

Revised
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SECTION 6 RESERVOIR MAINTENANCE PROGRAM

6.1 INTRODUCTION

As part of its continued watershed protection efforts, the Holyoke Water Works performs routine maintenance around its water supplies, including the roadways and buffer zones. The maintenance activities performed by the HWW include the following:

- Culvert cleaning
- Headwall maintenance
- Shoreline maintenance
- Spillway maintenance
- Dam maintenance
- Mowing of existing grass strips around the access roads and shorelines
- Removal of dead trees
- Roadway maintenance
- Maintenance of feeder brooks to maintain flows
- Right-of-way maintenance
- Invasive species control
- Other projects

The "buffer zone" is defined as an area of land extending outward 100 feet horizontally from a bank, marsh, swamp, freshwater or coastal wetland, beach, dune, or flat. The "riverfront area" is a 200-foot wide corridor on each side of a perennial river or stream, measured from the mean annual high-water line of the river. Thus, any land within the watershed that extends 100 feet from the shore of each of the water supply reservoirs is in the buffer zone, and thus, most activities, including many of the routine maintenance activities performed by HWW, are subject to approval by the local Conservation Commission. In addition, other wetland areas and riverfront areas are located within each watershed, and any maintenance activity performed on these lands is under the jurisdiction of the local Conservation Commission.

Figures 6-1 through 6-4 show the location of the wetlands, riverfront areas, and the 100-foot buffer zones surrounding the wetlands and the water supply reservoirs: Tighe-Carmody Reservoir, McLean Reservoir, Ashley Reservoir, and Whiting Street Reservoir, respectively. The source of wetlands locations shown on the figures is MassGIS.

6.2 RESERVOIR MAINTENANCE PROGRAM GOALS

The goals of the reservoir maintenance program are as follows:

- Identify the routine maintenance tasks that are necessary to properly maintain the reservoirs
- Determine which activities require prior notification and the appropriate level of notification to the local Conservation Commission for each maintenance activity

6.3 MASSACHUSETTS WETLANDS PROTECTION ACT

Massachusetts General Law Chapter 131, Section 40 governs the "removal, filling, dredging, or altering of land bordering waters". The Massachusetts Wetlands Protection Act regulations (310 CMR 10.00) provide the means to administer MGL ch.131, s40. The Wetlands Protection Act regulates any activities within a Bordering Vegetated Wetland (BVW), or within the buffer zone of a BVW. Activities occurring within these locations must file a Notice of Intent (NOI) with the local Conservation Commission and with the MADEP. The NOI must outline any impacts to the BVW and detail the proposed mitigation measures to minimize potential impacts. Upon review of an NOI, the Conservation Commission will issue an Order of Conditions (OOC) outlining provisions by which the proposed activities must comply. MADEP also reviews the NOI and provides guidance to local commissions.

MGL ch.131, s40 exempts certain activities within wetland areas from filing an NOI or obtaining an OOC. This exemption primarily applies to maintenance of public utilities and states that no activities shall occur that will impact wetlands:

...other than in the course of maintaining, repairing or replacing, but not substantially changing or enlarging, an existing and lawfully located structure or facility used in the service of the public and used to provide electric, gas, water, telephone, telegraph and other communication services...

without filing a written notice and receiving an Order of Conditions. A copy of MGL ch.131, s40 is included in Appendix A.

6.4 CITY OF HOLYOKE WETLANDS PROTECTION ORDINANCE

The City of Holyoke has also adopted a Wetlands Protection Ordinance, last modified on October 25, 2001. A copy of the ordinance is located in Appendix B. The ordinance establishes protection areas under the jurisdiction of the Holyoke Conservation Commission and details the procedures for submitting a Request for Determination of Applicability (RDA) and a NOI.

6.5 CONSERVATION COMMISSION NOTIFICATION

The Holyoke Conservation Commission has not required the HWW to file a formal RDA to perform the routine maintenance activities listed earlier. The primary goal of this program is to establish which activities can be performed without prior notification to the Conservation Commission and, for those activities that do require notification, what is the appropriate level of notification. The recommendations developed in this plan were discussed with the Chair of the Conservation Commission prior to issuing the final WRPP.

