

**TOWN OF HARVARD  
CONSERVATION COMMISSION AGENDA  
THURSDAY JANUARY 5, 2023 @7:00PM**

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Pursuant to Chapter 107 of the Acts of 2022, An Act Relative to Extending Certain COVID-19 Measures Adopted during the State of Emergency, and signed into law on July 16, 2022, this meeting will be conducted via remote participation. Interested individuals can listen in and participate by phone and/or online by following the link and phone number below.

Hildreth Pro is inviting you to a scheduled Zoom meeting.

Join Zoom Meeting

<https://us02web.zoom.us/j/87399717223?pwd=NFIRSmFrallQZkJORXg2NmtnYWZQT09>

Meeting ID: 873 9971 7223

Passcode: 141074

One tap mobile

+19294362866,,87399717223# US (New York)

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Dial by your location

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Meeting ID: 873 9971 7223

Find your local number: <https://us02web.zoom.us/u/kbGCHM6XOV>

**New Business:**

1. Discuss the Climate Action Plan Natural Resources Priority Actions to Implement – Educate and advise residents on the management of private land near/in wetlands
2. Discuss Deer Management Subcommittee
3. Discuss Wetland Violation at 30 Cruft Lane
4. Request for a Certificate of Compliance – 94 Ayer Road, DEP#177-667
5. Approve Minutes

**Old Business:**

1. Review Ann Lees Field Memorandum of Understanding
2. Pine Hill Village Status Update & Request to Clear trees in Phase 3

**Public Hearings:**

- 7:30pm **Continuation of a Notice of Intent Hearing – Mary Maxwell, 90 Warren Avenue, Harvard#1122-02**, the demolition of an existing cottage and the reconstruction of a new single-family home, driveway, bridge, wells and septic system with portions within the 100' wetland buffer zone and the 200' of Bare Hill Pond – **Waiver Requested**

**NEXT MEETING:  
JANUARY 19, 2023**

**AS**

The listing of matters are those reasonably anticipated by the chair which may be discussed at the meeting. Not all items listed may in fact be discussed and other items not listed may also be brought up for discussion to the extent permitted by law.

# NATURAL RESOURCES



# NATURAL RESOURCES

## CLIMATE CONSIDERATION

### NATURAL RESOURCES



The Harvard Climate Action Plan will implement recommendations from the 2021 Apple Country Report. That report noted that the preponderance of land in Harvard in its natural state of forests, fields, and especially wetlands is the town's greatest asset in terms of sequestering and storing carbon. By far the greatest impact we can have in nature-based solutions to climate change and increasing resilience is to retain as much of this ecologically functioning land as possible and to minimize conversion to pavement, buildings, septic systems, or traditionally landscaped areas.

Harvard's Select Board, Planning Board, Zoning Board of Appeals, Conservation Commission, Open Space Committee, Parks & Recreation Commission, Board of Health, Water and Sewer, and Bare Hill Pond Watershed Management committees each have jurisdiction and a role in the oversight of land use in town and can have

a significant impact on climate mitigation. Harvard Conservation Trust, Sudbury Valley Trustees and Nashua River Watershed Association also play a very significant role in the purchase and protection of major undeveloped lands. All of these entities working together should find ways to identify and significantly protect important carbon sequestration parcels as well as parcels that can meet the needs of agriculture and recreation.

Many of the town bylaws that protect these valuable resources are outdated and were not developed at a time when the impact of climate change needed to be reflected in the bylaws. The Conservation Commission's Wetland Protection bylaw and Planning Board's Open Space bylaw are places to start in order to conserve natural landscapes. Many surrounding towns are reviewing all of their bylaws in light of climate change and there is the ability for Harvard to learn from and utilize what they have developed.

# NATURAL RESOURCES

## CLIMATE GOALS & ACTIONS

### NATURAL RESOURCES



#### **Municipal:**

**Goal: Increase the resilience of Harvard's ecosystems and community through the coordinated implementation of nature-based solutions.**

#### **Actions to Date:**

- MVP Prioritization Plans
- 2021 Apple Country Report
- 2016 Open Space and Recreation Plan
- 2016 Master Plan, Chapter 3

• The Conservation Commission, Harvard Conservation Trust, Sudbury

Valley Trustees and other local partners have helped to protect over 1,900 acres of conservation land directly and an additional 523 acres under conservation restrictions and agriculture preservation programs. In 2022, 75 acres was added to land holdings for the Community Harvest Project and surrounding land.





