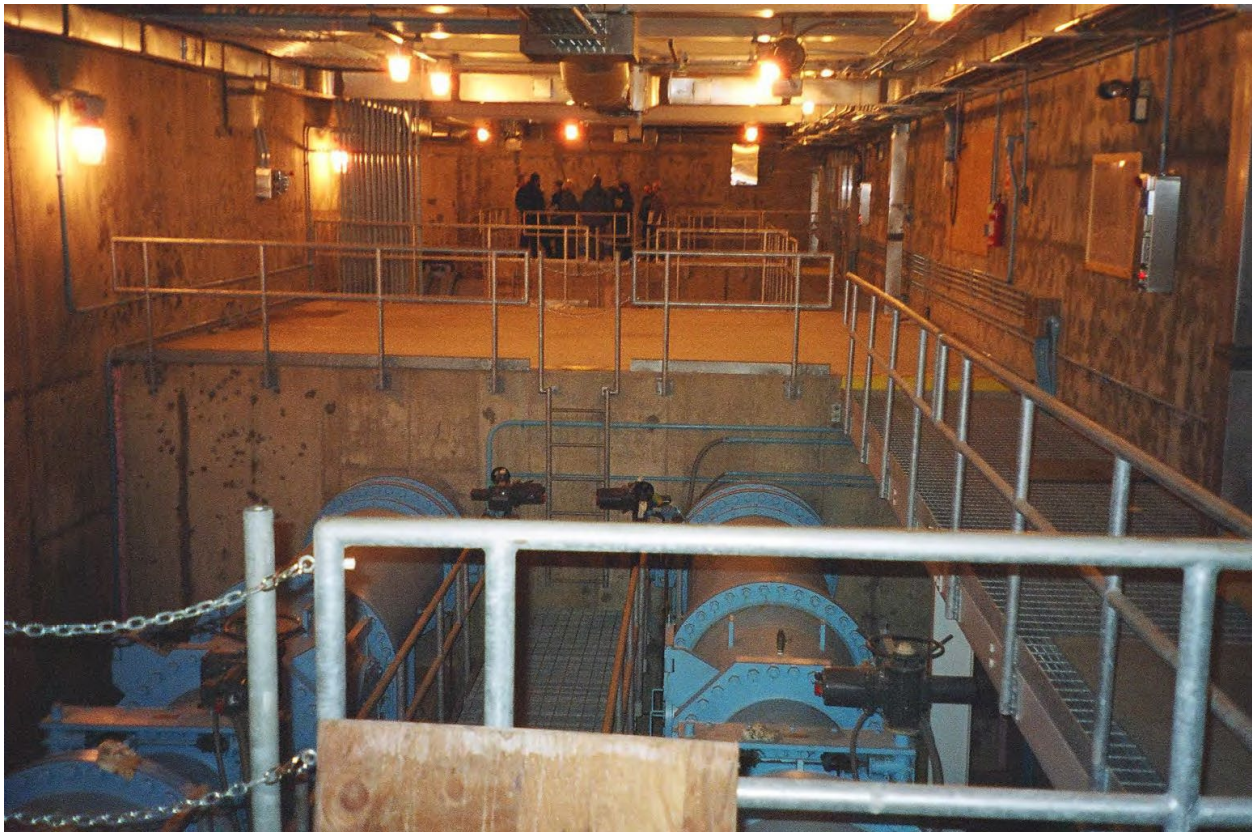


REVIEW OF APPLICATION FOR LIHI RE-CERTIFICATION OF THE LORING ROAD COVERED STORAGE FACILITY

FERC Project No. 13400 (Conduit Exemption)
Weston, MA, Middlesex County



Source: MWRA 2023

December 25, 2023
Nuria Holmes, LIHI Reviewer

TABLE OF CONTENTS

I. INTRODUCTION..... 1

II. PROJECT LOCATION 1

III. EXISTING FACILITIES 2

IV. EXISTING OPERATIONS..... 2

V. REGULATORY AND COMPLIANCE STATUS..... 3

VI. PUBLIC COMMENTS RECEIVED OR SOLICITED BY LIHI..... 4

VII. ZONES OF EFFECT 4

VIII. DETAILED CRITERIA REVIEW 4

 A: Ecological Flow Regimes..... 4

 B: Water Quality 5

 C: Upstream Fish Passage..... 5

 D: Downstream Fish Passage..... 6

 E: Shoreline and Watershed Protection 6

 F: Threatened and Endangered Species 7

 G: Cultural and Historic Resources Protection..... 7

 H: Recreational Resources..... 7

IX. RE-CERTIFICATION RECOMMENDATION..... 8

FINAL REVIEW OF APPLICATION FOR LIHI RE-CERTIFICATION OF THE LORING ROAD COVERED STORAGE FACILITY

This report provides final review findings and recommendations related to the re-certification application submitted to the Low Impact Hydropower Institute (LIHI) by the Massachusetts Water Resources Authority (MWRA) for the Loring Road Covered Storage Facility (Loring Road Facility, LIHI #56). The final re-certification application package was filed on October 11, 2023, and is subject to review under the current 2nd edition LIHI Handbook (Revision 2.05, January 1, 2022).

I. INTRODUCTION

The 0.2-megawatt (MW) Loring Road Facility is located off-stream in Weston, Massachusetts. The hydroelectric facility is located inside a valve chamber at the MWRA Loring Road Facility. The water's purpose is distribution through MWRA's service territory. MWRA is a wholesale water supply agency that provides drinking water to 50 communities throughout the Boston metropolitan area, equating to approximately 200 million gallons of water per day.

The Loring Road Facility construction was completed in 2001.

II. PROJECT LOCATION