It should be noted that any prior notification would only be required for activities that occur within the buffer zone of the reservoirs/wetlands or riverfront areas. Activities that are not within these areas are not subject to Conservation Commission notification.

The following sections discuss the level of notification necessary for each of the specific maintenance activities listed previously.

6.5.1 Culvert Maintenance

HWW inspects and maintains many culverts both within its supply source reservoir watersheds as well as outside watershed boundaries. All culverts and bridge crossings are inspected a minimum of 2 times per year. Maintenance activities for these culverts include removal of sediment and debris, replacement of existing riprap, placement of permanent erosion control material, and maintaining the culverts free from woody vegetation. Under extreme cases, it may be necessary to replace a culvert. The locations of the culverts included in HWW's inspection and maintenance program are shown in Figure 6-5.

Of the culvert maintenance activities listed above, the only activity that would require notification to the Conservation Commission by filing a Request for Determination of Applicability (RDA) is replacement of a culvert. All of the other listed activities (removal of sediment and debris, replacement of existing riprap, placement of permanent erosion control material, and maintaining the culverts free from woody vegetation) may be performed without prior notification to the Conservation Commission. For the placement of new riprap in a location where riprap was not previously located, the HWW must provide sufficient notification to the Conservation Commission, via telephone, fax, or e-mail, so that the Conservation Commission can visit the site prior to placement of any new riprap.

6.5.2 Headwall Maintenance

HWW maintains some concrete headwalls within the watershed. Under the Wetlands Protection Act, maintenance of the headwall structure (i.e., patching an existing

concrete structure) is not subject to Conservation Commission review. Construction of a new headwall within the watershed would require the filing of a RDA.

6.5.3 Shoreline Maintenance

Appendix C contains a list of the routine brush cutting and grass mowing maintenance activities performed by the HWW to maintain the areas around the reservoirs and the storage tanks. These routine activities do not require notification to the Conservation Commission. If the HWW desires to include any additional activities or locations beyond its existing practices as part of its shoreline maintenance program, a RDA must be filed with the Conservation Commission.

6.5.4 Spillway Maintenance

The Massachusetts Department of Environmental Management Office of Dam Safety has certain maintenance requirements for dams and spillways that the HWW follows. For spillways, the HWW maintains a 10-foot wide herbaceous strip adjacent to the spillways and prevents woody vegetation from invading the spillway channels.

Other spillway maintenance activities that the HWW performs on spillways include concrete patching and replacement of riprap for erosion control. Concrete patching of existing spillway or replacement of existing riprap does not require review by the Conservation Commission. For the placement of new riprap in a location where riprap was not previously located, the HWW must provide sufficient notification to the Conservation Commission, via telephone, fax, or e-mail, so that the Conservation Commission can visit the site prior to placement of any new riprap. Construction of a new concrete spillway requires a RDA.

6.5.5 Dam Maintenance

The Massachusetts Department of Environmental Management Office of Dam Safety requires that dams be kept free from brush and woody vegetation and that an herbaceous strip be maintained from the toe of the dam to the roadway. The HWW complies with the MADDEM requirements. The HWW has established the following minimum frequencies for mowing/cutting at each of the dams:

- Ashley Dam and McLean Dam – monthly
- Manhan Dam – twice per year
- Whiting Street Dam – once per year

Other dam maintenance activities performed by the HWW may include replacement of existing riprap or placement of permanent erosion control material; neither activity requires review by the Conservation Commission. For the placement of new riprap in

a location where riprap was not previously located, the HWW must provide sufficient notification to the Conservation Commission, via telephone, fax, or e-mail so that the Conservation Commission can visit the site prior to placement of any new riprap.