# NATURAL RESOURCES

## CLIMATE GOALS & ACTIONS



Priority Actions to Implement	Target	Lead Committee/Entity
Preserve Harvard wetlands through the following: <ul style="list-style-type: none"> <li>• Update the Harvard Wetlands Protection Bylaw and/or regulations to reflect and adapt to changing climate conditions</li> <li>• Educate and advise residents on the management of private land near/in wetlands</li> <li>• Work with DPW to protect wetlands from road run-off</li> </ul>	2025	ConCom
Amend erosion control by-law to include tree clearing	2025	PB
Address Invasive plants and insects: <ul style="list-style-type: none"> <li>• Develop or expand programs for Bare Hill Pond, Town conservation land, and other municipally controlled lands where invasives are a risk</li> <li>• Educate and provide resources to residents to manage invasives on private land</li> </ul>	2024	ConCom/BHPWM/DPW
Improve soil health through education and best management practices	2024	AAC
Improve habitat for pollinators and beneficial insects with protection and cultivation of native plants	2023	HCIC
Implement flood control through ranking and prioritization of town-owned culverts replacement and upgrades	2024	DPW
Monitor for water health, algae blooms and biodiversity of waterways. Provide education and outreach to the public regarding these issues.	ongoing	BoH/BHPWM

**Land Use Goal: The Town’s plans, policies, bylaws, and regulations encourage sustainable land use and development.**

**Actions to Date:**

- Established an Open Space Residential Development Bylaw in response to 2002 Master Plan.
- Created a mixed-use overlay zoning district to facilitate smart growth.
- Land purchases by Conservation Commission, Harvard Conservation Trust and Sudbury Valley Trustees.
- Erosion Control Bylaw approved by Town Meeting 2021.

# NATURAL RESOURCES

## CLIMATE GOALS & ACTIONS



Priority Actions to Implement	Target	Lead Committee/ Entity
Rewrite the Protective (Zoning) Bylaw and include <ul style="list-style-type: none"> <li>• Local resilience and carbon reduction</li> <li>• More zoning districts that are sustainable and smart growth models</li> <li>• An updated Open Space Residential Development Bylaw that promotes open space and natural resource protection</li> </ul>	2026	PB
Educate and inform the public about sustainable land use patterns	2025	PB
Include climate change and sustainability as a consideration in all future Planning Board, Zoning Board of Appeals, Parks and Recreation Commission, Conservation Commission, and Open Space Committee proposals and decisions	2023	SB
Ensure land use and transportation planning are coordinated	2028	SB/PB/TAC

### Residential:

- **Goal: Reduce the climate impact of our homes and yards on the local environment.**

### Actions to Date:

- HarvardEnergize information on native plantings
- Harvard Press Garden Column on environmentally friendly options

# NATURAL RESOURCES

## CLIMATE GOALS & ACTIONS



<b>Priority Actions to Implement</b>	<b>Target</b>	<b>Lead Committee/ Entity</b>
Educate residents on sustainable practices for lawn care, landscaping, tree care, invasive species management, and water management during drought conditions	2024	HCIC/ConCom/BoH
Encourage the conversion of lawn care equipment from gas-powered to electric.	2025	HEAC



