

Commonwealth of Massachusetts
 Executive Office of Energy and Environmental Affairs
 Massachusetts Environmental Policy Act (MEPA) Office

Environmental Notification Form

<p><i>For Office Use Only</i></p> <p>EEA#: <u>15916</u></p> <p>MEPA Analyst: <u>Page Cepiga</u></p>

The information requested on this form must be completed in order to submit a document electronically for review under the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: Foothills Preserve and West Beaver Dam Brook Restoration Project		
Street Address: 85 Beaver Dam Rd		
Municipality: Plymouth	Watershed: Beaver Dam Brook	
Universal Transverse Mercator Coordinates	Latitude: 41.9152° N Longitude: -70.5735° W	
Estimated commencement date: July 1, 2019	Estimated completion date: December 31, 2019	
Project Type: Dam Removal/River and Peatland Restoration	Status of project design: 15 %complete	
Proponent: The Town of Plymouth		
Street Address: 26 Court St		
Municipality: Plymouth	State: MA	Zip Code: 02360
Name of Contact Person: Nick Nelson		
Firm/Agency: Inter-Fluve, Inc.	Street Address: 220 Concord Ave., 2nd Floor	
Municipality: Cambridge	State: MA	Zip Code: 02138
Phone: office: (617) 714-5537	Fax: (608) 441-0218	E-mail: nnelson@interfluve.com
Cell: (617) 852-7744		
<p>Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If this is an Expanded Environmental Notification Form (ENF) (see 301 CMR 11.05(7)) or a Notice of Project Change (NPC), are you requesting: ENF</p> <p>a Single EIR? (see 301 CMR 11.06(8)) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No a Special Review Procedure? (see 301CMR 11.09) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No a Waiver of mandatory EIR? (see 301 CMR 11.11) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No a Phase I Waiver? (see 301 CMR 11.11) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (Note: Greenhouse Gas Emissions analysis must be included in the Expanded ENF.)</p> <p>Which MEPA review threshold(s) does the project meet or exceed (see 301 CMR 11.03)? Wetlands, Waterways, & Tidelands Which State Agency Permits will the project require? MA Wetlands Protection Act Notice of Intent, WW26 Combined Chapter 91 Waterways and 401 WQC for Restoration Projects Identify any financial assistance or land transfer from an Agency of the Commonwealth, including the Agency name and the amount of funding or land area in acres: MA DFG Division of Ecological Restoration: \$52,000</p>		

Summary of Project Size & Environmental Impacts	Existing	Change	Total
LAND			
Total site acreage	64.9		
New acres of land altered		64.9	
Acres of impervious area	N/A	N/A	N/A
Square feet of new bordering vegetated wetlands alteration		Total temp disturbance: 2,446,765sf Net: 41,380sf	
Square feet of new other wetland alteration		LUW: -40,075sf Riverfront: +751,846sf	
Acres of new non-water dependent use of tidelands or waterways		N/A	
STRUCTURES			
Gross square footage	NA	NA	NA
Number of housing units	NA	NA	NA
Maximum height (feet)	NA	NA	NA
TRANSPORTATION			
Vehicle trips per day	NA	NA	NA
Parking spaces	NA	NA	NA
WASTEWATER			
Water Use (Gallons per day)	NA	NA	NA
Water withdrawal (GPD)	NA	NA	NA
Wastewater generation/treatment (GPD)	NA	NA	NA
Length of water mains (miles)	NA	NA	NA
Length of sewer mains (miles)	NA	NA	NA
Has this project been filed with MEPA before? <input type="checkbox"/> Yes (EEA # _____) <input checked="" type="checkbox"/> No			
Has any project on this site been filed with MEPA before? <input checked="" type="checkbox"/> Yes (EEA # 15148 _____) <input type="checkbox"/> No The Tidmarsh Farms Restoration was completed in 2016. This current proposed project is in the adjacent contributing sub-watershed, and involves different landowners.			

GENERAL PROJECT INFORMATION – all proponents must fill out this section

PROJECT DESCRIPTION:

Describe the existing conditions and land uses on the project site:

This project is located on two parcels: The Foothills Preserve includes former cranberry bogs on the west side of Beaver Dam Road; the portion of West Beaver Dam Brook being restored on the east side of Beaver Dam Brook is owned by Mass Audubon.

