

May 27, 2025

Daniel J. Morrissey  
Chair, Warner River Local Advisory Committee  
561 South Road  
Hopkinton, NH 03229

RE: Jennesstown Manor  
Alteration of Terrain Application #250327-055  
Tax Map 7, Lots 39& 39-1 – Warner

Dear Ms. Morrissey:

Our office is in receipt of the Warner River Local Advisory Committee review comments dated May 20, 2025. Based on the comments, we have made the required modifications and attached the revised plans. A response to each comment has been provided below.

1. The proposed project is adjacent to a “Significant Sand and Gravel Aquifer” as mapped by the U.S. Geological Survey. More specifically, the project is very close to the most productive part of the aquifer along the Warner River where thickness and permeability, and therefore aquifer yield, are greatest. (Geohydrology and Water Quality of Stratified-Drift Aquifers in the Contoocook River Basin, South-Central New Hampshire: U.S. Geological Survey Water Resources Investigation Report 92-4154). All runoff from the proposed project will eventually reach the Warner River through small intermittent streams or via groundwater discharge.

***All stormwater systems will comply with the Alteration of Terrain regulations, such as treatment of runoff and recharge of groundwater.***

2. The proposed project is also adjacent to the Town of Warner Ground Water Protection Overlay District, which is based on the above-mentioned U.S. Geological Survey mapping. (<https://warnernh.gov/tow/downloads/gpc/Facts.pdf>). All runoff from the proposed project will eventually be discharged to the aquifer protection overlay district area. Also, please include the extent of the Warner Ground Water Protection overlay on the Web GIS Figure.

***The Warner Ground Protection overlay has been added to the report in addition to the Web Gis Figure. For clarity of viewing, they will remain as two separate documents.***

3. Several test pits completed at the site in 2024 show that the site has a thin veneer of soil atop bedrock. Bedrock is exposed along much of the property frontage along Rt 103. Furthermore, the test pit logs included in the application (Sheet 11) are misleading because they do not use consistent units of measurement and should be corrected in the final application. The final depths of the test pits are labelled in feet while shallower depths are in inches.

***The test pit logs have been updated to show accurate and consistent units of measurement, see Sheet 15.***

4. The existing conditions description included in the application states that there are “many ledge outcroppings on site”. The mapping provided by the applicant fails to indicate where the bedrock outcrops are located. The final application should indicate where the outcrops are located based upon field mapping by a registered professional geologist.

***See Sheet 5 for ledge faces along the frontage mapped by the surveyor. The dotted hatch on Sheet 1 denotes steep slopes not ledge. The reference in the report referring to ledge has been revised.***

5. The AOT application states that no blasting will be required for this project. However, based upon examination of the test pit logs, the bedrock outcrops along the property frontage on Rt 103, and the existence of “many bedrock outcrops” it is very possible that blasting will be required to complete the project. Blasting could result in contamination of ground and surface water runoff from the site which would ultimately travel to the Warner River and the adjacent aquifer.

***The Applicant intends to remove ledge and rock by mechanical means, but should blasting of less than 5,000 cy be required, blasting best management practice outline in Env-Wq 1510 will be followed, see the blasting certification note on the Cover Sheet.***

6. Sediment control during and after construction is critical. All runoff from the site is directed to 4 catch basins along 103 and to abutters property. As noted above, runoff from this site, through the culverts along Rt 103, will eventually reach the Warner River and the aquifer adjacent to the river. Periodic maintenance of the catch basins and culverts should be required.

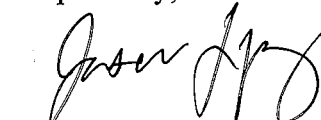
***The project approval will include an Operations and Maintenance Plan and catch basin section will be required. Records of these inspections will be kept in a maintenance log. See Sheet 6 Note 13.***

7. The AOT application states that there is no need for Small Community Well approval by the NHDES. However, the application states that the proposed dwellings will share water supply wells and septic systems. In New Hampshire, water supply systems that supply water to 25 or more people, at least 60 days each year, are considered Public Water Systems. It seems possible that 25 or more people could inhabit the eight housing units proposed for the project and therefore the water supply system would be subject to NHDES regulations applicable to such systems.

