



Environmental Consulting & Restoration, LLC



VEGETATION MANAGEMENT PROPOSAL

TO: Hingham Conservation Commission
FROM: Brad Holmes
DATE: December 16, 2024
RE: 55 Industrial Park Road, Hingham, DEP File #SE034-1516

Environmental Consulting & Restoration, LLC (ECR) has prepared this Vegetation Management Proposal to accompany the Notice of Intent (NOI) application under review for the property located at 55 Industrial Park Road in Hingham (the Site). Portions of the site contain non-native invasive plant species. More specifically, portions of the site within the 100-foot buffer zone and 200-foot Riverfront Area contain Japanese Knotweed (*Polygonum cuspidatum*), which is a highly aggressive non-native invasive plant species. Japanese Knotweed is an invasive plant that was brought from Asia in the 1800s. It grows in dense stands and reaches incredible heights very quickly. It also outcompetes native vegetation, provides little by way of wildlife habitat value, and significantly degrades the environment. This proposal is designed to treat, remove, and manage Japanese Knotweed at the site.

The majority of the site is proposed for redevelopment as identified in the NOI application. This project includes reconstruction of a building, reconstruction of parking areas, re-landscaping to include new landscape areas, new plantings, etc. These areas where redevelopment is proposed will be managed so the management of Japanese Knotweed will be minimal and will be maintained during normal site operations. The areas beyond redevelopment at the site are the focus areas for this proposal. More specifically, the focus area is between the redevelopment footprint and the Bordering Vegetated Wetland (BVW). The areas of Japanese Knotweed at the site are generally located closer to the existing parking area, closer to the west side of the existing building, and landward of the BVW at the site. For more information, please refer to the attached Photograph Pages and Vegetation Management Plan (VMP) Focus Map attached.

The control of Japanese Knotweed would be performed by licensed herbicide applicators. The methods to control Japanese Knotweed are listed below:

1. Foliar Treatment - Japanese knotweed will be foliar-treated with sensitive area-approved herbicide applied by licensed applicators using low-volume hand-pumped backpack sprayers.
2. Targeted Herbicide Application Methods - Targeted methods are used to ensure that herbicide is applied carefully only to Japanese Knotweed. A brief description of each method may be found below.
 - Stem injection: Using the JK Injection System®, the licensed herbicide applicator injects each individual Knotweed cane with 5 cc/ml of the wetland approved glyphosate-based herbicide. The herbicide is injected at a 100% concentration, as recommended in the literature and on the supplemental herbicide label.
 - Glove technique (hand wipe): A licensed herbicide applicator puts on an absorbent cotton glove under a chemical-resistant glove. The applicator moistens the cotton glove with herbicide dispensed from a hand-pumped low-volume backpack sprayer equipped with specialized ultra-low-volume nozzles and then wipes each stem and leaf of the individual



Knotweed plants. A solution of herbicide, wetland nonionic surfactant and blue indicator dye is used.

- The Side Swipe® Pro method: The licensed herbicide applicator handles the Side Swipe Pro like a hockey stick to precisely and selectively apply herbicide to the target plants. The wipe-on applicator pad assures no drift or overspray. The protective shield over the top of the applicator pad permits safe herbicide application around desirable plants and shrubs.

The successful management of Japanese Knotweed requires ongoing maintenance over several years. More specifically, the management is proposed over three years with success goals as noted below:

Year One

Option 1

Task 1. (Spring 2025). Japanese knotweed will be cut and removed from the focus area. By cutting the plants early in the growing season, they will be stressed, and the regrown plants will be smaller and require less herbicide when treated in late summer after it flowers (August).

Task 2. Herbicide treatment (August). Japanese Knotweed will be foliar-sprayed with a sensitive area-approved herbicide applied by licensed technicians using low-volume hand-pumped backpack sprayers.

Option 2

Task 1. Herbicide treatment (August). Stem inject individual Japanese Knotweed stems > 1/2" diameter with JK Injection System®. Stems < 1/2" diameter will be hand wiped or foliar sprayed with specialized backpack sprayers fitted with ultralow volume nozzles for targeted application procedure. Herbicide will be used for both procedures.

Task 2. Follow-up herbicide application (Late August – 2 weeks after Task 1). The licensed herbicide applicators will return to the site to look for any Knotweed that appears unaffected by the earlier treatment using the same methods described in Task 1.

Task 3. Removal in late fall (October/November). Dead Knotweed plant material will be cut and hauled for off-site for disposal. Disposal will be at a facility familiar with processing non-native invasive plant species. Since these plants will be dead from the herbicide applications, it is unlikely that the spread of this invasive species onto the disposal site will occur.

Task 4. Seeding (October/November). A seed mix will be broadcast throughout the Knotweed management area, followed by the installation of a light, weed-free straw mulch. Selected seed mix will consist of a mix of native buffer zone species such as New England Conservation/Wildlife Seed Mix from New England Wetland Plants, Inc.