# NATURAL RESOURCES

## CLIMATE GOALS & ACTIONS



### Measuring Progress

Measure	Baseline	Baseline Year	Target	Target Year
Wetlands updated bylaws complete	Existing bylaws	2022	Updated bylaws	2025
Amend bylaw re: tree clearing	Existing bylaw	2022	Updated bylaw	2025
Programs and education on invasives	Yearly garlic mustard pull	2022	Reduction in invasives	2026
Improved soil health	Current soil health – identify how to measure	2022	Improved soil health	2026
Improved habitat for pollinators	Current habitat-identify how to measure	2022	Increase in acres for pollinators	2026
Flood control via culverts	Current culverts status	2022	Culverts replaced where needed	2030
Protective bylaw rewrite	Existing bylaw	2022	Reviewed/updated bylaw	2026
Climate change part of decision-making	Not part of current decision-making	2022	Environmental assessment process and climate inclusion	2023
Land use and transportation coordination	Not currently coordinated	2022	Formal interactions in place	2023
Education of residents on sustainable practices	Some through HCIC newsletter	2022	Educational campaign	2024
Residential lawn-care electric equipment	Some in use. Volume unknown	2022	Capture and monitor growth in electric equipment	2025



# Con Com agenda item

Eve Wittenberg <ewittenberg01451@gmail.com>

Sun 11/13/22 7:32 AM

To: Liz Allard <lallard@harvard-ma.gov>

Hi Liz—if we want to discuss educational materials for library (or elsewhere), this is a list I compiled of possible items. Eve

The screenshot shows the MACC website's shopping cart page. The header includes the MACC logo and navigation links: ABOUT MACC, SUPPORT US, MEMBERSHIPS, ADVOCACY, ONLINE STORE, EDUCATION, and RESOURCES. The page title is "YOUR CART". Below the title is a search bar and a message: "You can manage the items in your cart by viewing your cart and then proceeding to checkout. You can also shop for additional items by returning to the main storefront or searching below." There is a search bar with "All Categories" selected and a "FIND" button. A section titled "Are You a Member?" asks the user to sign in. Below this is a "Back to shopping > My Cart" link. The main content is a table of items in the cart:

QTY.	PRODUCT	PRICE	
1	Attracting Native Pollinators # 289	\$29.95	Remove Item
1	Native Plants for New England Gardens #283	\$21.95	Remove Item
1	Invasive Weeds of N.A. - Laminate Guide #320	\$7.95	Remove Item
1	Vernal Pools, A Field Guide to the Animals of #192	\$12.00	Remove Item
1	Winter Guide to Woody Plants of Forests, Thickets, Fields, and Wetlands: NE #144	\$24.00	Remove Item
1	Freshwater Wetlands: Guide to Common Indicator Plants of the Northeast #034	\$26.95	Remove Item
		<b>SUBTOTAL: \$122.80</b>	
		Shipping: \$15.70	
<a href="#">Clear Entire Cart</a>		<b>Total: \$138.50</b>	<a href="#">Recalculate</a>







**Memorandum of Understanding between the Harvard Conservation  
Commission and Harvard Parks and Recreation Commission  
for Anne Lee's Field**

November 19, 2020—proposed updates for Con Com review, 12-12-22, E  
Wittenberg (updated 12-14, 12-29)

This inter-board Memorandum of Understanding (MOU) is entered into by the Harvard Conservation Commission (ConCom) and the Harvard Parks and Recreation Commission (P&R), collectively referred to as the "Parties."

Whereas the Anne Lees playing field (3.08 acres, Harvard Assessor's Map 5, Parcel 104) is on Town conservation land, and;

Whereas the Harvard Conservation Commission authorizes P&R to conduct recreation programs and activities on this site and confers management of the playing field itself to the Harvard Parks and Recreation Commission;

NOW, THEREFORE, the Parties agree as follows:

1. Term and Termination - the MOU will continue in effect from year to year unless either of the Parties chooses to withdraw or both parties agree to amend,
2. The MOU will be reviewed annually by P&R and ConCom and updated as needed and agreed to by both parties,
3. ConCom allows P&R to conduct recreation programs and activities on the Ann Lees recreation field that involve and are designed for students of the Harvard Public Schools. Any activities outside of these, including rental of the site to others, P&R sponsored programs for extracurricular groups or clubs, or P&R activities for other groups, must be approved by the Commission (note: activities organized by and for Harvard residents, such as "pick-up" games, walks, and neighborhood gatherings, are not covered by this MOU).
4. The playing field is defined as the area from and including the backstop fence to the outfield fence line extending 200' from the back of home plate (see Diagram 1).
5. The outfield will be bound by temporary fencing (200' from home plate) that will be removed when the field is not in regular use,
6. P&R will maintain a mowed swath outside the outfield fence up to 215' from the back of home plate,
7. P&R agrees to manage operation and routine maintenance of the playing field and the contiguous area from the field to the main parking lot (see Diagram 1).