***Each lot will have a 4-unit building. Each unit will have 4 bedrooms with the potential for 5 people per unit. This would make 20 people per building. Each building will have its own well and therefore the water supply system would not to be subject to NHDES Small Community Well regulations.***

I trust the content of this response letter and its attachments will address each of the comments, as noted. Should you have further questions or require additional information, please do not hesitate to contact our office.

Respectfully,

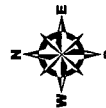


Jason Lopez  
Senior Project Manager  
Keach-Nordstrom Associates, Inc.

# Groundwater Protection Overlay District TOWN OF WARNER, NH

## Legend

- Proposed Groundwater Protection Overlay District
- Town Boundary
- Village Water District
- Aquifer Full Extent
- Water Resources**
  - Lakes and Ponds
  - Rivers and Streams
  - Intermittent Streams
- Roads**
  - Interstates
  - Class I and U State Highways
  - Class V Town Maintained Roads
  - Class VI Unmaintained Roads
  - Other Road/Private



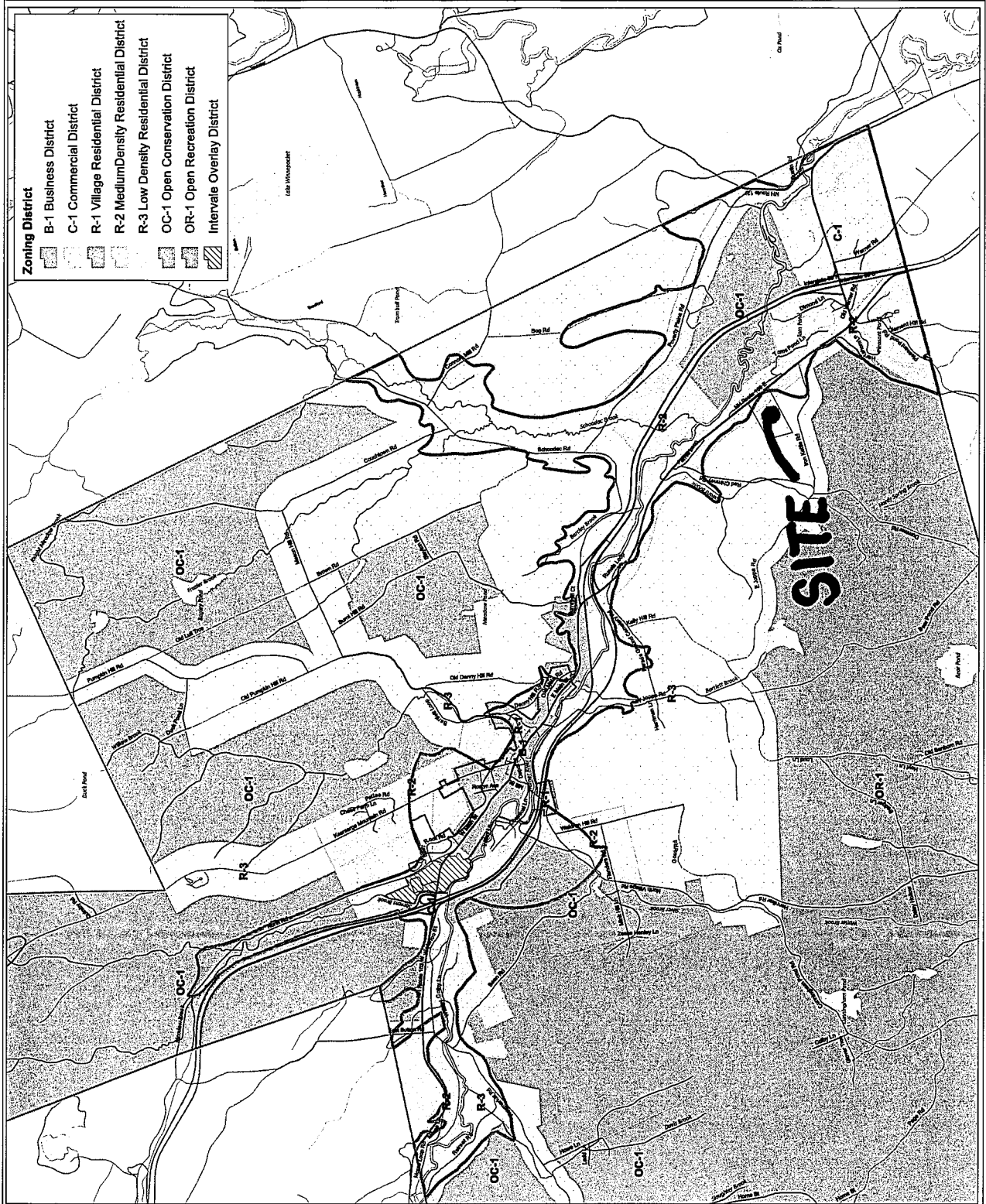
March 14, 2023

This map was produced by the Central NH Regional Planning Commission for the Town of Warner. It is intended for planning purposes only.