The Foothills Preserve is owned and managed for public open space by the Town of Plymouth and includes approximately 42 acres of former commercial cranberry farmland that is proposed for ecological restoration. The cranberry farm was active until 2016. The historic wetlands on site are degraded due to legacy farming impacts including interior and perimeter ditches, interior earthen dikes and water control structures, and a perimeter farm road (sand surface). The most significant legacy impact to wetland ecology now on site is a 1.5 to 2-foot thick sand layer on top of the native peat. This fill layer was applied during farming to stimulate cranberry production; sand was added to the wetland surface regularly over the past 100+ years of agricultural production. The underlying peat is variable in thickness, with some areas exceeding 20 feet (per NRCS ground-penetrating radar survey). West Beaver Dam Brook emerges from springs in the northwestern portion of the site and flows south, then southeast before crossing under Beaver Dam Road. This small brook is also degraded from past farming practices; it is straightened, incised, and devoid of any habitat features. The site also contains two small irrigation ponds, a borrow pit in the western hillslope where sand was mined and applied on-site, an equipment garage actively used by the Town, and another small unused building.

The project area east of Beaver Dam Road includes West Beaver Dam Brook on land owned by Mass Audubon and part of the Tidmarsh Wildlife Sanctuary. Through this reach, West Beaver Dam Brook flows to the northeast, in a straightened channel through two impoundments formed by legacy agricultural dams, towards its eventual confluence with the mainstem of Beaver Dam Brook. The channel has virtually no sinuosity and is periodically flanked by man-made levees. The pair of dams was constructed in the 1980s by the prior owners as a water source for farming. The upper dam is breached on the northwest end, but still creates a significant impoundment. The lower dam is intact, with a gravel road along its top. A culvert through the lower dam has flash boards that control the water level in the impoundment. The water level drop at the downstream end of the culvert is approximately 5 feet, making it impassable to fish migrating upstream (with the exception of American eel). Former farm roads (sand surface) are present along the stream and are used by Mass Audubon today as part of their trail network.

While generally not subject to disturbance as part of the proposed Project, the surrounding uplands consist of forested uplands. This feature is important ecologically for future movement of wetland dependent species (e.g. turtles), but also aesthetically. The dense surrounding forests obscure views of surrounding homes for most times of the year, offering a visitor with a sense of being in the midst a relative wildness despite the location in well-developed Plymouth.

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Describe the proposed project and its programmatic and physical elements:

The Foothills Preserve and West Beaver Dam Brook Restoration builds on lessons learned from the three other projects in the region that have restored retired cranberry bogs to diverse wetlands and stream (Eel River and Tidmarsh Farms in Plymouth, and Coonamessett River in Falmouth). Many of the same design and construction elements completed on these other similar projects are proposed for this project including removal of valley-spanning berms, removal of two obsolete small dams, reconstruction of a new sinuous stream channel, installation of large wood for channel construction and aquatic and terrestrial habitat, development of microtopography throughout the wetland surfaces, and planting of native trees and shrubs. The project is being led by the Town of Plymouth and the MA Division of Ecological Restoration (DER).

The following paragraphs summarize the proposed project. For more details on the designs and background to the

designs, please see the design report in Attachment 5.

Small Dam Removals

This work will include the removal of the two small earthen berms that comprise the upper and lower dams, including the steel culvert within the lower dam. The removal of these structures will open restored stream connectivity and open up approximately one linear mile of river habitat for migratory species. The earthen berms will be entirely removed to restore the full width of the floodplain.

River Channel Restoration

To address the degraded and simplified existing agricultural ditching now present within the Foothills Preserve, a new restored stream channel will be reconstructed. The proposed channel meander pattern within the Foothills Preserve is based on low gradient peatland channels observed elsewhere in the region, including Beaver Dam Brook through Tidmarsh Farms. The design and construction methods follow standard practice for river restoration and reflect methods used at other retired cranberry farm sites in Massachusetts. The design of the stream for much of Tidmarsh West includes a slightly irregular meander pattern that begins downstream of cells A, B, and C, which do not have adequate baseflow to support a defined channel. The existing main ditch in Cell C will be plugged with wood and earth to deconstruct the channel and force the water closer to the wetland surface. The slightly irregular meandering stream will begin just south of Cell C and meander through Cells D, E, and F. The restored stream will meander close to the topographic low point in the valley. The new channels will have physical complexity (e.g. side arms, backwater areas), sinuosity, and large wood, and will be reconnected to the adjacent restored floodplain. Beyond immediately improving habitat conditions on site, this work will increase hydrologic retention and help restore wetland conditions across the site.

