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September 18, 2015

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
SINGLE ENVIRONMENTAL IMPACT REPORT

PROJECT NAME : Crystal Lake and Elginwood Pond Dredging Project
PROJECT MUNICIPALITY : Peabody
PROJECT WATERSHED : Ipswich River
EEA NUMBER : 15366
PROJECT PROPONENT : City of Peabody
DATE NOTICED IN MONITOR : August 12, 2015

Pursuant to the Massachusetts Environmental Policy Act (M.G. L. c. 30, ss. 61-62I) and Section 11.08 of the MEPA regulations (301 CMR 11.00), I have reviewed the Single Environmental Impact Report (SEIR) and hereby determine that it **adequately and properly complies** with MEPA and its implementing regulations.

Project Description

As described in the SEIR, the project consists of dredging an area of approximately 7.8 acres in Crystal Lake and five acres in Elginwood Pond. The dredging will increase the maximum depth of the water bodies from approximately 4.5 feet to eight feet, creating a deeper basin with shallow slopes (6 ft:1 ft) along the perimeters to meet the banks. The goals of the project are to improve water quality, aquatic habitat value, and recreational opportunities by increasing the water depth, removing sediments that serve as a nutrient source, and clearing the dense benthic aquatic vegetation present in the ponds.

The project will occur in two phases. Phase 1 will dredge approximately 51,500 cubic yards (cy) of sediment from Crystal Lake and the easternmost portion of Elginwood Pond, and construct park amenities in an area adjacent to Crystal Lake. The park amenities will include a fishing pier, a floating dock for launching canoes and kayaks, a picnic area, and a parking area. Phase 1 will also include the construction of a gazebo on the western shore of Crystal Lake adjacent to the Independence Greenway rail trail and an accessible trail leading to an overlook of

the lake along its wooded southern shore. In Phase 2, approximately 31,000 cy of sediment from Elginwood Pond will be dredged. All dredged material will be disposed of at the City of Peabody's Municipal Landfill. As described in more detail below, the ponds will be dewatered and the input flows diverted so that the dredging may occur with mechanical equipment working in essentially dry conditions within the ponds.

Phase 1 will begin in the fall of 2015 and be completed in the spring of 2016. The commencement of Phase 2 of the project is dependent on funding and has not been scheduled.

Project Site

Crystal Lake and Elginwood Pond are located on a group of parcels owned by the City totaling approximately 28 acres. The project area is bounded to the west by Lake Street, to the north by Lowell Street, and to the east by Taylor Street. Additional City-owned land, including a forest, playing fields, and a school and office building, are located to the south, between the project site and Pine Street.

Crystal Lake has a surface area of approximately 9.5 acres and averages 2.7 feet in depth, with a maximum depth of 4.5 feet. The primary source of inflow into the lake is from a wetland area located across Lowell Street to the north. The lake also receives stormwater discharges and groundwater inflow. Elginwood Pond is located to the west of Crystal Lake and receives flow from the lake through a culvert under a former railroad right-of-way (ROW) now containing a roadway (Crystal Drive) and the Independence Greenway, a multi-use path. Elginwood Pond has a surface area of approximately 9.1 acres. Its average depth is 1.1 feet with a maximum depth of 4.3 feet. Cobb Avenue separates Elginwood Pond from Mill Pond, a small impoundment between Cobb Avenue and Elginwood Pond Dam. Elginwood Pond Dam is located at the northwestern end of Mill Pond and serves to impound Mill Pond, Elginwood Pond, and Crystal Lake. Water passing over the dam enters Norris Brook, which travels north through a small residential area and an extensive wetland system before joining the Ipswich River just north of the Peabody-Danvers boundary.