Data Sources: NH GRANIT, NH Dept. of Environmental Services, NH Dept. of Transportation, US Census Bureau, US Geological Survey, Bureau of Land Management, and other sources. Corrections should be provided to the Town of Warner and to CNRPPC.



**Central New Hampshire  
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Commission**  
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## Zoning District

- B-1 Business District
- C-1 Commercial District
- R-1 Village Residential District
- R-2 Medium Density Residential District
- R-3 Low Density Residential District
- OC-1 Open Conservation District
- OR-1 Open Recreation District
- Intervals Overlay District

# **STORMWATER OPERATION & MAINTENANCE PLAN**

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**Jennesstown Manor  
Route 103  
Warner, New Hampshire  
Map 7 / Lots 39 & 39-1**

**March 7, 2025**

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### **IV. Stormwater Practice Location Plan**

11"x17" "Grading, Drainage & Utility Plan"

## **I. General**

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### **Introduction**

The project owner or their assigned heirs will maintain the stormwater treatment facilities after construction is completed. The Applicant of the project is Peacock Hill Road, LLC located at 145 Old Town Road Weare, NH. The Applicant will maintain the stormwater system.

The subject property is referenced on Map 7; Lots 39 and 39-1 in Warner, New Hampshire. Any transfer of responsibility for inspection and maintenance activities or transfer of ownership shall be documented to Warner in writing. The contract documents will require the contractor to designate a person responsible for maintenance of the sedimentation control features during construction. Long-term operation and maintenance for the stormwater management facilities are presented below.

Maintenance will be performed as described unless and until the system is formally accepted by a municipality or quasi-municipal district or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system.

### **Post Construction:**

The following standards will be met after construction is complete:

#### **Documentation:**

A maintenance log will be kept summarizing inspections, maintenance, and any corrective actions taken. The log will include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean out of any sediments or debris, the location where the sediment and debris was disposed after removal will be indicated. The log will be made accessible to department and/or Warner staff and a copy provided upon request.

## **Maintenance Requirements**

### **Pocket Ponds:**

- Systems should be inspected at least twice annually, and following any rainfall event exceeding 2.5 inches in a 24-hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- System embankments should be mowed periodically to maintain grass cover and any other vegetation found on the embankment should be removed at each inspection.
- Trash and debris found within the pond or in the outlet structure should be removed at each inspection.
- Removal of accumulated sediment
- Inspection and repair of embankments, inlet and outlet structures, and appurtenances

### **Infiltration Ponds:**

- Systems should be inspected at least twice annually and following any rainfall event exceeding 2.5 inches in a 24-hour period, with maintenance or rehabilitation conducted as warranted by such inspection.
- Trash and debris should be removed at each inspection.
- Inspection of pre-treatment measures at least twice annually and removal of accumulated sediment as warranted by inspection, but no less than once annually.
- At least once annually, the system should be inspected for drawdown time. If the pond does not drain within 72-hours following a rainfall event, a qualified professional should assess the condition of the facility to determine measures required to restore filtration function or infiltration function (as applicable), including but not limited to the removal of accumulated sediments or reconstruction of the basin bottom.

### **Catch Basins and Closed Drainage Network:**

- Catch basins may require frequent maintenance. This may require several cleanings of the sumps each year. At a minimum, it is recommended that catch basins be inspected at least twice annually.
- Sediment should be removed when it approaches half of the sump depth.
- If floating hydrocarbons are observed during an inspection, the material should be removed immediately by skimming, absorbent materials, or other methods and disposed in conformance with the applicable state and federal regulations.

#### Outlet Protection:

- Inspect the outlet protection annually for damage and deterioration. Repair damages immediately.

