



# Northland Newton Development Invasive Plant Species Control Plan

The Northland Newton Development (the Project) includes an opportunity to rehabilitate the slopes and a portion of the Riverfront Area (RA) adjoining a portion of South Meadow Brook, which is daylighted for approximately 420 linear feet in between two culverted sections. The area is currently degraded and colonized largely by invasive species. This narrative provides recommended actions to restore the area and an invasive species control plan to prevent recolonization by invasive plants.

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## Introduction

The Project proposes work within the RA to South Meadow Brook, including a public access space with viewing and seating areas and a pedestrian connection to the Upper Falls Greenway multi-use path. The Project will improve the existing RA by removing approximately 15,000 square feet of impervious area. The Project will also improve stormwater treatment, resulting in an improvement to water quality.

The daylighted section of the stream has steep banks approximately 10-15 feet high, above which is an upper terrace that ranges from approximately 30 to 50 feet wide with gentler slopes. The approximate divide between these two areas is shown on the revised Site Plan as a line labeled "Existing Slope Break Line." Within the upper terrace are several large piles comprised of old concrete, asphalt, brick, and other fill and construction debris mixed with soil. The dominant vegetation in these areas consists of invasive species<sup>1</sup> including Norway maple (*Acer platanoides*), Asiatic bittersweet (*Celastrus orbiculatus*), winged euonymus (*Euonymus alatus*), glossy buckthorn (*Frangula alnus*), common buckthorn (*Rhamnus cathartica*), and garlic mustard (*Alliaria petiolata*).

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## Proposed Work

All work will be overseen by a qualified environmental scientist. The work plan will remove the invasive species, re-establish native vegetation for habitat and long-term slope stability, and create an engaging park-like setting with meandering walking path and small "pocket parks" along the upper terrace of the brook. The Project

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<sup>1</sup> Massachusetts Invasive Plant Advisory Group: <https://www.massnrc.org/mipag/invasive.htm>, accessed 6/1/22.



proposes to remove the construction debris fill piles on the upper terrace and then regrade the area with plantable soil to the grades shown in the revised Project Plans. Slight variations in topography will bound the new meandering walking path for interest. A few existing native trees within the project limits have been identified on the plans to be preserved; these trees include northern red oak (*Quercus rubra*) and American elm (*Ulmus americana*). By aggressively removing all Norway Maple trees and other invasive plant material and fully replanting with native species, the Riverfront Area will have a much better chance at resisting recolonization by invasive species.

While some of the Norway maple trees in the area are mature with a tree canopy that provides some limited wildlife habitat, any left behind would be a significant seed source that would be counterproductive to the project purpose. Removing the existing invasive plant material should be completed before they set seed to reduce the seed stock of these undesirable species. The tree canopy will eventually be replaced in full by the new plantings as they mature.

Existing mature native trees will be saved, and a measure of additional canopy will be created by installing a selection of larger caliper trees early in the early stages of the program to provide some immediate vertical stratification in the area. To protect new plantings, erosion controls (staked compost filter tube and/or silt fencing, with an additional visual barrier of construction netting) will be employed along the top of the slope to prevent any unintended construction disturbances within the mitigation areas until final construction of South Meadow Brook Park amenities in the last stages of the program.

The Applicant proposes to remove the Norway maples from the steepest slopes by cutting the trunks just above ground level and simultaneously lifting the trees out of the area by crane to minimize soil disturbance. This will leave the stump with roots in place to keep the slope stable as new plant material becomes established. Other invasive species will be either pulled by hand (herbaceous perennials) or cut at ground level and removed by hand (shrubs and herbaceous annuals before setting seed), to minimize soil disturbance. This approach is proposed along both sides of South Meadow Brook. If necessary, a licensed herbicide applicator may be retained to spot treat individual invasive stems or areas to control invasive regrowth.

The slopes will then be planted with a native seed mix specifically formulated to rapidly revegetate and stabilize areas such as New England Conservation/Wildlife Mix and New England Roadside Mix or a similar mix and temporarily stabilized with a hydraulically applied flexible growth medium (FGM) for increased stability. Seeding will be supplemented by hand planting live stakes of native plant species as shown on the landscape plans. The whips and live stakes will include fast-growing, pioneer species such as willow (*Salix* sp.) and dogwood (*Cornus* sp.).

Work along these steep slopes has been designed to remove invasive plants while minimizing ground disturbance. While herbicide application will be avoided where



possible, if needed a licensed applicator will advise on suitable herbicides for use along the stream. Several herbicides exist that do not bioaccumulate in the soil and do not affect animal/aquatic life. The U.S. Army Corps of Engineers has produced a document discussing those herbicides that are safe to use in or near aquatic areas<sup>2</sup>. Techniques such as spot treating and avoiding application when rain and/or high winds are forecast can further refine the ability to target only the plants selected for removal.

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## Monitoring

Monitoring of the South Meadow Brook restoration areas is proposed for five years. During this time, a wetland scientist will periodically perform an assessment of the area and note coverage by native plants as well as any invasive species that have regrown or become established elsewhere within the target area. Well-established plants such as Norway maple trunks or large bittersweet vine bases will have a reserve of energy stored in their root material and can resprout if not managed. A contractor will be retained to perform follow-on work required to remove any reestablished invasive plants up to twice annually. Any indications of new erosion on the slopes will be repaired immediately. All work will be overseen by a qualified environmental scientist. Annual reports on the status of the area and remedial activities will be prepared and submitted to the Newton Conservation Commission following each growing season.

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<sup>2</sup> U.S. Army Corps of Engineers, 2012. Aquatic Herbicides.