Studies of the ponds since 1995 have documented the effects of eutrophication from non-point source pollution through stormwater runoff and other sources. These effects include low dissolved oxygen and poor water quality due to increased nitrogen and phosphorous levels, algae blooms, dense growths of nuisance aquatic weeds, and a thick organic sediment layer. Crystal Lake has been classified as a Category 5 impaired water body requiring a Total Maximum Daily Load (TMDL). Impaired uses include primary and secondary contact, aquatic life, aesthetic, and fish consumption. The City collected sediment samples in 2014; testing indicated the presence of metals and contaminants at levels that exceeded background concentrations, but did not exceed Massachusetts Contingency Plan (MCP) standards for soil. Nevertheless, the sediment is not suitable for unrestricted reuse and must be disposed of at an appropriate facility. A survey of the ponds' fish population in June and July, 2015, found four species of fish in Crystal Lake: Bluegill (*Lepomis macrochirus*), Pumpkin Seed (*Lepomis gibbosus*), Largemouth Bass (*Micropterus salmoides*), and Bluntnose Minnow (*Pimephales notatus*). The collection of fish from Elginwood Lake during this survey was hampered by the dense aquatic vegetation, but the species assemblage is likely to be similar to Crystal Lake.

Procedural History

The Expanded Environmental Notification Form (EENF) included a history of the project's review under MEPA. An ENF for the dredging of Crystal Lake was prepared in 1997 and consisted of mechanically dredging of the pond with a partial drawdown of the lake. The Certificate on the ENF required an EIR. The City filed a Notice of Project Change (NPC) in 1999 which proposed the full drawdown of the lake. A Certificate was issued in July, 2001 stating that the project still required an EIR. In 2000, the City filed another NPC with an EIR waiver request, changing the dredging method to hydraulic dredging with mechanical drying of the sediments. The Certificate on the NPC issued in February, 2001 indicated that it had been reviewed as a Single EIR, and that no further MEPA review was required. The project subsequently received a 401 Water Quality Certificate (WQC) from the Massachusetts Department of Environmental Protection (MassDEP), but the project was not constructed. In response to Requests for Advisory Opinions submitted by the City in 2005 and 2010, the MEPA Office confirmed that the City's on-going non-construction work related to the project maintained the validity of the 2001 Certificate and that no further MEPA review was required.

The EENF for the currently proposed project was filed in April, 2015. It included a Phase 1 Waiver request to allow the Crystal Lake dredging and park construction to proceed prior to the filing of the SEIR for the project as a whole. The waiver request was not granted because Phase 1, on its own, would alter ten or more acres of LUW, which exceeds the Mandatory EIR threshold (alteration of ten or more acres of any other wetlands). The EENF Certificate issued on July 17, 2015 noted that the MEPA review thresholds have been established to identify projects that are likely to cause Damage to the Environment and are presumed to represent a significant level of impact. For this reason, Phase 1 Waivers are generally not granted for Phase 1 projects that, on their own, exceed EIR thresholds and are presumed to have significant potential environmental impacts.

Jurisdiction and Permitting

The project is subject to a Mandatory EIR pursuant to 301 CMR 11.03(3)(a)(1)(b) of the MEPA regulations because it requires State Agency Actions and will alter ten or more acres of any other wetlands, in this case, Land Under Water (LUW). The project will also exceed the ENF thresholds at 301 CMR 11.03(3)(b)(1)(b) for alteration of 500 linear feet of inland bank; 301 CMR 11.03(3)(b)(3) for dredging of 10,000 or more cy of material; and 301 CMR 11.03(3)(b)(4) for disposal of 10,000 or more cy of dredged material. The project will require a WQC, a permit for landfill liner repair, and a landfill Authorization to Operate from the MassDEP. The project is seeking funding authorized by an Environmental Bond Fund to be implemented through the Department of Fish and Game (DFG).

The project will also require Orders of Conditions from the Peabody Conservation Commission, or in the case of an appeal, Superseding Order(s) of Conditions from MassDEP. The project is subject to the MEPA Greenhouse Gas (GHG) Emissions Policy and Protocol. The project may require a Clean Water Act (CWA) Section 404 Individual Permit from the United States Army Corps of Engineers (ACOE) and a National Pollutant Discharge Elimination System Construction General Permit (NPDES CGP) from the United States Environmental Protection Agency (EPA).

Because the project is seeking State Financial Assistance, MEPA jurisdiction was broad in scope and extended to all aspects of the project that may cause Damage to the Environment, as defined in the MEPA regulations. These included land alteration, wetlands, water quality, and GHG emissions.