#### General:

- If any invasive species begin to grow in the stormwater management practices the species shall be disposed of in an appropriate manner that will not allow the pest to survive or spread. The disposal of such species shall be witnessed or approved by a state inspector. Methods for disposal may include, but not be limited to:
  - Encapsulating the plant(s) in plastic bags and disposing of the plant material in one of the following ways:
    - Trash pickup;
    - Discarding;
    - Open burning;
    - Incineration; or
    - Burial of infested nursery.



## **II. Supporting Documents**

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**Annual Inspection and Maintenance Reporting Form**  
**for**  
**Jennesstown Manor**  
**Warner, New Hampshire**

**Date:** \_\_\_\_\_

**To:** Peacock Hill Road, LLC

**Re:** Certification of Inspection and Maintenance; Submittal of Forms

**Property Name:** \_\_\_\_\_

**Property Address:** \_\_\_\_\_

**Contact Name:** \_\_\_\_\_

**Contact Phone #:** \_\_\_\_\_

**Contact Email Address:** \_\_\_\_\_

I verify that the required stormwater facility inspections and required maintenance have been completed in accordance with the Operation & Maintenance Plan associated with the above referenced property.

The required Long-Term Inspection & Maintenance Plan Checklist is attached to this form.

\_\_\_\_\_  
Name of Party Responsible for Inspection  
& Maintenance

\_\_\_\_\_  
Property Owner

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Signature

# **Long-Term Inspection & Maintenance Plan Checklist** **Jennesstown Manor – Warner, NH**

Current Owner Name:		Date:	
Business Address:		Inspector:	
Weather:			
Date of Last Rainfall:		Amount:	Inches:
<b>Best Management Practice</b>			
<b>Pocket Pond #22P</b>	Reason for Inspection		
	Spring <input type="checkbox"/>	Fall/Yearly <input type="checkbox"/>	After Major Storm <input type="checkbox"/>
Maintenance Required? Corrective Action Needed & Notes:	Yes <input type="checkbox"/> No <input type="checkbox"/>		
Sideslopes & berms need repair?	Yes <input type="checkbox"/> No <input type="checkbox"/>		
Clean inlet & outlet structures?	Yes <input type="checkbox"/> No <input type="checkbox"/>		
<b>Pocket Pond #41P</b>	Reason for Inspection		
	Spring <input type="checkbox"/>	Fall/Yearly <input type="checkbox"/>	After Major Storm <input type="checkbox"/>
Maintenance Required? Corrective Action Needed & Notes:	Yes <input type="checkbox"/> No <input type="checkbox"/>		
Sideslopes & berms need repair?	Yes <input type="checkbox"/> No <input type="checkbox"/>		
Clean inlet & outlet structures?	Yes <input type="checkbox"/> No <input type="checkbox"/>		
<b>Infiltration Pond #21P</b>	Reason for Inspection		
	Spring <input type="checkbox"/>	Fall/Yearly <input type="checkbox"/>	After Major Storm <input type="checkbox"/>
Maintenance Required? Corrective Action Needed & Notes:	Yes <input type="checkbox"/> No <input type="checkbox"/>		
Visual Inspection of vegetation?	Yes <input type="checkbox"/> No <input type="checkbox"/>		
Maintenance Required? Corrective Action Needed & Notes:	Yes <input type="checkbox"/> No <input type="checkbox"/>		
Visual inspection of drawdown time?	Yes <input type="checkbox"/> No <input type="checkbox"/>		
Drawdown time less than 72 hours?	Yes <input type="checkbox"/> No <input type="checkbox"/>		

(if no, call a qualified professional for inspection)

<b>Catch Basins &amp; Closed Drainage Network</b>	Reason for Inspection		
	Spring <input type="checkbox"/>	Fall/Yearly <input type="checkbox"/>	After Major Storm <input type="checkbox"/>
Maintenance Required? Corrective Action Needed & Notes:  Photo:	Yes <input type="checkbox"/> No <input type="checkbox"/>		
<b>Outlet Protection</b>	Reason for Inspection		
	Spring <input type="checkbox"/>	Fall/Yearly <input type="checkbox"/>	After Major Storm <input type="checkbox"/>
Maintenance Required? Corrective Action Needed & Notes:	Yes <input type="checkbox"/> No <input type="checkbox"/>		
<b>General</b>	Reason for Inspection		
	Spring <input type="checkbox"/>	Fall/Yearly <input type="checkbox"/>	After Major Storm <input type="checkbox"/>
Maintenance Required? Corrective Action Needed & Notes:	Yes <input type="checkbox"/> No <input type="checkbox"/>		

