total area proposed for inclusion in the PUP is significantly larger at 40 ha, including zone 1-4 in the Hatzic Valley.

Zone 1: This area is identified as source locations and should be treated thoroughly to catch eradicate conduit flow potential.

- This included Lagace Creek from Pattison Drainage to Allan Lake, Eng and McNab Creek, and Allan

Lake.

- Allan Lake is shown as a treatment potential area (Zone 1b) as the total of Allan Lake is included as this lake dries out in summer. It is an unknown source potential right now and may not require treatment.
- Areas also include pluvial flow potential sites such as ditching sites.

Zone 2 below the Patterson Drainage and is roughly Hatzic Valley Flood Response Site 15/16 locations on Lagace Creek. These sites were treatment via mechanical removal and require spot treatments to manage any fragments.
Zone 3 Farm Road to Dales Road on Lagace Creek, including Kenworth Creek drainage.
Zone 4 Below Dales Road to Hatzic Lake.

Zones	Location	Area of proposed Treatment (ha)	PUP 2026-2029	PUP 2029-2032
Zone 1a	Eng and McNab Creeks	2.1	x	
Zone 1b	Allan Lake*	10.2*	x	
Zone 1c	upper Lagace to Patterson	6.68	x	
Zone 2	Site 15/16	11.8	x	
Zone 3	Farm Road to Dales Road	6.4		x
Zone 4	below Dales Road to Hatzic Lake	2.7		x
Total proposed treatment area (ha)		39.68	30.58	9.1

The large PUP boundary will allow for the treatment of newly detected knotweed clones that may be introduced to the extent of the Hatzic Valley drainage as a result of high-water events or disturbance. The limit to total treatment area each year will not exceed 3 ha, however it is anticipated that the actual annual treatment area will be significantly less based on currently known knotweed locations.

The management plan includes surveys, three treatment passes of all sites (known and newly detected) and ongoing monitoring annually.

The goal of the Hatzic Valley Waterways Knotweed Management Plan is to prevent knotweed from expanding outside of the Hatzic Valley and eventually eradicate knotweed from the Hatzic Valley water system in its entirety.

OBJECTIVES AND GOALS

Start to restore the riparian and aquatic areas of the Hatzic Valley from invasive species. Habitat degradation is the primary driver of this program, with aims to restore riparian habitat for fish enhancement. Riparian areas without monocultures of knotweed allow for better nutrient inputs, better management of source erosion/sedimentation, and better shade development leading to water qualities.

- Goal 1: prioritize Zone 1 to be free of invasive knotweed
- Goal 2 priorities Zone 1 and 2 to be free of invasive knotweed by year 3
- Goal 3 prioritize Zones 1-3 being fee of invasive knotweed by year 5
- Goal 4: prioritize Zones 1-4 Hatzic Valley knotweed population eradicated by year 10

TREATMENT AREA & SITES

Knotweed is present in limited amounts in the Hatzic Valley. The general area for this project includes Legace Creek, Eng/McNab Creek, Allan Lake, roadside and agricultural ditches and other pluvial flow potential sites within the Hatzic Valley (See Appendix 1 – Map: Project Area & Treatment Sites). The project area includes locations where no knotweed has been observed in the past (e.g. Allan Lake) as the site is an unknown status of knotweed as of right now and will be surveyed and treated if new growth appears (See Appendix 2 - Treatment Site Summary).

PROGRESS & ACCOMPLISHMENTS

2026 will mark start of the knotweed management project. This represents the inception year and the start of management of this problematic invasive plant in this valley.

HERBICIDE PRODUCTS

Table 1. Proposed herbicide and adjuvant products to be used for knotweed treatments at Hatzic Valley waterways, 2026-29.

Trade Name	**Habitat Aqua**	**Aquasurf Adjuvent**	**Roundup WeatherPRO**
Active Ingredient	Imazapyr	Surfactant blend	Glyphosate
PCP #	32374	32152	33653
Application Rate	3.0 to 4.68 L/ha (foliar)	0.25% v/v (added to Habitat Aqua)	1.34% foliar, 5 mL/stem (injection)
Comments	Well suited for use in and adjacent to aquatic ecosystems and will provide protection from herbicide resistance developing in the knotweed by using a different herbicide chemistry as compared to glyphosate products. This is the preferred herbicide product for foliar treatment the Hatzic Valley.	Required to be used with Habitat Aqua to achieve better efficacy.	Retained as a secondary foliar treatment option or where stem injection is the preferred treatment method at a given site.