Environmental Impacts and Mitigation

The project will improve the aquatic habitat, water quality, and recreational opportunities of Crystal Lake and Elginwood Pond by deepening the water bodies, removing nutrient-laden sediments and invasive aquatic vegetation, and constructing recreational amenities including a floating dock, a fishing pier, a gazebo, and walking trails. Dredging the ponds, including associated staging and site access requirements, will impact approximately 20.5 acres of Land Under Water (LUW) due to drawdown and dredging; 520 linear feet (lf) of Bank for construction access purposes; and approximately 15,000 sf of Bordering Land Subject to Flooding (BLSF) during dredging and for the construction of the park amenities. The project will include measures for preventing sedimentation and erosion impacts during construction and to restore impacted wetlands areas upon completion of construction.

Review of the SEIR

The SEIR provided additional information and analysis as required by the Scope included in the Certificate on the EENF. The SEIR reviewed the need for the project, described existing conditions in the project area, provided a detailed description and updated plans of the project, discussed the project's compliance with permitting requirements, and responded to comments submitted on the EENF. The SEIR presented an analysis of hydrological conditions at the site, including the inflows into each pond, details of the dewatering of the ponds, the storage capacity of each water body under a range of flow and storm conditions, and groundwater conditions as they may affect the yield of existing private drinking water wells adjacent to the project site. The SEIR included additional information that was submitted during the EENF review period, including the results of a fish survey conducted in the water bodies, and described changes to the design of the park proposed adjacent to Crystal Lake. Changes to the park design include two floating docks with stabilizing posts, rather than one floating dock and one fixed pier as proposed in the EENF. One of the docks will include a canoe/kayak launch and the park design now includes a storage shed or rack for canoes and kayaks. The redesign of the park also includes a new location for the proposed gazebo farther away from the Crystal Lake shoreline.

Wetlands

The City has filed separate Notices of Intent (NOI) with the Peabody Conservation Commission for each phase of the project. The City is seeking authorization for the project under the Wetlands Protection Act (WPA) Regulations' limited project provisions for Ecological Restoration Projects. The SEIR included a review of the project's eligibility to be permitted under this regulatory provision and its compliance with the applicable performance standards.

The SEIR addressed two significant issues related to potential impacts of the project on wetlands resource areas. The first issue concerned a potential impact of 2,500 sf to Bordering Vegetated Wetlands (BVW) on the eastern side of Elginwood Pond. A temporary access road will be constructed in this area to provide access to the pond for dredging equipment. According

to the SEIR, this area had been mistakenly categorized as BVW in the EENF. The area is correctly delineated as Bank in the SEIR and the impact is included in the 320-lf impact to Bank identified in the EENF and SEIR. The project will not result in direct alteration of BVW. The SEIR clarified that timber mats would be used to create temporary access roads to minimize impacts to Bank and vegetated LUW. Within the dredging footprint, the City has proposed to allow the selected contractor the option of using timber mats or temporary gravel access roads underlain by a geotextile fabric. MassDEP recommends that timber mats be used throughout the project area and that low ground pressure equipment with wide or rubberized track tires be used to further minimize wetlands impacts. The City should also consider reuse of natural rocks and other features to create habitat features, rather than reuse concrete demolition debris from the upland park site. Demolition debris should be properly disposed of or recycled.

The SEIR included an analysis of the potential downstream water levels resulting from the discharge and redirection of flows during the dewatering of Crystal Lake. The analysis documented that Mill Pond and Elginwood Pond have sufficient storage capacity under various rainfall conditions. For the two-year storm, which was the most intense storm modeled in the analysis, Elginwood Pond would have over 1.5 feet of freeboard and Mill Pond would have approximately 0.59 feet of freeboard. According to the SEIR, the contractor selected to perform the dredging will be required to monitor the level of Elginwood Pond so that it rises no more than six inches during dewatering. The City should develop a contingency plan with specific action levels for stopping or modifying pumping activity to prevent flooding of adjacent areas during dewatering.