## Long-Term Inspection & Maintenance Log

### Jennesstown Manor - Warner, NH

[illegible]

### **III. Control of Invasive Plants**

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Invasive plants are introduced, alien, or non-native plants, which have been moved by people from their native habitat to a new area. Some Exotic plants are imported for human use such as landscaping, erosion control, or food crops. They also can arrive as "hitchhikers" among shipments of other plants, seeds, packing materials, or fresh produce. Some exotic plants become invasive and cause harm by:

- becoming weedy and overgrown;
- killing established shade trees;
- obstructing pipes and drainage systems;
- forming dense beds in water;
- lowering water levels in lakes, streams, and wetlands;
- destroying natural communities;
- promoting erosion on stream banks and hillsides; and
- resisting control except by hazardous chemical.

During maintenance activities, check for the presence of invasive plants and suitably remove according to the methods provided in the table below. The following table, based on the "Control of Invasive Plants" published by the New Hampshire Department of Agriculture, describes the most common invasive plants in this region and proper methods of disposal.

Name	Description	Invasive Qualities	Control Methods
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Invasive Trees			
Norway Maple	<ul style="list-style-type: none"> <li>- Large leaves</li> <li>- Will exude milky white sap when leaves are broken</li> <li>- Leaves turn color in Late October (fall foliage is yellow)</li> </ul>	<ul style="list-style-type: none"> <li>- Suppresses growth of grass, garden plants, and forest understory</li> <li>- Wind-borne seeds can germinate and grow in deep shade</li> </ul>	<ul style="list-style-type: none"> <li>- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out plants, including the root systems. Use a forked spade or weed wrench.</li> <li>- Cut down the tree. Grind out the stump, or clip off re-growth.</li> <li>- Girdle<sup>1</sup></li> <li>- Frill<sup>2</sup></li> <li>- Cut stem/ cut stump with glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.*</li> <li>- Foliar spray with glyphosate <sup>3*</sup> (mid-October to early November).</li> </ul>
Tree of Heaven	<ul style="list-style-type: none"> <li>- Long compound leaves with 11-25 lance shaped leaflets</li> <li>- Smell like peanut butter or burnt coffee when crushed</li> </ul>	<ul style="list-style-type: none"> <li>- Tough, can grow in poor conditions</li> <li>- Produces large quantities of wind-borne seeds</li> <li>- Grows rapidly</li> <li>- Secretes a toxin that kills other plants</li> <li>- Cannot be removed by mechanical means alone</li> </ul>	<ul style="list-style-type: none"> <li>- Pull seedlings when soil is moist.</li> <li>- Frill<sup>2</sup> (no more than 1" gap between cuts). Use Garlon 3a herbicide.</li> <li>- Cut stem/ cut stump with Garlon 3a. Follow label directions for cut stump application. Clip off sucker sprouts or paint with Garlon 3a.*</li> <li>- Foliar spray<sup>3*</sup> (on regrowth)</li> <li>- Paint bottom 12" of bark with Garlon 4 Ultra (February/March). Use maximum strength specified on label for all herbicide applications.</li> </ul>

Invasive Shrubs			
Autumn Olive	<ul style="list-style-type: none"> <li>- Formerly recommended for erosion control and wildlife value</li> </ul>	<ul style="list-style-type: none"> <li>- Highly invasive, diminishes the overall quality of wildlife habitat</li> </ul>	<ul style="list-style-type: none"> <li>- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs (up to 4" diameter trunks).</li> <li>- Cut down the tree. Grind out the stump, or clip off re-growth.</li> <li>- Cut stem/ cut stump with glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.*</li> <li>- Bury stump</li> <li>- Do not mow</li> </ul>