METHODS

Several factors can influence treatment efficacy, and it is important to have access to more than one herbicide and treatment method to ensure effective control can be obtained under varying site and growth conditions over the course of the growing season.

Foliar Spray

- Selective, foliar spot applications are the preferred treatment method as it minimizes the volume of herbicide product entering the environment. Foliar spray applications can be made by backpack or quad mounted sprayers. These sprayer options will be used to make careful targeted applications, directly and uniformly to the leaves of invasive knotweed

- Habitat Aqua is specifically formulated for use in and adjacent to aquatic environments and will be the preferred product for knotweed treatments during the 2026 to 2029 treatment period. These treatments will occur as foliar applications. Targeted foliar spray applications, through the use of a narrow fan nozzle, with medium droplets of Habitat Aqua ~~in and~~ adjacent to water are considered safe for aquatic life and the overall environment. These spray applications will be completed annual once a calendar year. On a secondary pass will only be used on missed or newly emerged plants.

- Roundup WeatherPRO will be retained as a secondary foliar treatment option and is not suitable for use over water. To eliminate incidental contact with water when using Roundup WeatherPRO in close proximity, drift shielding in the form of a nozzle cone or wind barrier will be employed, with coarse droplets.

- Foliar applications near culturally sensitive or recreational structures will employ drift shielding in the form of a nozzle cone or wind barrier if deemed necessary by the applicator.

Stem Injection

- Applied through hand-held injection devices that deliver specified amounts of herbicide to hollow-stem plants (knotweed spp.)
- Inject 5 mL per stem of concentrated Roundup WeatherPRO into each cane between the second and third internode. Most effective if stems are at least 1.25 cm in diameter.
- Plants are to be actively growing at the time of application.

Timing

- June to September - Treatment application will occur during the dry season when water levels will not rise for an extended period following pesticide application, allowing for the breakdown of glyphosate (half-life 32 days when not exposed to water).

- Treatments of plants are anticipated to be once per year. Foliar glyphosate is the only secondary treatment allowed as a secondary pass annually on a previously treated plant of that calendar year.

TREATMENT HERBICIDE & APPLICATION METHOD SELECTION

Non-herbicide treatment options were executed during the 2024 and 2025 construction window on Legace. Much of the knotweed infested sediment was appropriately disposed of. However, follow up monitoring has shown re-emergent plants. We have critically evaluated efficacy in treating knotweed during project development, along with the potential unintended risks. The outcome of this evaluation determined that the proposed herbicide products will achieve the greatest treatment efficacy while minimizing impacts to adjacent ecosystems, aquatic life and the public.

Herbicide and application methods were selected based on chemistry suitability to site type, treatment efficacy, product toxicology, limiting the quantity of herbicide entering the environment and potential non-target effects.

All knotweed sites (existing and new) will be monitored throughout the growing season for treatment efficacy and non-target effects.

Foliar Spray

Wherever feasible, foliar application methods will be used to limit the volume of herbicide entering the environment. Habitat Aqua is specifically formulated for use in and adjacent to aquatic environments and will be the preferred product for knotweed treatments during the 2026 to 2029 treatment period. These treatments will occur as foliar applications. All foliar treatment applications will be made as targeted spot treatments with the intention of limiting drift and non-target vegetative damage.