Sediment Quality and Disposal

Dewatered sediment will be transported by truck to the Peabody municipal landfill. It will be disposed of at the South Mound Swale, a section of the landfill that was constructed to receive solid waste from a waste-to-energy facility, but was never used for that purpose. Sediment that has been adequately dewatered at the project site and passes the paint filter test will be transported to the landfill and placed directly into the South Mound Swale. Trucks with waterproof beds will transport sediment that has not sufficiently dewatered within the ponds. Prior to disposal, the material will be deposited within an erosion-control barrier for additional dewatering.

The SEIR included the results of sediment sampling conducted in Crystal Lake after the ENF was filed. Sampling was conducted in accordance with a plan that was reviewed by MassDEP. Seven composite samples were collected from 21 vibracores in Crystal Lake and analyzed for the physical and chemical characteristics of the sediment. The bottom of the lake is covered by a one-foot thick layer of muck consisting of sand and silt. A three- to eight-foot layer of peat underlies the muck throughout most of the lake. Layers of clay, sand, and gravel were found below the peat. The SEIR reported the results of an analysis of the chemical properties of the muck and peat layers. The sampling revealed the presence of low levels of petroleum, Polycyclic Aromatic Hydrocarbon (PAHs), metals, and polychlorinated biphenyls (PCB) constituents in the sediment. According to the SEIR, concentrations of these contaminants are consistent with background levels of soils in Massachusetts. Sediment sampling has not been conducted for Phase 2.

Water Supply

According to the Massachusetts Geographic Information System (MassGIS), the project area is mapped as a medium-yield aquifer. The SEIR included an analysis of potential impacts to four private drinking water wells near Elginwood Pond. Three of the wells are located at residences on Crystal Drive and the fourth on Cobb Avenue. During the review period, a fourth private well on Crystal Drive was identified in a comment letter by a property owner. These wells could be impacted during the drawdown of Elginwood Pond in Phase 2. The pumping of groundwater entering the Pond during this phase could lower the water table. According to the SEIR, shallow wells are more likely to be impacted by the drawdown than deep wells. Of the five identified wells around Elginwood Pond, four are approximately 400 feet deep and are not likely to be affected by the drawdown. The fifth well is only 15 to 25 feet deep and could be affected by the Elginwood Pond drawdown. If any well is adversely affected by the project, the City has committed to provide water service to the residence for the duration of the disruption.

Lake and Watershed Management

The SEIR identified additional planning and structural measures that the City will implement to reduce inputs of pollutants into Crystal Lake and Elginwood Pond. Because the drainage areas of the four stormwater outfalls into Crystal Lake are relatively small, opportunities for using Low Impact Development (LID) techniques, such as rain gardens, are not available. The City will install deep sump catch basins in the stormwater system draining to Crystal Lake and consider additional measures when the City's Stormwater Management Plan is updated.

Updating of the City's Lake and Watershed Management Plan (LWMP) is anticipated within a year of the completion of the dredging project. Public meetings will be held during the pond dredging project to initiate this effort. The update will review the stormwater management system, assess potential sources of pollution entering the ponds, and identify stormwater Best Management Practices (BMPs) or LID techniques that would most effectively address stormwater quality, particularly with respect to inputs of phosphorous and sediment. As noted by MassDEP, installing deep sump catch basins alone will not address phosphorous loads to the ponds. The LWMP will also review the effectiveness of non-structural BMPs currently performed by the City in accordance with the EPA's Phase II Small Municipal Separate Storm Sewer System (MS4) General Permit. Non-structural BMPs include street-sweeping, catch basin and pipe cleaning, educating the public about pollutants such as pet waste, lawn care products, and yard waste, and eliminating illicit discharges into the stormwater system. In addition, I encourage the City to evaluate the use of pervious pavement to minimize stormwater runoff.