### Invasive Shrubs (continued)

<p><b>Multiflora Rose</b></p>	<ul style="list-style-type: none"> <li>- Formerly recommended for erosion control, hedges, and wildlife habitat</li> <li>- Covered in white flowers in June</li> <li>- Very hard, curved thorns</li> <li>- Fringed edge to leaf stalk</li> </ul>	<ul style="list-style-type: none"> <li>- Huge shrub that chokes out all other vegetation</li> <li>- Too dense for most birds to nest in</li> <li>- Grows up trees like a vine in Shade</li> </ul>	<ul style="list-style-type: none"> <li>- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems (at least 6" from the crown and 6" down). Use a forked spade or weed wrench for trees or shrubs.</li> <li>- Controlled burning<sup>4</sup> (on extensive infestations)</li> <li>- Cut stem/ cut stump with glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.*</li> <li>- Foliar spray<sup>3*</sup> (mix Rodeo with extra sticker-spreader, or use Roundup Sure Shot Foam on small plants)</li> <li>- Herbicide may be applied in winter when other plants are dormant.</li> </ul>
<p><b>Bush Honeysuckles</b></p>	<ul style="list-style-type: none"> <li>- Includes Belle, Amur, Morrow's, and Tatarian Honeysuckle</li> </ul>	<ul style="list-style-type: none"> <li>- Creates dense shade reducing plant diversity and eliminating nest sites in forest interior spaces</li> </ul>	<ul style="list-style-type: none"> <li>- Deadhead to prevent spread of seeds (on ornamentals). Cut off seeds or fruits before they ripen. Bag and burn, or send to a landfill.</li> <li>- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs.</li> <li>- Mow or cutting at least 4 times a season to deplete plants' store of nutrients and carbohydrates, reduce seed formation, and kill or minimize spread of plants. If necessary, repeat each year (on shady sites only, brush cut in early spring and fall).</li> <li>- Controlled burning<sup>4</sup> (during growing season)</li> <li>- Cut down the tree. Grind out the stump, or clip off re-growth.</li> <li>- Cut stem/ cut stump with Glyphosate (late in the growing season). Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.*</li> </ul>



### Invasive Shrubs (continued)

<p><b>Blunt-Leaved Privet</b></p>	<ul style="list-style-type: none"> <li>- Medium sized shrub</li> <li>- Simple, oblong, dark green leaves 1-2" in length</li> <li>- Fragrant white flowers (spring)</li> <li>- Blackish-purple fruit (late summer)</li> </ul>	<ul style="list-style-type: none"> <li>- Toxic to mammals</li> <li>- Loss of valuable habitat</li> </ul>	<ul style="list-style-type: none"> <li>- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs.</li> <li>- Cut down the tree. Grind out the stump, or clip off re-growth.</li> <li>- Cut stem/ cut stump with Glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.*</li> <li>- Trim off all flowers</li> <li>- Do not cut back or mow</li> </ul>
<p><b>Burning Bush, Winged Euonymus</b></p>	<ul style="list-style-type: none"> <li>- Wide, corky wings on the Branches</li> <li>- Brilliant red autumn leaves</li> <li>- Fruit</li> </ul>	<ul style="list-style-type: none"> <li>- High seed production</li> </ul>	<ul style="list-style-type: none"> <li>- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs.</li> <li>- Cut down the tree. Grind out the stump, or clip off re-growth.</li> <li>- Cut stem/ cut stump with Glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.*</li> <li>- Trim off all flowers</li> </ul>
<p><b>Japanese Barberry</b></p>	<ul style="list-style-type: none"> <li>- Spiny deciduous shrub</li> <li>- Small leaves</li> </ul>	<ul style="list-style-type: none"> <li>- Very dense, displaces native plants</li> <li>- Can change chemistry of soil</li> </ul>	<ul style="list-style-type: none"> <li>- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs.</li> <li>- Cut down the tree. Grind out the stump, or clip off re-growth.</li> <li>- Cut stem/ cut stump with Glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.*</li> <li>- Trim off all flowers</li> </ul>