The Loring Road Facility is the furthest east in the MWRA's Water Conveyance System as it approaches the Boston metropolitan area. The conveyance system then divides into two pipelines heading northeast and southeast to supply drinking water to the metropolitan area. The Loring Road Facility generates power from fully treated potable water as it is transferred via a pipeline from one covered water supply storage tank in MWRA's water distribution system (Norumbega Covered Storage Facility [Norumbega]) to another covered storage tank (Loring Road). At the time of their construction, the Norumbega and Loring Road covered tanks replaced a system of 100-year old open reservoirs.

The closest water source that supplies the conduit is the Wachusett Reservoir (the source of the MWRA facility), and is approximately 30 miles northeast of the Loring Road Facility. Between the Wachusett Reservoir and the Loring Road Facility are the Cosgrove Aqueduct, the John J. Carroll Treatment Plant, and Norumbega.

The water conveyance system is comprised of over 100 miles of active tunnels and aqueducts which are part of the MWRA service area and distribution system.

Other projects within this water conveyance system include the [Cosgrove Project \(LIHI #55\)](#), and the [Oakdale Project \(LIHI #57\)](#), which are both owned and operated by MWRA.

III. EXISTING FACILITIES

The Project's facilities include:

- A 200-kW horizontal spiral case Francis turbine (James Leffel);
- wicket gates;
- appurtenant facilities associated with the MWRA facility.

The turbine generator (Photo 1) was put into operation in 2015 and has a total installed capacity of 200 kW.



Photo 1: Horizontal Francis Turbine at Loring Road Facility

IV. EXISTING OPERATIONS

The Loring Road Facility operates by transferring fully potable water through the power generation facility as is it is transferred via pipeline between one covered water supply tank (Norumbega) to another (Loring Road). At Loring Road, the flow is divided such that some flow is directed to a pipeline that supplies MWRA's High Service system, while the rest of the flow is directed to an underground valve chamber (Photo 2). The Loring Road Facility operates 24 hours a day, and is fully integrated into the rest of MWRA's water supply system. The power produced helps MWRA generate additional income. Water within MWRA's system (Figure 1) is treated as drinking water, and held to rigorous drinking water standards.