8. Work done on the field and in this contiguous area that is proposed, funded or donated by any private group or Town department, board or committee must be approved by P&R. Changes to the field or contiguous area will require approval by ConCom,
9. The land outside the playing field plus the mowed outfield swath and outside the contiguous area up to the parking lot is managed by ConCom,
10. Storage or disposal of equipment, construction materials (including soils), or litter is not permitted on the surrounding land managed by ConCom,
11. Operation and maintenance activities for the playing field are documented in a Mass DEP Notice of Intent (NOI) approved by ConCom to permit itemized activities in the wetland buffer,
12. Any projects/activities that are not covered in the NOI will be presented to ConCom for approval with possible modification to the NOI or this MOU.
13. Concom will monitor site conditions and hold an annual winter meeting with P&R to review conditions, maintenance, activities in the past year, and plans for the coming year. Any within-year changes to agreed-upon activities may be approved by the Conservation Agent or brought to the Commission for consideration.

Signed and dated by:

Harvard Conservation Commission

 /r

*tlJL*\_\_,

*3/10/21*



Harvard Parks and Recreation Commission

Robert O'Shea 3/10/21

OFFICE OF THE  
**CONSERVATION COMMISSION**

13 AYER ROAD HARVARD, MA 01451

978-456-4100 EXT.321

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**DATE:** November 10, 2022

**TO:** Conservation Commission & Zoning Board of Appeals

**FROM:** Land Use Administrator/Conservation Agent

**RE:** Pine Hill Village Status Report Update

On December 28, 2021 the Harvard Conservation Commission issued a letter to the developer of Pine Hill Village, Peter Cricones, detailing the outstanding items that currently needed to be addressed. On February 4, 2022 the Land Use Administrator/Conservation Agent for the Town of Harvard received responses to the Commission's request. Both the Commission's requests and Mr. Cricones responses are stated below, along with a status update from the Land Use Administrator/Conservation Agent.

**November 10, 2022 UPDATE:** As of this date responses received from Mr. Cricones, along with a status update from the Land Use Administrator/Conservation Agent, from a site inspection with Steve Ventresca, of Nitsch Engineering, and Don Ritchie, chair of the Conservation Commission, are stated below.

**Conservation Request:** Repair the drainage swale at the entrance off of Stow Road as shown in the detail provided by Markey & Rubin, Inc., dated December 1, 2021.

**Answer:** We are in the process of repairing it.

**Conservation Update:** The repair has not been completed. Haybales used to reduce silt from entering the drainage channel cause water to back-up within the swale leading to the channel.

**Updated Answer 10/20/2022:** The swale has been updated (regraded and stone lined) as per plan from Ian Rubin.

**Conservation Update 11/10/2022:** Work completed as requested



**Conservation Request:** Verify material to construct Rain Gardens #22 and 23

**Answer:** Bioretention soil mix was used. Please see attached for the receipts for the material that was used.

**Conservation Update:** The material used to construct the rain gardens includes more than a bioretention seed mix. The Commission is seeking core samples be taken and witnessed by the Commission or the Nitsch Engineering to verify installation was done according to the approved plan.

**Updated Response 10/20/2022:** The rain gardens were constructed per plan.

**Conservation Update 11/10/2022:** Verification of materials used to construct the rain gardens was completed by Steve Ventresca, of Nitsch Engineering