## Invasive Woody Vines

<p><b>Japanese Honeysuckle</b></p>	<ul style="list-style-type: none"> <li>- Gold and White flowers</li> <li>- Heavy scent and sweet nectar in June</li> </ul>	<ul style="list-style-type: none"> <li>- Shade shrubs and young trees of the forest understory, eventually killing them, and changing the open structure of the forest into a dense tangle</li> <li>- Rampant grower</li> <li>- Spirals around trees, often strangling them</li> </ul>	<ul style="list-style-type: none"> <li>- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs.</li> <li>- Mow or cutting at least 4 times a season to deplete plants' store of nutrients and carbohydrates, reduce seed formation, and kill or minimize spread of plants. If necessary, repeat each year.</li> <li>- Cut stem/ cut stump with Glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.*</li> <li>- Foliar spray<sup>3*</sup> (fall or early spring when native vegetation is dormant)</li> <li>- Plan to re-treat repeatedly</li> </ul>
<p><b>Oriental Bittersweet</b></p>	<ul style="list-style-type: none"> <li>- Bright orange seed capsules in clusters all along the stem</li> <li>- Flowers</li> </ul>	<ul style="list-style-type: none"> <li>- Shade shrubs and young trees of the forest understory, eventually killing them, and changing the open structure of the forest into a dense tangle</li> </ul>	<ul style="list-style-type: none"> <li>- Pull seedlings and small or shallow-rooted plants when soil is moist. Dig out larger plants, including the root systems. Use a forked spade or weed wrench for trees or shrubs.</li> <li>- Keep ornamental plants cut back, remove all fruits as soon as they open, and bag or burn fruits.</li> <li>- Cut stem/ cut stump with Garlon 3a. Follow label directions for cut stump application. Clip off sucker sprouts or paint with Garlon 3a.*</li> </ul>
<p><b>Japanese Knotweed, Mexican Bamboo</b></p>	<ul style="list-style-type: none"> <li>- The stems have knotty joints, similar to bamboo</li> <li>- Grows 6-10' tall</li> <li>- Large, pointed oval or triangular leaves</li> </ul>	<ul style="list-style-type: none"> <li>- Shade shrubs and young trees of the forest understory, eventually killing them, and changing the open structure of the forest into a dense tangle</li> <li>- Can grow in shade</li> </ul>	<ul style="list-style-type: none"> <li>- Cut stem/ cut stump with Glyphosate (at least 3 times each during growing season). Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.*</li> <li>- Foliar spray<sup>3*</sup></li> <li>- Treat with Rodeo</li> <li>- In gardens, heavy mulch or dense shade may kill it.</li> </ul>

## Invasive Herbaceous Plants

<p><b>Garlic Mustard</b></p>	<ul style="list-style-type: none"> <li>- White-flowered biennial</li> <li>- Rough scalloped leaves (kidney, heart, or arrow shaped)</li> <li>- Garlic smell, mustard taste when its leaves are crushed</li> </ul>	<ul style="list-style-type: none"> <li>- Shade shrubs and young trees of the forest understory, eventually killing them, and changing the open structure of the forest into a dense tangle</li> <li>- Rampant grower</li> <li>- Spirals around trees, often strangling them</li> </ul>	<ul style="list-style-type: none"> <li>- Pull seedlings and small or shallow-rooted plants when soil is moist (before it flowers in spring). Dig out larger plants, including the crown and root systems. Use a forked spade or weed wrench for trees or shrubs. Tamp down soil afterwards.</li> <li>- Deadhead to prevent spread of seeds. Cut off seeds or fruits before they ripen. Bag and burn or send to a landfill.</li> <li>- Foliar spray** (may be appropriate in some settings)</li> </ul>
<p><b>Japanese Stilt Grass</b></p>	<ul style="list-style-type: none"> <li>- Lime green color</li> <li>- Line of silvery hairs down the middle of the 2-3" long blade</li> </ul>	<ul style="list-style-type: none"> <li>- Tolerates sun or dense shade</li> <li>- Quickly invades areas left bare or disturbed by tilling or flooding</li> <li>- Builds a large seed bank in the soil</li> </ul>	<ul style="list-style-type: none"> <li>- Pull seedlings and small or shallow-rooted plants when soil is moist (pulled easily in early to mid-summer). Dig out larger plants, including root systems. Use a forked spade or weed wrench for trees or shrubs. Be sure to pull before it goes to seed. If seeds have formed, bag and burn or send to a landfill.</li> <li>- Mow or cutting at least 4 times a season to deplete plants' store of nutrients and carbohydrates, reduce seed formation, and kill or minimize spread of plants. If necessary, repeat each year. Mowing weekly or when it has just begun to flower may prevent it from setting seed.</li> <li>- Foliar spray** (use glyphosate or herbicidal soap on large infestations).</li> <li>- Use a corn-based pre-emergence herbicide on annual weeds (spring). This product is also an organic fertilizer, i.e., it can stimulate growth of existing plants, including weeds, so it is appropriate for lawns and gardens but may not be appropriate in woodlands.</li> </ul>