Stem Injection

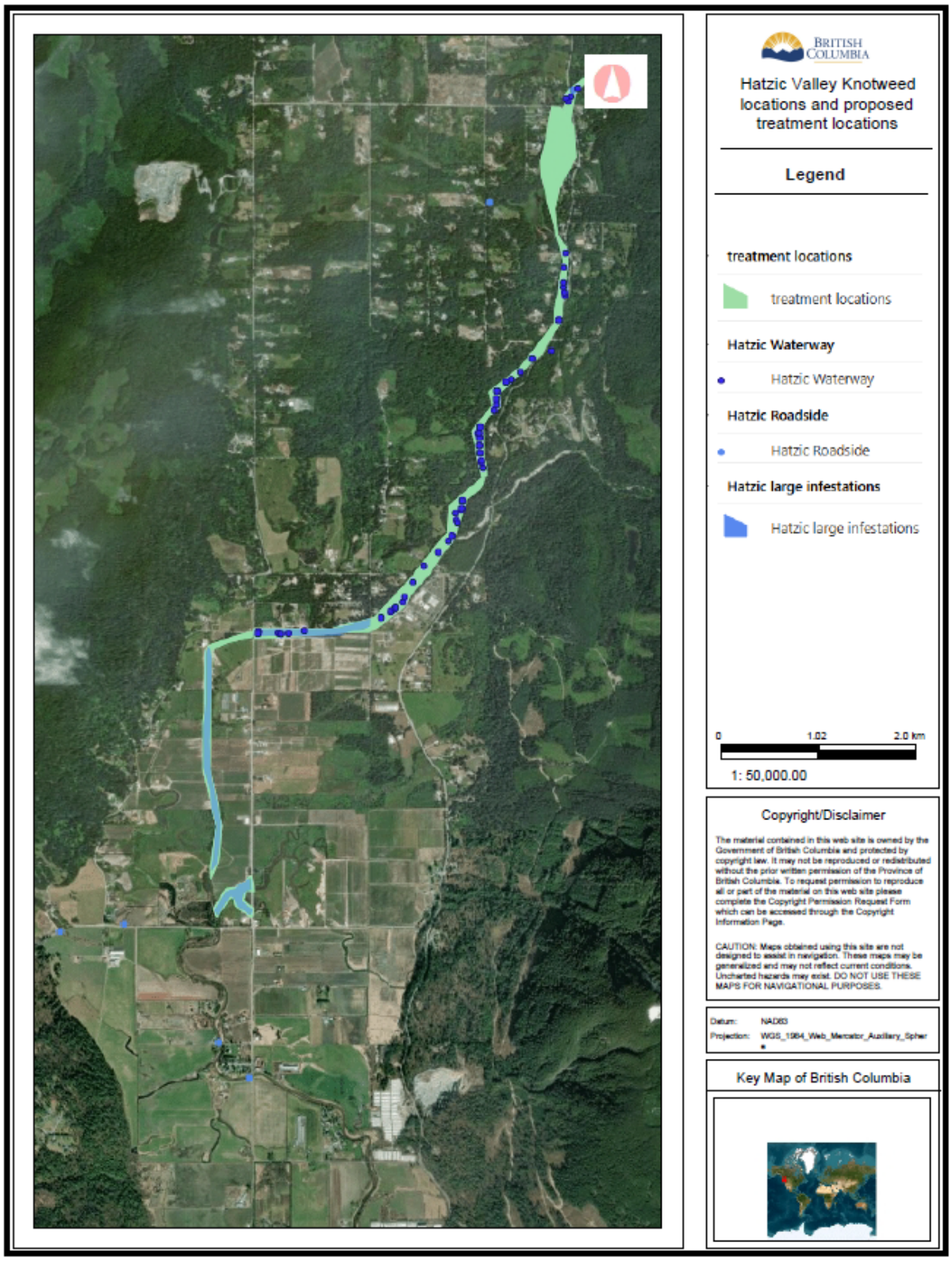
Stem injection *may* be selected as the preferred treatment method in the following circumstances:

- Where knotweed foliage cannot be effectively accessed using foliar application
- Where Habitat Aqua herbicide is not available and the knotweed clone occurs in close proximity to water or a private residence and shrouding/shielding, to prevent foliar drift, is not practicable
- Where foliar applications are not achieving effective control of knotweed. For example, if treatment monitoring after the first treatment pass is indicating low efficacy, the stem injection method may be preferred for the second treatment pass to ensure sufficient translocation of herbicide to the root system.

Table 2. Summary of herbicide site type and application method suitability at Hatzic Valley, 2026-29.

Site Type	Herbicide	Application Method	Comments
Plants occurring within 5 m of wetted edge to High-Water Mark	Habitat Aqua	Foliar	Preferred herbicide and method for this site type.
	Roundup WeatherPRO	Foliar with shrouding to prevent risk of drift.	Shrouding may include nozzle cone or wind barrier.
Plant foliage that cannot be effectively accessed using foliar application	Roundup WeatherPRO	Stem injection	Roundup WeatherPRO is currently the only herbicide product registered for the use of stem injection in Canada.