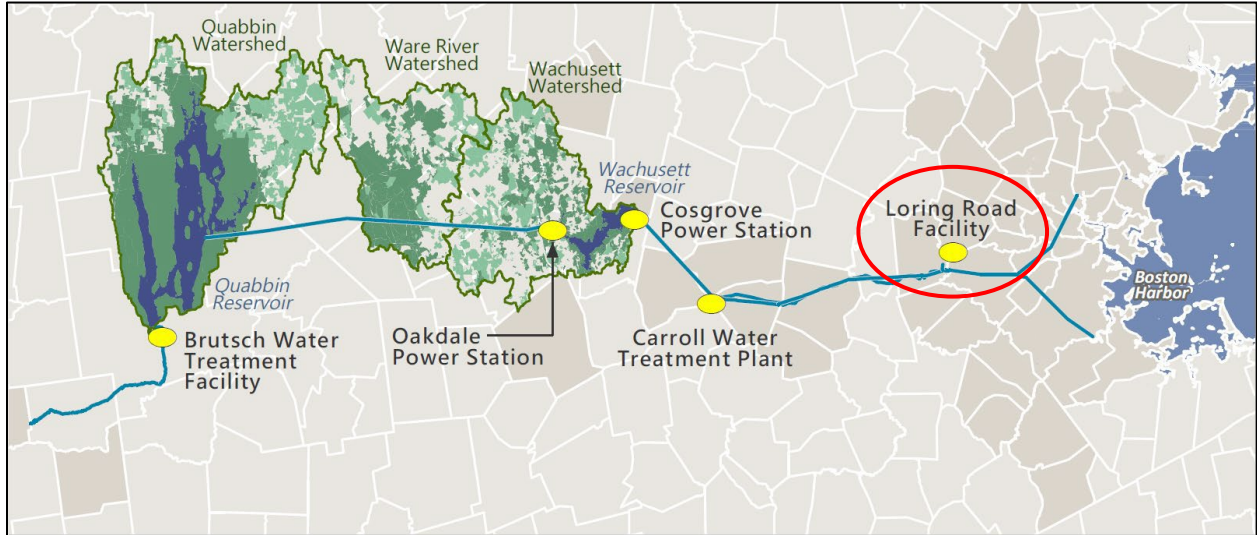


Figure 1: Loring Road Facility within MWRA's Water Conveyance System



Photo 2: Loring Road Facility Underground Storage Location

V. REGULATORY AND COMPLIANCE STATUS

This review included a docket search of the FERC eLibrary. As the facility is fairly new, records for the Project date back to 2009. There are no compliance issues noted in the eLibrary. The Loring Road Facility was issued a FERC conduit exemption on August 7, 2009. A conduit exemption exempts from the Loring Road Facility from Part I of the Federal Power Act. Several agencies engaged in the conduit exemption process of the Loring Road Facility. Agency comments were incorporated into FERC's environmental

analysis of the facility, and were supportive of waiving Stage 2 of the consultation process, which would have required MWRA to conduct studies to evaluate the impacts of the facility on the environmental resources.

VI. PUBLIC COMMENTS RECEIVED OR SOLICITED BY LIHI

The application was publicly noticed on October 24, 2023, with a 60-day comment period, and notice of the application was forwarded to resource agency and stakeholder representatives listed in the application.

No public comments were received by LIHI during the 60-day comment period which ended on December 24, 2023.

VII. ZONES OF EFFECT

The Applicant delineated the Loring Road Facility as a single Zone of Effect (ZoE 1). Standards selected for each LIHI criterion are shown in the table below. The reviewer agrees with these selections.

Criterion		Alternative Standards				
		1	2	3	4	Plus
A	Ecological Flow Regimes	X				
B	Water Quality	X				
C	Upstream Fish Passage	X				
D	Downstream Fish Passage	X				
E	Watershed and Shoreline Protection	X				
F	Threatened and Endangered Species Protection	X				
G	Cultural and Historic Resources Protection	X				
H	Recreational Resources	X				

VIII. DETAILED CRITERIA REVIEW

A: Ecological Flow Regimes

Goal: *The flow regimes in riverine reaches that are affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources.*

Assessment of Criterion: The applicant selected criterion Standard A-1 (Not Applicable/De Minimis Effect) and has demonstrated compliance with this criterion.