### Invasive Herbaceous Plants (continued)

<p><b>Mile-A-Minute Vine, Devil's Tail Tearthumb</b></p>	<ul style="list-style-type: none"> <li>- Triangular leaves</li> <li>- Barbed stems</li> <li>- Turquoise berries</li> </ul>	<ul style="list-style-type: none"> <li>- Rapid growth</li> <li>- Quickly covers and shades out herbaceous plants</li> </ul>	<ul style="list-style-type: none"> <li>- Pull seedlings and small or shallow-rooted plants when soil is moist (pulled easily in early to mid-summer). Dig out larger plants, including root systems. Use a forked spade or weed wrench for trees or shrubs. Be sure to pull before it goes to seed. If seeds have formed, bag and burn or send to a landfill.</li> <li>- Mow or cutting at least 4 times a season to deplete plants' store of nutrients and carbohydrates, reduce seed formation, and kill or minimize spread of plants. If necessary, repeat each year. Mowing weekly or when it has just begun to flower may prevent it from setting seed.</li> <li>- Foliar spray<sup>3*</sup> (use glyphosate or herbicidal soap on large infestations).</li> <li>- Use a corn-based pre-emergence herbicide on annual weeds (spring). This product is also an organic fertilizer, i.e., it can stimulate growth of existing plants, including weeds, so it is appropriate for lawns and gardens but may not be appropriate in woodlands.</li> </ul>
<p><b>Spotted Knapweed</b></p>	<ul style="list-style-type: none"> <li>- Thistle-like flowers</li> </ul>	<ul style="list-style-type: none"> <li>- Dense, crowds out native species</li> </ul>	<ul style="list-style-type: none"> <li>- Do not pull unless the plant is young and the ground is very soft. The root will break and produce several new plants.</li> <li>- Wear sturdy gloves</li> <li>- Deadhead to prevent spread of seeds. Cut off seeds or fruits before they ripen. Bag and burn, or send to a landfill.</li> <li>- In lawns, spot treat with broad-leaf weed killer. Good lawn care practices (test soil; use lime and fertilizer only when soil test shows a need; mow high and frequently; leave clippings on lawn) reduce weed infestations.</li> <li>- Cut stem/ cut stump with Glyphosate. Follow label directions for cut stump application. Clip off sucker sprouts or paint with glyphosate.*</li> <li>- Foliar spray<sup>3*</sup></li> </ul>

<sup>1</sup>Girdle: Cut through the bark and growing layer all around the trunk, about 6" above the ground. Girdling is most effective in spring (when the sap is rising) & middle-late summer (when the tree is sending food to the roots). Clip off sucker sprouts.

<sup>2</sup>Frill: Using a machete, hatchet, or similar device, hack scars (several holes in larger trees) downward into the growing layer, and squirt in glyphosate (or triclopyr if specified in table). Follow label directions for injection and frill applications. This is most effective from middle to late summer. Clip off any sucker sprouts or treat with glyphosate.

<sup>3</sup>Foliar Spray: Use a backpack or garden sprayer or mist blower, following label directions. Avoid overspray and/or dripping onto non-target plants, because glyphosate kills most plants except moss. If it rolls off waxy or grass-like foliage, use additional sticker-spreader. Deciduous trees, shrubs, and perennials move nutrients down to the roots in late summer. Glyphosate is particularly effective at this time and when plants have just gone out of flowering. Several invasive species retain their foliage after native plants have lost theirs, and resume growth earlier in spring than most natives. This allows you to treat them without harming the natives. However, the plant must be actively growing for the herbicide to work. Retreatments may be necessary the following year if suckering occurs or the plant hasn't been entirely killed.

<sup>4</sup>Controlled Burning: Burning during the spring (repeated over several years) will allow native vegetation to compete more effectively with the invasive species. This requires a permit. Spot treatment with glyphosate in late fall can be used to make this method more effective

\*Herbicides: It is highly recommended that small populations try to be controlled using non-chemical methods where feasible. However, for large infestations, and for a few plants herbicide use is essential. Apply herbicides carefully to avoid non-target plants, glyphosate is the least environmentally damaging herbicide in most cases. Add food coloring for visibility, and a soap-based sticker such as Cide-Kick. Glyphosate is ineffective on some plants; for these, triclopyr or Garlon 3a may be indicated. When using herbicides read the entire label and observe all precautions listed, including proper disposal. If in doubt, call your local Cooperative Extension Service.

#### **IV. Stormwater Practice Location Plan**

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