**Conservation Request:** Bioretention cell only has one riser pipe; detail shows two; verify one pipe is sufficient.

**Answer:** Dan Boudreau is working on a letter to verify that one pipe is sufficient.

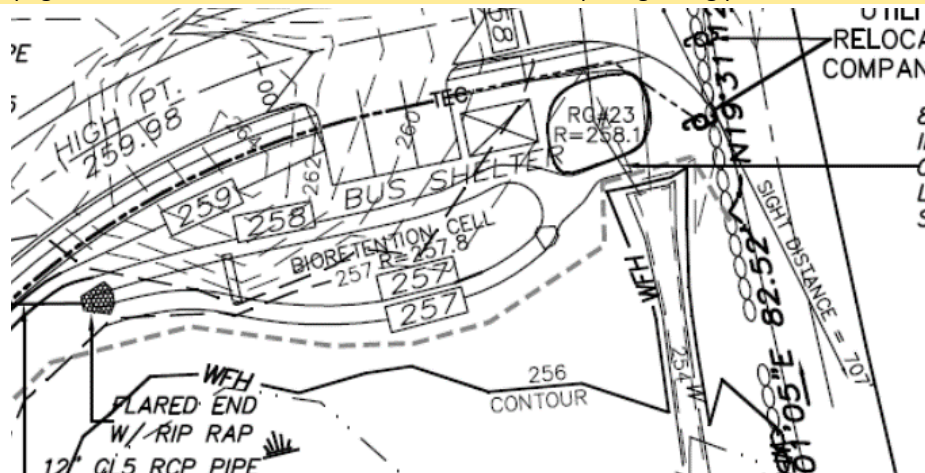
**Conservation Update:** Verification has not occurred

**Updated Answer 10/0/2022:** See attached letter from Dan Boudreau dated May 25, 2022 for the verification

**Conservation Update 11/10/2022:** The stormwater model used to design the bioretention cell should be run again with only one riser pipe in order to provide clear evidence that one riser pipe is sufficient. This information shall be provided to Nitsch Engineering for review. In addition, the elevation of the forebay shall be compared to that of the rain garden as they appear to be of different elevations. The Notice of Intent Landscape Fencing and Planting Plan shows an elevation of 257 for the bottom of the forebay and rain garden and a rim of 257.8

**Updated Answer 12/15/2022:** Dan Boudreau is working on the one riser pipe issue in the bioretention area. The outflow pipe elevation per plan is 257 and the elevation per plan of the base of the bioretention area is 257.0.

Please refer to page 3 of the Notice of Intent Plans which is the site plan/grading plan which shows the following:



**Conservation Request:** The rain gardens raisers have flat grates as opposed to rounded grates as shown on the approved detail; verify flat grates are acceptable

**Answer:** Dan Boudreau is working on a letter to verify that flat grates are acceptable.

**Conservation Update:** Verification has not occurred

**Updated Answer 10/20/2022:** The flat grates have been changed so that they are all rounded.

**Conservation Update 11/10/2022:** Request satisfied

**Conservation Request:** The installation of the energy dissipation at the outlet at the constructed wetland should be verified with approved detail

**Answer:** Ian Rubin is working on this; however, he is currently out of the country. Upon his return, we will submit the verification and approved detail from him.

**Conservation Update:** Verification has not occurred

**Updated Answer 10/20/2022:** See attached report from Ian Rubin dated December 1, 2021

**Conservation Update 11/10/2022:** The letter from Ian Rubin did not clarify the issue, which is the Conservation Agent, along with Nitsch Engineering, believes the energy dissipator is not deep enough to function as designed.

**Updated Answer 12/15/2022:** The energy dissipator has been lowered on the outflow area.



**Conservation Request:** Material to construct parabolic swale #8 in front of units 1A and B needs to be verified.

**Answer:** Yes, this will be verified in the spring

**Conservation Update:** Verification has not occurred. The Commission is seeking core samples be taken and witnessed by the Commission or the Nitsch Engineering to verify installation was done according to the approved plan.

**Updated Answer 10/20/2022:** The parabolic swale has been constructed per plan. Please see attached. We can do the core samples next week, please let me know when a good date/time is.

**Conservation Update 11/10/2022:** Verification of materials used to construct the rain gardens was completed by Nitsch Engineering.

**Conservation Request:** Plantings around the constructed wetland are not consistent with the approved plan and some of the trees are dead; replacement plantings shall be in a random pattern.

**Answer:** Any dead trees or shrubs will be replaced in the spring and will be replaced in a random pattern.

**Conservation Update:** Plantings have been replaced, however the area is well over grown and should be maintained to help reduce the spread on invasive plants.