The restored channel downstream of the Beaver Dam Road crossing is designed to be a riffle-pool stream with a 1% slope. Because the stream had been dredged during agricultural use, earthen material from the two berms and dams, as well as the earthen road leading east from the lower dam, will be removed and regraded into the valley to achieve the designed valley slope. Once the valley grade has been achieved, the proposed channel will be excavated into the valley fill material, with riffles and pools throughout and large woody material providing bank stabilization and habitat. The channel top width will be approximately 6 feet and the channel depth approximately 0.5-1.0 feet. Large wood and root wads will be placed on outer meander bends as well as across the channel to create complex habitat features throughout the channel and provide stability to channel banks. As this is a steeper channel than the wetland complex upstream, we have assumed active treatment of channel banks, with half of the channel length constructed with large wood and half with a single fabric encapsulated soil lift.

Wetland Restoration

The bog/wetland restoration work in the Foothills Preserve will include removal of the sand layer in select areas to create open water features of various sizes, roughening of the former farm surface (microtopography), addition of large wood for habitat features, and wetland vegetation planting. In addition, the interior and perimeter ditches will be filled to remove the features of the farm that actively worked to drain the wetlands for farming. This will help keep the groundwater closer to the ground surface to support wetland vegetation and wetland function. Throughout the restored wetland surface, microtopographic features will be constructed to provide terrestrial and aquatic habitat. This microtopography will include mounds and low areas, both approximately one foot plus/minus the elevation of the bog surface. This same approach was used to restore wetland conditions at the other three completed wetland restoration projects on former cranberry farms in Massachusetts to date.

The planting plan includes a range of plant sizes: larger, five-gallon Atlantic white cedar trees to be spread out and act as nurse trees and thousands of Atlantic white cedar seedlings spread throughout targeted Atlantic white cedar wetland areas. These seedlings are inexpensive to purchase and efficient to install as nearly 400 of them can be carried in a bag at once and installed rapidly. This method has been used extensively in the mid-Atlantic and southeastern regions of the United States for large-scale Atlantic white cedar restoration efforts. This will be the first large-scale use of this method in MA for Atlantic white cedar. We also propose planting tree and shrubs of a variety of species for diversity. Lastly, we propose seeding along the transition slopes from the bogs up to the surrounding roads, but no active seeding in the wetland or along channel and pond edges as these areas have proven to grow in rapidly without seed installation. The final species, numbers of plants, and locations will be determined in later phases of design.

Footbridge

Pedestrian access along existing walking trails is important to maintain at both the Foothills Preserve and West Beaver Dam Brook sites. Most of the berms separating the cranberry bogs will be removed for aquatic and terrestrial connectivity. However, the existing roads and paths along the perimeter of the cranberry bogs will remain. The berm between Cells C and D will be mostly removed and replaced with a short boardwalk to maintain pedestrian access. The berm just downstream of Cell F will be removed and replaced with a footbridge or small boardwalk. These bridges will not be designed to carry vehicles except for ride-on lawnmowers.

MassAudubon would like to continue to provide recreational access through their property east of Beaver Dam Road. With the removal of the lower dam across West Beaver Dam Brook, a small footbridge will be constructed across the stream at this location to connect visitors from the parking lot to the Tidmarsh Farms restoration site.

The final designs for these short boardwalks and small bridges will be finalized through consultation with the project partners in the next phases of design.

Recommended Construction Sequencing

The following outlines the recommended sequencing that would minimize the short-term construction period impacts to regulated resource areas and maximize efficiency for the contractor. A final construction sequencing plan will be developed by the construction contractor for approval by the project engineer and landowners. The contractor may propose alternate sequencing and methods for approval by the project engineer as long as the performance standards of the environmental permits are met.

Foothills Preserve:

1. Install sediment and erosion control measures (BMPs described in more detail below)
2. Construct the channel through all bogs, starting Cell C, then moving south to Cell F; install large wood in the channel concurrently with channel excavation
3. Excavate shallow ponds in all cells
4. Fill interior ditches and complete microtopography through all wetland surfaces
5. Grade edge of the cells, filling in the perimeter ditch
6. Construct stream crossings
7. Implement planting plan
8. Remove sediment and erosion controls

West Beaver Dam Brook Channel east of Beaver Dam Road:

1. Install sediment and erosion control measures (BMPs described in more detail below)
2. Implement water control in order to complete work in the existing channel
3. General valley grading, including dam removal
4. Complete the channel grading and bank construction, including riffle construction, log placement, and FES construction
5. Construct footbridge
6. Remove water control and allow water to flow through the newly constructed channel
7. Implement planting plan
8. Remove sediment and erosion controls

Best Management Practices (BMPs) for Sediment and Erosion Control

Construction BMPs are an important part of ecological restoration work. Because river and wetland restoration projects occur within the regulated resource areas, these projects necessarily result in short-term construction impacts on those regulated resource areas. These short-term impacts are offset by the long-term benefits of the project which will result in channel with no flow impediments and a wetland with diverse topography and habitat features.