In November/December 2003, Tighe & Bond performed detailed dam inspections of five dams that the HWW maintains: Ashley, Manhan, McLean, White Street, and Whiting Street. The following general dam maintenance practices were developed as part of these inspections:

Ashley Dam

1. Control vegetation in the riprap on the upstream slope.
2. Repair areas of erosion/animal burrows.
3. Remove debris from the spillways and downstream channels as needed.

Manhan Dam

1. Perform routine inspections and clear debris from spillway.
2. Mowing of the crest, abutments, downstream slope and all areas within 20 feet of the dam and its appurtenances should be performed to control brush growth which inhibits visual observations of the dam.
3. Keep catchbasin grates free of debris.
4. Continue to control vegetation growth in the voids of the rip rap on the upstream slope. Monitor depression to the left of the gatehouse.
5. Exercise the low-level outlet at a minimum frequency of once per year.
6. Continue taking water level measurements in the observation wells and monitor the seepage at the V-notch weir.
7. Continue monitoring and investigate the potential source of the flow from the right bank of the seepage discharge channel downstream of the dam.
8. Repair any new cracking in the access road pavement.

McLean Dam

1. Control vegetation in the riprap on the upstream slope.
2. Repair areas of erosion/animal burrows.
3. Conduct annual monitoring of the downstream embankment for depressions, and repair as necessary.
4. Maintain crest road to allow for cross drainage.
5. Clear brush and trees within 20 feet of the structure.

White Reservoir Dam

1. Clean the intake openings of accumulated debris to provide maximum discharge for flow from storm events to pass through the dam.
2. Remove accumulated sediments upstream of the gatehouse to create a "settling pond" in an effort to remove sediments prior to entering the outlet structure. This pond area should be routinely maintained as sediments are deposited.
3. Inspect the trash racks on the gatehouse intake openings. Repair/maintain to inhibit debris from accumulating within the gatehouse and outlet pipes.
4. Remove debris within the gatehouse chambers and provide continual annual maintenance of this area to allow continuous flow through the structure.
5. Remove debris in and around the overflow spillway and chute to ensure the spillway is available for reservoir overflows, if required.
6. Conduct monthly inspection and maintenance of the reservoir area for removal of accumulated debris from the gatehouse inlets and overflow spillway to minimize the potential for storage of water behind the dam.
7. Clear brush from downstream slope.
8. Repair eroded areas of crest and downstream slope.
9. Clear intake screen system in front of the intake of accumulated debris at a minimum twice per week and in advance of and during moderate and heavy rain events.
10. Remove large debris from impoundment on an annual basis to minimize potential for a blockage to occur at the outlet during a storm event.

Whiting Street Dam

1. Remove brush from downstream slope, crest, and upstream dam face.
2. Remove wood debris from the spillway channel.
3. Remove brush from banks of outlet channel and riprap area downstream of access road bridge.
4. Mow the embankments and abutments to control brush growth which inhibits visual observations of the dam.
5. Continue exercising the low-level outlet gate.

6.5.6 Mowing of Existing Grass Strips Around Access Roads and Shorelines

The mowing of grass strips around the access roads and shorelines is considered to be a "minor activity" that is exempt from review. A fact sheet prepared by MADEP that

lists all the minor activities in the buffer zone and riverfront areas that are exempt from review is located in Appendix C. It is noted on the fact sheet that maintenance of existing landscaping (including lawn mowing and pruning) is exempt from review regardless of location in the buffer zone or any wetland resource area.

It should also be noted that any disposal of materials should be disposed of properly, outside of the buffer zone and riverfront areas and in accordance with State and local law.

6.5.7 Removal of Dead Trees

If a dead tree is located in a wetland or a vernal pool, the HWW must provide sufficient notification to the Conservation Commission, via telephone, fax, or e-mail, so that the Conservation Commission can visit the site prior to removal of the tree. The removal of dead trees not located within wetlands or a vernal pool is permitted without prior notification to the Conservation Commission. If heavy equipment is required for tree removal, the equipment will be stored outside of the buffer zone.