**Updated Answer 10/20/2022:** Weed whacking and will continue to do so.

**Conservation Update 11/10/2022:** Recommend this area be periodically mowed along with lawn areas around the units as part of the routine maintenance of the site and reduce the growth and spread of invasive plants.





**Conservation Request:** Additional planting required in front of Units 1A and B as shown on the approved plan.

**Answer:** Yes, this will be done per plan.

**Conservation Update:** Plantings are still not in accordance with the approved plan.

**Updated Answer 10/20/2022:** The plantings have been installed.

**Conservation Update 11/10/2022:** Work completed as requested



**Conservation Request:** Silt on the driveway for units 5 and 7 shall be removed before occupancy.

**Answer:** This has been done

**Conservation Update:** Although a berm was installed at the entrance to the driveway silt continues to collect on the driveway between units 5 and 7 as water pools in that area during heavy rain events. The silt sock installed on the edge of the driveway near unit 5 has been removed without approval from the Commission. Silt laden waste is passing over grassy area before accumulating at the edge of the existing erosion control barrier.

**Updated Answer 10/20/2022:** A new hay wattle has been installed. Will install check dams on the shoulders of the roadway between stations 7+00 to +950. See Ian's plan page when the final coat of pavement gets put on.

**Conservation Update 11/10/2022:** Improvements made up hill of this site have eliminated silt accumulating in the driveway. The pooling of water will continue until the final coat is installed on the driveway. The silt sock has been replaced as requested.





**Conservation Request:** An additional parking space has been installed at units 5 and 7 this pavement shall be removed and replaced with loam and seed as well as the planting as shown on the approved plan.

**Answer:** The pavement at the additional parking space that was installed at units 5 and 7 has been removed. It will be replaced with loam and seed as well as the planting as shown on the approved plan weather dependent.

**Conservation Update:** Although the excess pavement was removed in early 2022 no other activity has occurred to rectify the issue.

**Updated Answer 10/20/2022:** This area has been hydroseeded and the tree has been installed.

**Conservation Update 11/10/2022:** In September when the Conservation Agent was on site the area had been stabilized with grass, however during review of the site on November 10, 2022 the Agent observed the newly planted tree, but there was no longer any grass. Re-hydroseed area for compliance.

**Updated Answer 12/15/2022:** The hydroseeded has been completed here is an updated picture showing the hydroseed:



**Additional comment in the letter from the Commission dated December 28, 2021:**

**Conservation Request:** Please be reminded that any changes to the approved plan require either Conservation Commission and/or Zoning Board of Appeal approval prior to the change occurring.

**Answer:** Also, any changes to the approved plans will be presented to Conservation Commission and/or Zoning Board of Appeal for approval prior to the change occurring.

**Conservation Update:** A mail kiosk has been added to the west side of the visitor park at the entrance to the development, but was not on the approved plan. This addition was not approved by the Commission, nor the Zoning Board of Appeals.

**Updated Answer 10/20/2022:** Apologies for not seeking approval of the Commission nor the Board. This location was requested by the USPS.

**Conservation Update 11/10/2022:** The Conservation Commission will be issuing a fine in the amount of \$300.00 for this violation of the approved plans under the Order of Conditions.



**Conservation Request:** To ensure proper installation of any additional rain gardens, please contact this office to arrange an inspection during the installation of these stormwater features.

**Answer:** And finally, to ensure proper installation of any additional rain garden, you will be contacted to arrange an inspection during the installation of these stormwater features.

**Conservation Update:** According to the weekly reports from the Developer, rain gardens 16 and 21 were to be worked on the weeks of June 20 and 27, 2022, however no inspection of the installation of these gardens was arranged as previously requested.

**Updated Answer 10/20/2022:** We were under the impression that the notification of the weekly updates would serve as the notification and then the inspection would follow. Please see attached pictures of rain garden 16.

**Conservation Update 11/10/2022:** The remaining rain gardens requires a member of the Commission, its Agent and/or an employee of Nitsch Engineering to be on site during installation. Mr. Cricones is to make direct contact with the Conservation Agent in order to arrange these inspections. ***The submittal of the weekly reports will not be considered notification.***



#### **Additional Comments from the Land Use Administrator/Conservation Agent**

In general, the common areas on the site are not being maintained cause unwanted over growth around the



installed landscaping.