The sequencing described above will minimize the turbidity in the water and any sediment releases from channel/wetland construction and general site construction activities. Immediately downstream of the Cell F in the Foothills Preserve is a small irrigation pond through which the channel currently flows. To minimize downstream

movement of sediment during construction, we propose that this artificial pond be used as a sediment trap while all of the channel work is being completed upstream. Once channel construction is completed upstream, deposited material can be removed and used elsewhere within the project boundaries as needed. To complete the work east of Beaver Dam Road, the actively flowing water will likely need to be diverted around the work area, either through bypass channel or a pipe. This will reduce the amount of sediment that enters the stream during the valley grading and channel construction. The channel bank designs are also intended to minimize the downstream release of sediment. The logs and rootwads help to stabilize the banks and the fabric encapsulated soil (FES) lifts provide stability and a substrate for vegetation to grow. These methods provide short-term stability, but also provide long-term stability once the vegetation takes root and matures.

All construction vehicles will be stored in the staging areas outside of wetland zones. All re-fueling and cleaning of vehicles will occur within the staging areas as well. The contractor will be required to maintain a spill cleanup kit on site. The contract documents will require that signs be placed to prevent the public from walking into the work area and for dust to be controlled if necessary. Construction will occur during normal working hours during the week to avoid complaints about excessive noise.

Project Related Changes to Resource Areas

The construction period impacts to existing degraded wetland resource areas are unavoidable and will be short-term. The benefits of the project, however, will permanent. The proposed project is intended to restore wetland and stream systems across the site. Construction period disturbance is required in order to address legacy agricultural impacts. In the absence of the disturbance proposed by this project, the existing degraded conditions will persist and worsen over time. Anticipated changes to regulated resource areas are described below. The project will result in a net positive overall increase in wetland resource areas, as well as ecological restoration of the entire project site.

Project Resource Area Changes

	Existing Area to be Altered During Construction	Area Under Proposed Conditions	Net Change
Bank (linear feet)	7,730	13,400	5,470
Land Under Water (acres)	4.95	4.03	-0.92
Bordering Vegetated Wetland (acres)	56.17	57.12	0.95
Riverfront (acres)	26.76	44.02	17.26

Another approximately 3.8 acres of upland areas will be impacted through removal of the earthen dam, existing sand pits being filled with excavated materials from the construction site, and the temporary disturbance in the access and staging areas.

No infrastructure will be required for the completion of this project.

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Describe the on-site project alternatives (and alternative off-site locations, if applicable), considered by the proponent, including at least one feasible alternative that is allowed under current zoning, and the reasons(s) that they were not selected as the preferred alternative:

The purpose of the Foothills Preserve and West Beaver Dam Brook Restoration is to holistically restore naturalized ecology, geomorphology, and hydrology of the retired cranberry farm and West Beaver Dam Brook valley (channel and floodplain). The project is inherently focused on the West Beaver Dam Brook system, so alternative locations that would not impact West Beaver Dam Brook are not feasible as the restoration goals would not be achieved. A range of alternatives were evaluated for the Project in relation to stream channel morphology, wetland morphology, pedestrian use, and plant community restoration. The current proposal was determined to provide the optimal balance of restoration, public access, and cost-effectiveness.

Please see the cover letter for a detailed description of the three (3) alternatives evaluated for this project..

NOTE: The purpose of the alternatives analysis is to consider what effect changing the parameters

and/or siting of a project, or components thereof, will have on the environment, keeping in mind that the objective of the MEPA review process is to avoid or minimize damage to the environment to the greatest extent feasible. Examples of alternative projects include alternative site locations, alternative site uses, and alternative site configurations.

Summarize the mitigation measures proposed to offset the impacts of the preferred alternative:

No mitigation measures are proposed. The purpose of the Project is ecological restoration to improve and renaturalize the ecology, geomorphology, and hydrology of the retired cranberry bogs and West Beaver Dam Brook system. The permanent ecological restoration of this area will more than offset temporary impacts incurred during construction (all of which are, in fact, needed to accomplish the restoration activities). A summary of the best management practices to be used during construction to minimize short-term impacts are described. Construction sequencing and additional BMP information are described above under the proposed project description. The contractor will avoid and minimize short-term impacts where possible by installing a sediment trap and completing the work outside the flowing water in critical locations. The project engineer, DER, and/or landowners will be on site during construction to monitor construction activities, coordinate, and adapt as necessary to on-the-ground conditions.