Discussion: As noted in the application, the Loring Road Facility is a facility located on the off-channel water conveyance system associated with MWRA's drinking water. The facility operates by transferring fully potable water through the power generation facility as is it is transferred via pipeline between one covered water supply tank (Norumbega)

to another (Loring Road). The hydropower equipment runs 24 hours a day, however generation is based on the amount of flow passing through the turbine at any time. Consistent with Standard A-1, the Loring Road Facility has no bypassed reaches, minimum flow requirements, or flow release schedules associated with its operations or FERC exemption order. At the time of FERC exemption, the US Fish and Wildlife Service (USFWS) did not make any flow recommendations. Based on this information, the Loring Road Facility satisfies Criterion A-1.

B: Water Quality

Goal: *Water Quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions.*

Assessment of Criterion: The applicant selected criterion Standard B-1 (Not Applicable/De Minimis Effect) and has demonstrated compliance with this criterion.

Discussion: The Loring Road Facility has no water quality certification and is not located on a Water Quality Limited riverine reach. The water is entirely contained within MWRA's closed water conveyance system. It is a conduit facility that is located inside of a pipeline between two water storage tanks (Norumbega and Loring Rad) that conveys drinking water. As noted in MWRA's application, the water within the facility does not affect water quality below, around, or above the facility. The water contained within the facility is of the highest water quality as its primary purpose is drinking water. Monthly water quality test results are available on MWRA's public website. MWRA routinely evaluates the water quality for micro-bacteria, turbidity, corrosiveness, disinfectants, chemicals, and minerals. Based on this information, the Loring Road Facility satisfies Criterion B-1.

C: Upstream Fish Passage

Goal: *The facility allows for the safe, timely, and effective upstream passage of migratory fish. This criterion is intended to ensure that migratory species can successfully complete their life cycles and maintain healthy populations in areas affected by the facility.*

Assessment of Criterion: The applicant selected criterion Standard C-1 (Not Applicable/De Minimis Effect) and has demonstrated compliance with this criterion.

Discussion: The Loring Road Facility is a closed, off-stream system unconnected to a natural river with no possibility that fish could enter the water supply system to move upstream through the facility. There is no interaction between fish migrating upstream and the hydropower facility. Water passing through the turbine is drinking water only, and is also enclosed within the closed system, therefore there is no possible water for fish to migrate upstream via the Loring Road Facility. The water leaving the Loring Road Facility terminates as drinking water for the Boston

metropolitan area. No resource agencies commented or made recommendations for upstream fish passage or protection at the time of the FERC exemption proceedings. Based on this information, the Loring Road Facility satisfies Criterion C-1.

D: Downstream Fish Passage

Goal: *The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, the facility minimizes loss of fish from reservoirs and upstream river reaches affected by Facility operations. Migratory species can successfully complete their life cycles and maintain healthy populations in the areas affected by the Facility.*

Assessment of Criterion: The applicant selected criterion Standard D-1 (Not Applicable/De Minimis Effect) and has demonstrated compliance with this criterion.

Discussion: As outlined above, the Loring Road Facility is entirely closed. There is no discharge from the facility that could impact downstream passage. Multiple fish species exist in the Wachusett Reservoir; however, due to screening at the water supply intake, fish are not impacted by the Loring Road Facility's operations and no impacts are anticipated on the fish species due to the Loring Road Facility's operations. No resource agencies commented or made recommendations for downstream fish passage or protection at the time of the FERC exemption proceedings. Based on this information, the Project satisfies Criterion D-1.

E: Shoreline and Watershed Protection

Goal: *The facility has demonstrated that sufficient action has been taken to protect, mitigate or enhance the condition of soils, vegetation and ecosystem functions on shoreline and watershed lands associated with the facility.*

Assessment of Criterion: The applicant selected criterion Standard E-1 (Not Applicable/De Minimis Effect) and has demonstrated compliance with this criterion.