Greenhouse Gas Emissions

The project is subject to the MEPA Greenhouse Gas Policy and Protocol (GHG Policy) because it exceeds thresholds for a mandatory EIR. The GHG Policy includes a *de minimis* exemption for projects that will produce minimal amounts of GHG emissions on an on-going basis. Given the nature of the project, I have concluded that this project falls under the *de minimis* exemption; therefore, the Proponent is not required to prepare a GHG analysis. However, I encourage the Proponent to incorporate measures to avoid and minimize GHG

emissions (and other air pollutants) during the construction period through the use of emissions-reduction technologies.

Mitigation/Draft Section 61 Findings

The SEIR contained draft Section 61 Findings for each separate State Agency Action identified for the project. Draft Section 61 Findings should be revised in response to this Certificate to include specific mitigation measures associated with each permit, and provided to State Agencies to assist in the permitting process and issuance of final Section 61 Findings.

The following mitigation measures have been proposed for the project:

Wetlands and Water Quality

- Sedimentation and erosion controls will be installed and maintained along upland limits of the work area;
- Bank and vegetated resource areas will be covered by swamp mats to provide access for construction equipment and restored upon completion of the project using native wetlands seed mix;
- Temporary access roads on the bottom of the lakes will be covered by swamp mats or gravel underlain by filter fabric. Any gravel placed for this purpose will be confined to the dredge footprint and completely removed during the construction process;
- Dredging will be performed in dry conditions to reduce turbidity impacts;
- Impacts from discharges during dewatering will be minimized by directing the discharge onto riprap energy dissipaters and by using turbidity controls such as sediment bags;
- Any accumulated off-site sediment will be removed upon completion of each phase;
- Pumps used for dewatering will be sized and operated to prevent downstream flooding;
- During dewatering operations, culverts at the Elginwood Pond Dam and Cobb Avenue will be maintained free of debris to prevent flooding;
- The elevation of Elginwood Pond will be allowed to rise no more than six inches during Crystal Lake dredging operations;
- Pumping during dewatering will be stopped if flooding of adjacent properties occurs;
- Installation of stormwater BMPs such as deep sump catch basins; and
- The City will update its Lake and Watershed Management Plan to target specific pollutant sources entering the water bodies.

Fish and Wildlife Habitat

- One pond will be dredged at a time to prevent loss of all aquatic habitat at the same time;
- Fish will be harvested from each pond prior to dredging;
- Fish will be repopulated in each pond with an appropriate mix of donor fish from the adjacent pond;
- Anchored woody habitat features will be installed in each pond upon completion of dredging activities; and
- Measures will be taken to prevent re-establishment of dense growth of floating aquatic plants, including an aquatic vegetation management plan and the installation of one or more circulators or spray aerators.

Invasive Species Management

- Invasive species on upland portions of the project site, including the park and land along Crystal Drive, will be removed and replanted with native species;
- Invasive aquatic plants in the lakes will be removed as part of the dredging; and
- Disturbed upland and aquatic areas will be monitored for invasive species for two years after construction.

Construction

- Hauling of dredged sediment to the City landfill will use designated truck routes;
- To control dust, dredged material will be wetted, trucks will be covered, tracking pads will be used at site entrances, and street will be cleaned if necessary;
- Construction vehicles will be required to minimize idling; and
- The use of construction equipment will comply with noise limits.

Conclusion

Based on a review of the SEIR, comment letters and consultation with State Agencies, I find that the SEIR adequately and properly complies with MEPA and its implementing regulations. Outstanding issues can be addressed during State and local permitting and review. The project may proceed to permitting. The City and State Agencies should forward copies of the final Section 61 Findings to the MEPA Office for publication in accordance with 301 CMR 11.12. I note that the City may collect additional data, such as delineation of wetlands resource areas and sediment samples, during final design of the Elginwood Pond dredging. I recommend that the City consult with the MEPA Office prior to commencement of that phase of the project if there are any substantial changes to the project as described in the EENF and SEIR.

September 18, 2015

Date



Matthew A. Beaton

Comments received:

08/26/2015	David Pelletier
09/04/2015	Tighe and Bond on behalf of the City of Peabody
09/11/2015	Massachusetts Department of Environmental Protection (MassDEP)– Northeast Regional Office (NERO)
09/11/2015	Massachusetts Division of Fisheries and Wildlife (MassWildlife)

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