If the project is proposed to be constructed in phases, please describe each phase:

This project will occur in one phase over a span of approximately 6 months. See the above proposed sequencing for more details on the expected construction plan.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN:

Is the project within or adjacent to an Area of Critical Environmental Concern?

Yes (Specify _____)
 No

if yes, does the ACEC have an approved Resource Management Plan? ___ Yes ___ No;
if yes, describe how the project complies with this plan.

Will there be stormwater runoff or discharge to the designated ACEC? ___ Yes ___ No;
if yes, describe and assess the potential impacts of such stormwater runoff/discharge to the designated ACEC.

RARE SPECIES:

Does the project site include Estimated and/or Priority Habitat of State-Listed Rare Species? (see http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/priority_habitat/priority_habitat_home.htm)

Yes (Specify _____) No

HISTORICAL /ARCHAEOLOGICAL RESOURCES:

Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?

Yes (Specify _____) No

if yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources? Yes (Specify _____) No

The USDA Natural Resources Conservation Service (NRCS) has completed a preliminary survey for historical and archeological resources within the Foothills Preserve, and identified no potentially significant resources. See Attachment 8.

WATER RESOURCES:

Is there an Outstanding Resource Water (ORW) on or within a half-mile radius of the project site? ___ Yes x No;
if yes, identify the ORW and its location. _____

(NOTE: Outstanding Resource Waters include Class A public water supplies, their tributaries, and bordering wetlands; active and inactive reservoirs approved by MassDEP; certain waters within Areas of Critical Environmental Concern, and certified vernal pools. Outstanding resource waters are listed in the Surface Water Quality Standards, 314 CMR 4.00.)

Are there any impaired water bodies on or within a half-mile radius of the project site? ___ Yes x No; if yes, identify the water body and pollutant(s) causing the impairment: _____

Is the project within a medium or high stress basin, as established by the Massachusetts Water Resources Commission? ___ Yes x No

STORMWATER MANAGEMENT:

Generally, describe the project's stormwater impacts and measures that the project will take to comply with the standards found in MassDEP's Stormwater Management Regulations:

Stormwater will not be directly impacted by the project since impervious areas will not be constructed. Construction, however, will adhere to the Massachusetts Stormwater Policy Standard #8 for reducing erosion, sedimentation, and other pollutant impacts.

MASSACHUSETTS CONTINGENCY PLAN:

Has the project site been, or is it currently being, regulated under M.G.L.c.21E or the Massachusetts Contingency Plan? Yes ___ No x ; if yes, please describe the current status of the site (including Release Tracking Number (RTN), cleanup phase, and Response Action Outcome classification): _____

Is there an Activity and Use Limitation (AUL) on any portion of the project site? Yes ___ No x; if yes, describe which portion of the site and how the project will be consistent with the AUL: _____

Are you aware of any Reportable Conditions at the property that have not yet been assigned an RTN? Yes ___ No x ; if yes, please describe: _____

SOLID AND HAZARDOUS WASTE:

If the project will generate solid waste during demolition or construction, describe alternatives considered for re-use, recycling, and disposal of, e.g., asphalt, brick, concrete, gypsum, metal, wood:

Water control structures used during farming and present within existing earthen dikes and small dams will be removed during the Project. To dispose of these metal structures, the landowners and/or construction contractor will pursue (1) resale, (2) recycling, (3) other reuse, and (4) disposal at an approved facility (as a last resort).

(NOTE: Asphalt pavement, brick, concrete and metal are banned from disposal at Massachusetts landfills and waste combustion facilities and wood is banned from disposal at Massachusetts landfills. See 310 CMR 19.017 for the complete list of banned materials.)

Will your project disturb asbestos containing materials? Yes ___ No x ; if yes, please consult state asbestos requirements at <http://mass.gov/MassDEP/air/asbhom01.htm>

Describe anti-idling and other measures to limit emissions from construction equipment: All construction equipment will be turned off when not being used during work hours and will be turned off at the end of each work day.

DESIGNATED WILD AND SCENIC RIVER:

Is this project site located wholly or partially within a defined river corridor of a federally designated Wild and Scenic River or a state designated Scenic River? Yes ___ No x ; if yes, specify name of river and designation:

If yes, does the project have the potential to impact any of the "outstandingly remarkable" resources of a federally Wild and Scenic River or the stated purpose of a state designated Scenic River? Yes ___ No ___ ; if yes, specify name of river and designation: _____