Discussion: The hydropower facility is located entirely within the water supply facility, and entirely underground. As such, there are no impacts to shorelines or the watershed. As noted in the application, the land above the underground facility is sparsely covered with grass and is fenced off. The area around the site is wooded. MWRA is the owner of over 30% of the watershed and maintains a buffer around the water supply reservoirs in order to protect the public water supply. Additionally, MWRA maintains a partnership with the Massachusetts Department of Conservation and Recreation, Division of Water Supply Protection, which is responsible for managing the activities within the watershed that are funded by MWRA. For water quality purposes and shoreline protection, MWRA has a narrow operational band for raising/lowering the elevation of Wachusett Reservoir. Based on this information, the Loring Road Facility satisfies Criterion E-1.

F: Threatened and Endangered Species

Goal: *The facility does not negatively impact federal or state listed species.*

Assessment of Criterion Passage: The applicant selected criterion Standard F-1 (Not Applicable/De Minimis Effect) and has demonstrated compliance with this criterion.

Discussion: The USFWS Information for Planning and Consultation (IPaC) database was accessed to determine federally listed species that could occur in the vicinity of the Loring Road Facility. An updated IPaC report was generated on December 23, 2023. As noted in the application, the Wachusett Reservoir is designated by the Massachusetts Endangered Species Act (MESA) as Estimated Habitat of Rare Wildlife and Priority Habitat of Rare Species, primarily due to the presence of the Common Loon. Additionally, the USFWS lists the monarch butterfly and Northern long-eared bat as two species that may be present in the vicinity of the Loring Road Facility. However, since the facility is contained entirely within a closed, underground system, there are no anticipated or known impacts from the facility's operations on any federal or state listed species. Landscape maintenance does not require any tree-cutting that may impact bat or bird habitat or nesting. As noted in the application, several bird species are present within the Loring Road Facility's footprint, however, there are no known impacts to birds from operation of the facility. Based on this information, the Loring Road Facility satisfies Criterion F-1.

G: Cultural and Historic Resources Protection

Goal: *The Facility does not unnecessarily impact cultural or historic resources that are associated with the facility's lands and waters, including resources important to local Indigenous populations, such as Native Americans.*

Assessment of Criterion: The applicant selected criterion Standard G-1 (Not Applicable/De Minimis Effect) and has demonstrated compliance with this criterion.

Discussion: As noted in the application, the Loring Road Facility is fairly new, and as such is not listed on the National Register of Historic Places (NRHP), nor has the Massachusetts Historical Commission inventoried it. The Weston Aqueduct Linear District, which contains the Weston Aqueduct Terminal Chamber, is in the vicinity and is listed on the NRHP as an Historic District and Thematic Resources Area. However, the hydro project has no effect on this historic district or property. The FERC exemption order has no conditions specific to cultural or historic resources and no cultural resources plan was required. Based on this information, the Loring Road Facility satisfies Criterion G-1.

H: Recreational Resources

Goal: *The facility accommodates recreation activities on lands and waters controlled by the facility and provides recreational access to its associated lands and waters without*

fee or charge.

Assessment of Criterion Passage: The applicant selected criterion Standard H-1 (Not Applicable/De Minimis Effect) and has demonstrated compliance with this criterion.

Discussion: The Loring Road Facility exemption has no recreation compliance requirements associated with its operation. The facility is secure and locked and not accessible to the public due to its significance as a public drinking water system. A separate Wachusett Reservoir Public Access Plan provides passive recreation in a different part of the watershed but that is unassociated with the Loring Road Facility. Based on this information, the Loring Road Facility satisfies Criterion H-1.

IX. Re-CERTIFICATION RECOMMENDATION

This review included evaluation of the application and supplemental additional information provided by the Applicant, a review of the FERC eLibrary, and other publicly available information. Based on the evaluation, I recommend that the Loring Road Facility be re-certified as Very Low Impact (VLI) for a term of fifteen (15) years since the facility meets the Not Applicable/De Minimis Effect standards in all LIHI Criteria. No conditions are recommended for the Certification.