Year Two

Task 5. Follow-up herbicide application (Late August/September). Any regrowth of Knotweed within the focus area will be hand-wiped using the glove technique described above or wiped with a Side Swipe Pro Applicator. Sparsely vegetated areas will be scratched and seeded again as noted in Task 4.

Year Three

Task 6. Follow-up herbicide application (Late August/September). Any regrowth Knotweed will be hand-wiped using the glove technique or wiped with a Side Swipe Pro Applicator. Sparsely vegetated areas will be scratched and seeded again as noted in Task 4.

ECR

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Success Criteria - Objective: 80% (or better) Knotweed control resulting from Year One treatments; 95% Knotweed control resulting from Year Two follow-up work; and 99% Knotweed control resulting from Year Three follow-up work. Photo monitoring plots will be set up prior to the start of management work to monitor the results of treatments each year over the course of the project. Please note that these success goals may vary based on unique site characteristics and persistence of Japanese Knotweed.

Stewardship & Maintenance - Successful Japanese Knotweed management requires a long-term commitment and will need to be ongoing in order to protect the investment in the three-year management program. 99% control within the focus area can be achieved; however, attention will need to be paid to the 1% of plants that will reemerge every season and try to reestablish themselves on the site. This small amount of reemerging Knotweed should be able to be handled by the landscape contractor that will manage the landscaped areas of the site. Options for managing Knotweed after the initial three years usually consist of hand pulling, spot herbicide wiping, and/or cutting.

Once the Japanese Knotweed is under control at the site, additional control of non-native invasive woody shrubs could be pursued at the site such as removal of Privet (*Ligustrum vulgare*), Honeysuckle (*Lonicera morowii*), etc. The control of these invasive woody plants will involve flagging the shrubs in the field and then cutting the plant at the base of the stem and then removing the cut shrubs from the site. Upon cutting, the cut stems would be painted with herbicide by a licensed herbicide applicator to prevent stump sprouting. Though labor intensive, the technique prevents herbicide exposure to non-target plants.

Included in this proposal are the following:

1. Photograph Pages
2. VMP focus map
3. Japanese Knotweed information sheet

Upon review of this proposal, please contact me at (617) 529 – 3792 or brad@ecrwetlands.com with any questions or requests for additional information.

Thank you,
Brad Holmes, Professional Wetland Scientist #1464
Manager

SITE PHOTOGRAPHS



Photograph #1 – Example of Japanese Knotweed located along the west side of the existing building.



Photograph #2 – Example of Japanese Knotweed located along the parking area in the southern portion of the site.



Photograph #3 – Another example of Japanese Knotweed located along the parking area in the southern portion of the site.



Photograph #4 – Example of Japanese Knotweed along the east side of the existing building and parking area. These areas where Japanese Knotweed exists within the redevelopment construction area will be removed and managed as part of the redevelopment project.

HERB

STATUS: INVASIVE

**Japanese Knotweed;
Mexican Bamboo;
Japanese Fleece Flower**

Polygonum cuspidatum

Synonyms: *Fallopia japonica*,
Reynoutria japonica

Family: Smartweed (Polygonaceae)

Regulated: Importation and propagation/sale prohibited (January 1, 2006)

Identification: An upright perennial herb with multiple, dense shoots that can grow up to 3 m (10') in height. Like a bamboo, stems are stout, round and hollow, with swollen joints at leaf nodes. Shoots grow from stout subterranean rhizomes that may spread horizontally as far as 20 m (65'). Broad leaves, measuring up to 18 cm long and 10 cm wide, have truncate bases, abruptly acute tips, and veins below are roughened with minute, swollen knobs. White or greenish-white flowers appear August-September in numerous branched clusters. Fruits are small, shiny, black triangular seed-like achenes enclosed by papery thin and angled flower remnants (sepals).

Habitat: Japanese Knotweed grows in full sun to full shade, but is hardier in full sun environments. It is tolerant of drought, high temperatures and high salinity levels, and intolerant of frost. Often found near water sources, this plant may be observed in wetlands and other riparian areas. It commonly grows along streams, riverbanks, and in disturbed areas, roadsides and waste places.

Threat: It spreads vegetatively and by seed, forming dense thickets that threaten native plant communities in wetlands and riparian areas. It has the ability to survive severe flooding and readily colonizes island habitats and shorelines. Once established, its populations are highly persistent and difficult to eradicate.



Distribution: It occurs in all regions of Massachusetts and throughout New England. **Origin:** East Asia.

Similar Species: Giant Knotweed (*Polygonum sachalinense*) is a similar non-native weed that resembles Japanese Knotweed. Giant Knotweed leaves are considerably larger, up to 36 cm long, and the mid-stem leaves have deeply cordate bases and under-surface veins with multicellular hairs (seen with a hand lens). Hybrids between Japanese and Giant knotweed (*P. x bohemicum*) and backcrosses also exist; they typically have slightly cordate leaves ranging from 20-36 cm long.



Photos by Paul Somers, NHESP