**Answer:** We are in the process of weed whacking and will continue to do so

**Conservation Update 11/10/2022:** The Commission recommends these areas be maintained with mowing at the same time the lawn areas of the units are mowed as part of the routine maintenance of the site, as well as to reduce the growth and spread of invasive plants.



Members of the Conservation Commission along with its Agent had spent a considerable amount of time on the site over the years prior to development. The site was originally free from invasive plant species. Since the addition of fill onto the site invasive plant species have been identified on the site, including Japanese Knotweed, Garlic Mustard and Black Locust. The Commission is concerned these invasives will spread into the wetland resource areas on and off the site, including a vernal pool on the adjacent lot, as well as the forested area around the development. The Commission is requesting a plan be prepared to rectify the issue.

**Answer:** Ruby Environmental Services Inc. has been contracted to provide annual invasive species management plan, which includes spraying/cutting. This plan has been presented and approved to the Commission and the first treatment (fall portion of the contract) was done on 10/3/2022.

**Conservation Update 11/10/2022:** Management Plan by Ruby Environmental was approved by the Commission. Photos above show areas that previously included invasive plant species. As stated above the Commission recommends these areas be maintained with mowing at the same time the lawn areas of the units are mowed in order to reduce the growth and spread of invasive plants. A progress report from Ruby Environmental shall be provided for the Commission's review.

The lower Bio-Retention Cell is receiving silt during rain events. Areas in which stormwater is flowing shall be

stabilized to reduce silt from entering this cell.

**Answer:** Waddles were removed out of the pipes and the pipes were cleaned

**Conservation Update 11/10/2022:** Outfall remains free of silt; continue to monitor for compliance.



The constructed wetland is acting a sediment basin during construction, however silt in this basin has reached levels that should be addressed to avoid adverse impacts to the wetland resource areas.

**Answer:** A dewatering plan of this area has been approved by the Conservation Commission to allow for the removal of silt within this basin.

**Conservation Update 11/10/2022:** A dewatering plan has been approved by the Commission and may proceed.



Parabolic Channel (PS8) in front of Building #1 is constantly full of silt. Stabilization of issue with riprap, erosion control barriers and silt sacks have only exacerbated the problem. Proper installation and maintenance of this and all of the Parabolic Channels shall be adhered to.

**Answer:** Pipes were cleaned, wattles were removed, and a new wattle will be added further away from the pipe.

**Conservation Update 11/10/2022:** Outfall remains free of silt; continue to monitor for compliance.



Parabolic Channel 7 (PS7) was designed to be a series of step pools along the main road of the development. As constructed this channel is one long channel that has been stabilized sporadically similar to PS8. Proper installation and maintenance of this and all of the Parabolic Channels shall be adhered to.

**Answer:** The swale has been cleaned and the check dams have been installed in a series of step pools.



**Conservation Update 11/10/2022:** Outfall remains free of silt; continue to monitor for compliance. The swale itself had originally been proposed as step pool. Although the check dams installed along the swale will slow the flow of water during heavy rain events the Agent would recommend the step pools be installed to better control water within the swale. If it is the desire of Mr. Cricones to keep the swale as constructed the stormwater model shall be run again to prove it will function to control stormwater.

**Updated Answer 12/15/2022:** Two step pools before the check dams will be added on Swale PS7.



A major cause of siltation with the Parabolic Channels and Constructed wetland is the uncontrolled runoff from the upper portion of the site. A plan to properly control stormwater runoff shall be submitted to the Commission for their review.

**Answer:** We have added more check dams every couple hundred feet up the roadway on the side along with adding 3" crushed gravel on the right side of the road going up the hill. The fact that the driveways have been paved and the whole site has been hydro seeded has also greatly reduced this issue. Any material that ends up in the parabolic swale 1 has been and will continued to be cleaned out if anything goes in there. We have also added more check damns in front of it and within it

**Conservation Update 11/10/2022:** These areas have stabilized as detailed above. Monitor for continued compliance.