APPENDDIX 1- MAP OF HATZIC VALLEY INVASIVE KNOTWEED 2025 DISTRIBUTION & PROPOSED PESTICIDE USE PERMIT BOUNDARY (2026-29)



APPENDIX 2. KNOTWEED SITE SUMMARY HATZIC VALLEY, DEC. 2024.

Site ID	Latitude	Longitude	Waterway	Zone	Invasives BC Site ID
9	49.217	-122.247	Lagace	2	
10	49.217	-122.243	Lagace	2	
11	49.218	-122.236	Lagace	2	
11	49.252	-122.216	Eng	1a	
12	49.220	-122.232	Lagace	2	
13	49.222	-122.230	Lagace	2	
14	49.222	-122.229	Lagace	2	
15	49.249	-122.218	Eng	1a	
16	49.250	-122.217	Eng	1a	
17	49.250	-122.217	Eng	1a	
18	49.252	-122.215	Eng	1a	
19	49.189	-122.248	Lagace	4	25PTCD19AEB01
20	49.217	-122.244	Lagace	2	
21	49.217	-122.247	Lagace	2	
21	49.268	-122.243	Cascade	n/a	25PTCA8702DFC
22	49.217	-122.245	Lagace	2	
23	49.217	-122.245	Lagace	2	
23	49.267	-122.243	Cascade	n/a	25PTC88CD4B9A
24	49.217	-122.245	Lagace	2	
25	49.218	-122.235	Lagace	2	
25	49.267	-122.241	Cascade	n/a	25PTC0CB5AB0E
26	49.218	-122.235	Lagace	2	
27	49.218	-122.234	Lagace	2	
27	49.267	-122.241	Cascade	n/a	25PTCEA7DB7E4
28	49.218	-122.234	Lagace	2	
29	49.219	-122.233	Lagace	2	
29	49.243	-122.225	ditch	1b	23PTOB568E1DF
30	49.219	-122.233	Lagace	2	
31	49.221	-122.231	Eng	1a	
31	49.250	-122.217	Eng	1c	23PTO9CC894EB
32	49.250	-122.218	Lagace	2	
33	49.224	-122.228	Lagace	2	
33	49.199	-122.260	Kenworthy	3	25PTO147126D9
34	49.224	-122.228	Lagace	2	
35	49.225	-122.228	Lagace	1c	
35	49.191	-122.251	Lagace	4	24PTO4523CA06
36	49.227	-122.226	Lagace	1c	
37	49.227	-122.226	Lagace	1c	
37	49.198	-122.266	Kenworthy	3	25PTC15A0DADE
38	49.227	-122.226	Lagace	1c	
39	49.229	-122.226	Lagace	1c	

40	49.228	-122.226	Lagace	1c	
41	49.228	-122.226	Lagace	1c	
42	49.229	-122.226	Lagace	1c	
43	49.229	-122.226	Lagace	1c	
44	49.229	-122.226	Lagace	1c	
45	49.230	-122.225	Lagace	1c	
46	49.231	-122.225	Lagace	1c	
47	49.232	-122.224	Lagace	1c	
48	49.233	-122.222	Lagace	1c	
49	49.232	-122.223	Lagace	1c	
50	49.232	-122.225	Lagace	1c	
51	49.231	-122.225	Lagace	1c	
52	49.224	-122.228	Lagace	2	
53	49.224	-122.228	Lagace	2	
54	49.223	-122.228	Lagace	2	
55	49.223	-122.229	Lagace	2	
56	49.234	-122.221	Lagace	1c	
57	49.234	-122.219	Lagace	1c	
58	49.236	-122.219	Lagace	1c	
59	49.237	-122.218	Lagace	1c	
60	49.238	-122.218	Lagace	1c	
61	49.238	-122.218	Lagace	1c	
62	49.238	-122.218	Lagace	1c	
63	49.239	-122.218	Lagace	1c	
64	49.240	-122.218	Lagace	1c	
65	49.207	-122.251	Lagace	3	Large polygons need reassessing
66	49.193	-122.250	Lagace	4	Large polygons need reassessing