6.5.8 Roadway Maintenance

HWW is responsible for maintaining the unpaved roadways down to the water supply reservoirs. Roadway maintenance activities include filling potholes and patching locations where the road has been washed out. The Conservation Commission does not require notification for roadway maintenance activities as long as said activities do not change the grade of the roadway.

HWW will continue to maintain its unpaved roadways in a manner consistent with the Massachusetts Unpaved Roads BMP Manual, included in Appendix D.

6.5.9 Maintenance of Feeder Brooks to Maintain Flows

HWW routinely removes debris from the feeder brooks in order to maintain flow through its culverts. The Conservation Commission does not require prior notification for debris removal by hand. Brush cutting along the streams, except at State-designated, routine water quality sampling locations, is not permitted.

6.5.10 Right-of-Way Maintenance

The HWW is responsible for mowing and maintaining existing right-of-ways within the watersheds. The Conservation Commission does not require prior notification for any existing right-of-way maintenance activities. If the right-of-way maintenance program is expanded to cover additional activities or locations, the HWW must file a RDA with the Conservation Commission.

The HWW also performs right-of-way maintenance along the 42-inch pipe line from the Tighe-Carmody Reservoir to the treatment plant. All air release pits and hydrants along the pipeline are inspected a minimum of twice per year and cutting is performed a minimum of once per year. The HWW has designated five locations along the pipeline route to be mowed/maintained with "special care" due to wetlands classification. Special care means that for these areas, the HWW would utilize a smaller tractor with a cutting attachment to prevent ruts and other damage that may be caused by the HWW's larger tractor. These five locations are:

1. Russellville Road - western side
2. Brickyard Road - eastern side between the road and the railroad tracks
3. Madison Court - both sides (3A=western side, 3B=eastern side)
4. Route 10 - western side
5. Valley Road - eastern side of driveway next to Moose Brook

These maintenance areas along the 42-inch transmission main are shown in Figure 6-6.

The HWW also maintains the right-of-way along the 30-inch in-town transmission main. Two portions of this right-of-way are maintained as lawn and mowed almost weekly: Vermont Street and Whiting Farms Road. These locations are shown in Figure 6-5.

6.5.11 Invasive Species Control

The two types of invasive species that the HWW should be aware of in its watershed are water chestnuts and purple loosestrife.

The HWW should inspect the watersheds including patrolling the reservoirs by boat each year in late June/early July to determine if any water chestnuts are present. If found, the water chestnuts should be hand pulled and disposed of outside of the buffer zone and riverfront areas. The Conservation Commission requires a report detailing the date of the inspection, the name of the inspector, a brief description of how the inspection was conducted, the location(s) where water chestnuts were found (if any), and how the water chestnuts were disposed. Appendix E contains the yearly reservoir inspection/patrol form for invasive species.

Purple loosestrife is another invasive plant that has been detected in the watersheds in the past. The HWW has cooperated with the New England Wildflower Society in the past to control the growth of this invasive plant, and the Conservation Commission recommends continued cooperation with the Wildflower Society if purple loosestrife continues to be present in the watershed.

6.5.12 Snow Removal

The HWW is responsible for removal of snow at all of its facilities and maintains the necessary equipment and personnel for this purpose. The following list prioritizes the order of locations for snow removal to occur:

First Priority:

- Holyoke Water Works Water Treatment Plant
- Upland Road Garage
- Rockcut Road Garage
- Holyoke Water Works Business Office

Second Priority:

- West Heights Pump Station
- McLean Pump Station

Third Priority:

- Water Storage Tanks and Telemetry Pits

If equipment and personnel are available and snow removal at all other locations has been completed:

- Ashley Reservoir Hiking/Biking Trail
- Whiting Street Reservoir Hiking/Biking Trail

6.5.13 Other Projects

The construction of any new structure within wetlands, the buffer zones, or the riverfront areas within the watershed would require a filing of a RDA.

The following table summarizes HWW's routine maintenance activities and the level of notification required for each: