APPENDIX L SECTION 61 DRAFT FINDINGS

Executive Office of Energy and Environmental Affairs
Massachusetts Department of Environmental Protection Division
Draft Findings Pursuant to MGL Ch. 30, Section 61

Project Name: Reservoir Dam Water Storage and Fish Passage Improvement Project
Project Location: Scituate, Massachusetts
Project Proponent: Town of Scituate
EEA Number: 15711

Permit: Wetlands Protection Act (WPA) Variance
Chapter 91 Permit Application
401 Water Quality Certification Application
WMA Permit Amendment Application

Project Description: The proposed Project would raise the Reservoir Dam impoundment and Tack Factory Pond 1.5 feet (ft.) above the existing maximum normal pool El. 38.9 ft. The spillway will be modified to lower the crest to El. 36.4 ft. and install a bottom hinged crest gate. The existing fishway at Reservoir Dam will also be modified to lower the fishway exit channel into the impoundment and incorporate removable weirs to provide passage of anadromous species (alewife and blueback herring) at all reservoir water levels during the spring and fall migration periods. The Project will add 113 ac-ft. of storage, which is approximately 25 days of water supply at the Town's average annual withdrawal rate. of 1.3 million gallons per day (mgd) and will allow for more robust stream flow releases in order to enhance overall ecological habitat in the Reservoir Dam impoundment, First Herring Brook, and Old Oaken Bucket Pond. The overall ecological modeling results indicate that proposed modifications and reservoir operation could dramatically improve fishway flow as well as reduce water temperature variability.

The project includes the following components:

Reservoir Improvements

- Shoreline and property improvements through updating septic systems and inspection and monitoring for groundwater control;
- Erosion protection for CJCH;
- Stormwater system upgrades for Sherman Drive;
- Modifications to Tack Factory Pond slide gate structure to access gate operators and
- Upgrade of the Tack Factory Pond pool and weir fishway.

Spillway and Fishway Modification Activities

- Implementation of a water control plan to maintain a lowered reservoir level during construction of the spillway and fishway modifications;
- Installation of sediment and erosion control measures around the construction area including turbidity curtains and silt fences;
- Excavation of the dam embankment at the spillway and fishway;
- Reconstruction of the spillway ogee crest and abutment walls;
- Installation of the bottom hinged gate with electric motor operator;
- Installation of the prefabricated walkway bridge across the spillway;
- Installation of the water level sensor and SCADA system upgrade;
- Demolition of the existing fishway upstream of weir #16 and the entire fishway exit channel;
- Reconstruction of the fishway exit channel;

- Reconstruction of the dam embankment at the spillway and fishway;
- Retrofitting the first fourteen weirs with fixed notched weirs;
- Installation of seven removable baffles with adjustable weirs in the fishway exit channel;
- Installation of an access walkway across the fishway exit channel;
- Installation of a 12-inch wide eel ladder along the spillway wall;
- Installation of two nature-like stone weirs in First Herring Brook at the fishway entrance to improve fish passage to fishway entrance; and
- Final site restoration.

Operation and Maintenance

- Monitoring pond levels on a daily basis with automatic spillway gate positioning to maintain an impoundment level no higher than El. 40.4 ft. then adjust to a frequency consistent with the effort currently being implemented for the IOP;
- Automatic operation of the low-level outlet and adjustment of the fishway adjustable weirs for each of the removable baffles to meet the water supply demand and instream habitat seasonal flow releases; and
- Annual inspection and routine maintenance of the spillway, fishway, and dam.

Project Permitting History

The permitting history for the proposed Project is summarized in Table A.

Table A. Permitting History
Reservoir Dam Water Storage and Fish Passage Improvement Project

Agency	Permit/Grant	Status	Submittal Date
Conservation Commission	WPA Form 3 – NOI	Filed	May 4, 2017
Conservation Commission	WPA Form 3 – NOI Denial	Received	August 10, 2017
DEP	Environmental Notification Form (ENF)	Filed	May 30, 2017
DEP	Certificate EEA Number 115711	Received	July 21, 2017
DEP	Request for Superseding Order of Conditions (SOC)	Filed	August 29, 2017
DEP	DEP SOC Determination Abeyance Letter	Received	October 12, 2017
DEP	Chapter 91 RDA	Filed	December 27, 2018
DEP	Chapter 91 RDA Determination	Received	January 28, 2019

Project Impacts and Mitigation:

Table B lists impacts and mitigation measures relative to construction and operation of the proposed Project features.

Table B. Summary of Project Mitigation Measures
Reservoir Dam Water Storage and Fish Passage Improvement Project

Category	Impact	Mitigation Measures
Wetlands and Wetland Buffer Areas	Minor changes in boundaries and classifications of wetland areas.	Mitigations measures are not anticipated because the functionality of the wetlands resource areas will be maintained with the higher proposed normal pool levels. Conditions identified as part of the DEP's Wetlands Variance Request process will be incorporated into the Final Construction Documents.
Outstanding Water Resource	Construction activities within Reservoir Dam impoundment.	The Chapter 91 RDA requires submittal of an application for a Chapter 91 License for work in and adjacent to Reservoir Dam impoundment. Oversight of construction activities will be provided to ensure that no adverse impacts occur as a result of the construction. Water management control measures will be implemented during construction to maintain instream flow releases and fish passage at Old Oaken Bucket to the maximum extent possible.
Water Supply Protection	Construction activities within Reservoir Dam impoundment.	An application for a 401 Water Quality Certification will be submitted. Oversight of construction activities will be provided to ensure that no adverse impacts occur as a result of the construction. The construction contractor would utilize BMPs for erosion, sedimentation, and runoff discharge, such as silk curtains, turbidity curtains, and retention systems for stormwater runoff from the construction area.

Table B. Summary of Project Mitigation Measures (Continued)
Reservoir Dam Water Storage and Fish Passage Improvement Project

Category	Impact	Mitigation Measures
Water Supply Protection	Water quality impacts with higher normal pool levels	The proposed Project will include the following measures to protect the Town's water supply: - Erosion protection along CJCH - Upgrades of septic systems on CJCH - Construction of a bioswale system for the Sherman Drive stormwater system
Water Management Act	Change in First Herring Brook water supply firm yield	A WMA Permit amendment application will be submitted firm the revised firm yield for First Herring Brook water supply with the proposed Project features and operations

Findings: Based in its review of the MEPA documents, the permit application public comments, and with implementation by the Proponent of the mitigation measures described in the above table, all practical means and measures will be taken to avoid or minimize the adverse impacts to the environment related to the Project. MassDEP will include appropriate conditions associated with this Section 61 Finding in the Chapter 91 Permit Application, 401 Water Quality Certification Application, and the WMA Permit Amendment Application.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY **DATE**

Department of Conservation and Recreation (DCR)
Office of Dam Safety (ODS)
Draft Findings Pursuant to MGL Ch. 30, Section 61

Project Name: Reservoir Dam Water Storage and Fish Passage Improvement Project
Project Location: Scituate, Massachusetts
Project Proponent: Town of Scituate
EEA Number: 15711

Permit: Chapter 253 Dam Safety Permit Application
Draft Emergency Action Plan

Project Description: The proposed Project would raise the Reservoir Dam impoundment and Tack Factory Pond 1.5 feet (ft.) above the existing maximum normal pool El. 38.9 ft. The spillway will be modified to lower the crest to El. 36.4 ft. and install a bottom hinged crest gate. The existing fishway at Reservoir Dam will also be modified to lower the fishway exit channel into the impoundment and incorporate removable weirs to provide passage of anadromous species (alewife and blueback herring) at all reservoir water levels during the spring and fall migration periods. The Project will add 113 ac-ft. of storage, which is approximately 25 days of water supply at the Town's average annual withdrawal rate. of 1.3 million gallons per day (mgd) and will allow for more robust stream flow releases in order to enhance overall ecological habitat in the Reservoir Dam impoundment, First Herring Brook, and Old Oaken Bucket Pond. The overall ecological modeling results indicate that proposed modifications and reservoir operation could dramatically improve fishway flow as well as reduce water temperature variability.

The project includes the following components:

Reservoir Improvements

- Shoreline and property improvements through updating septic systems and inspection and monitoring for groundwater control;
- Erosion protection for CJCH;
- Stormwater system upgrades for Sherman Drive;
- Modifications to Tack Factory Pond slide gate structure to access gate operators and
- Upgrade of the Tack Factory Pond pool and weir fishway.

Spillway and Fishway Modification Activities

- Implementation of a water control plan to maintain a lowered reservoir level during construction of the spillway and fishway modifications;
- Installation of sediment and erosion control measures around the construction area including turbidity curtains and silt fences;
- Excavation of the dam embankment at the spillway and fishway;
- Reconstruction of the spillway ogee crest and abutment walls;
- Installation of the bottom hinged gate with electric motor operator;
- Installation of the prefabricated walkway bridge across the spillway;
- Installation of the water level sensor and SCADA system upgrade;
- Demolition of the existing fishway upstream of weir #16 and the entire fishway exit channel;
- Reconstruction of the fishway exit channel;
- Reconstruction of the dam embankment at the spillway and fishway;
- Retrofitting the first fourteen weirs with fixed notched weirs;

- Installation of seven removable baffles with adjustable weirs in the fishway exit channel;
- Installation of an access walkway across the fishway exit channel;
- Installation of a 12-inch wide eel ladder along the spillway wall;
- Installation of two nature-like stone weirs in First Herring Brook at the fishway entrance to improve fish passage to fishway entrance; and
- Final site restoration.

Operation and Maintenance

- Monitoring pond levels on a daily basis with automatic spillway gate positioning to maintain an impoundment level no higher than El. 40.4 ft. then adjust to a frequency consistent with the effort currently being implemented for the IOP;
- Automatic operation of the low-level outlet and adjustment of the fishway adjustable weirs for each of the removable baffles to meet the water supply demand and instream habitat seasonal flow releases; and
- Annual inspection and routine maintenance of the spillway, fishway, and dam.

Project Permitting History:

The permitting history for the proposed Project is summarized in Table A.

Table A. Permitting History
Reservoir Dam Water Storage and Fish Passage Improvement Project

Agency	Permit/Grant	Status	Submittal Date
Conservation Commission	WPA Form 3 – NOI	Filed	May 4, 2017
Conservation Commission	WPA Form 3 – NOI Denial	Received	August 10, 2017
DEP	Environmental Notification Form (ENF)	Filed	May 30, 2017
DEP	Certificate EEA Number 115711	Received	July 21, 2017
DEP	Request for Superseding Order of Conditions (SOC)	Filed	August 29, 2017
DEP	DEP SOC Determination Abeyance Letter	Received	October 12, 2017
DEP	Chapter 91 RDA	Filed (DEIR Appendix K)	December 27, 2018
DEP	Chapter 91 RDA Determination	Received (DEIR Appendix K)	January 28, 2019

Project Impacts and Mitigation:

Table B lists impacts and mitigation measures relative to construction and operation of the proposed Project features.

Table B. Summary of Project Mitigation Measures
Reservoir Dam Water Storage and Fish Passage Improvement Project

Category	Impact	Mitigation Measures
Dam Safety	Modification of dam structures	An application for a Dam Safety Permit will be submitted to the ODS. The proposed changes in dam structure will increase the spillway discharge capacity to be in compliance with Dam Safety Regulations and will increase freeboard on the embankment during the spillway design flood.
Dam Safety	Changes in flood levels	The Reservoir Dam Emergency Action Plan will be updated to reflect the hydrologic and hydraulic analysis with the proposed spillway modifications. Proposed changes to the spillway structure at Reservoir Dam will reduce the risk of dam failure. Addition of the spillway gate will allow controlled releases in anticipation of storms and during flood conditions. Proposed spillway operation will reduce flood levels upstream of Reservoir Dam and provide adequate freeboard at the dam embankment.

Findings: Based on review of the Chapter 253 Dam Safety Permit Application and public comments, and with implementation Project features and mitigation measures described in Table B above proposed by the Proponent, all practical means and measures will be taken to avoid or minimize the adverse impacts to the environment related to the Project and bring Reservoir Dam into compliance with the dam safety regulations. DCR ODS will include appropriate conditions associated with this Section 61 Findings on the Dam Safety Permit Application and Draft Emergency Action Plan Update.

DEPARTMENT OF CONSERVATION AND RECREATION, OFFICE OF DAM SAFTEY

BY **DATE**

Department of Marine Fisheries (DMF)
Draft Findings Pursuant to MGL Ch. 30, Section 61

Project Name: Reservoir Dam Water Storage and Fish Passage Improvement Project
Project Location: Scituate, Massachusetts
Project Proponent: Town of Scituate
EEA Number: 15711

Permit: Fishway Construction Permit

Project Description: The proposed Project would raise the Reservoir Dam impoundment and Tack Factory Pond 1.5 feet (ft.) above the existing maximum normal pool El. 38.9 ft. The spillway will be modified to lower the crest to El. 36.4 ft. and install a bottom hinged crest gate. The existing fishway at Reservoir Dam will also be modified to lower the fishway exit channel into the impoundment and incorporate removable weirs to provide passage of anadromous species (alewife and blueback herring) at all reservoir water levels during the spring and fall migration periods. The Project will add 113 ac-ft. of storage, which is approximately 25 days of water supply at the Town's average annual withdrawal rate. of 1.3 million gallons per day (mgd) and will allow for more robust stream flow releases in order to enhance overall ecological habitat in the Reservoir Dam impoundment, First Herring Brook, and Old Oaken Bucket Pond. The overall ecological modeling results indicate that proposed modifications and reservoir operation could dramatically improve fishway flow as well as reduce water temperature variability.

The project includes the following components:

Reservoir Improvements

- Shoreline and property improvements through updating septic systems and inspection and monitoring for groundwater control;
- Erosion protection for CJCH;
- Stormwater system upgrades for Sherman Drive;
- Modifications to Tack Factory Pond slide gate structure to access gate operators and
- Upgrade of the Tack Factory Pond pool and weir fishway.

Spillway and Fishway Modification Activities

- Implementation of a water control plan to maintain a lowered reservoir level during construction of the spillway and fishway modifications;
- Installation of sediment and erosion control measures around the construction area including turbidity curtains and silt fences;
- Excavation of the dam embankment at the spillway and fishway;
- Reconstruction of the spillway ogee crest and abutment walls;
- Installation of the bottom hinged gate with electric motor operator;
- Installation of the prefabricated walkway bridge across the spillway;
- Installation of the water level sensor and SCADA system upgrade;
- Demolition of the existing fishway upstream of weir #16 and the entire fishway exit channel;
- Reconstruction of the fishway exit channel;
- Reconstruction of the dam embankment at the spillway and fishway;
- Retrofitting the first fourteen weirs with fixed notched weirs;
- Installation of seven removable baffles with adjustable weirs in the fishway exit channel;
- Installation of an access walkway across the fishway exit channel;

- Installation of a 12-inch wide eel ladder along the spillway wall;
- Installation of two nature-like stone weirs in First Herring Brook at the fishway entrance to improve fish passage to fishway entrance; and
- Final site restoration.

Operation and Maintenance

- Monitoring pond levels on a daily basis with automatic spillway gate positioning to maintain an impoundment level no higher than El. 40.4 ft. then adjust to a frequency consistent with the effort currently being implemented for the IOP;
- Automatic operation of the low-level outlet and adjustment of the fishway adjustable weirs for each of the removable baffles to meet the water supply demand and instream habitat seasonal flow releases; and
- Annual inspection and routine maintenance of the spillway, fishway, and dam.

Project Permitting History:

The permitting history for the proposed Project is summarized in Table A.

Table A. Permitting History
Reservoir Dam Water Storage and Fish Passage Improvement Project

Agency	Permit/Grant	Status	Submittal Date
Conservation Commission	WPA Form 3 – NOI	Filed	May 4, 2017
Conservation Commission	WPA Form 3 – NOI Denial	Received	August 10, 2017
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DEP	Certificate EEA Number 115711	Received	July 21, 2017
DEP	Request for Superseding Order of Conditions (SOC)	Filed	August 29, 2017
DEP	DEP SOC Determination Abeyance Letter	Received	October 12, 2017
DEP	Chapter 91 RDA	Filed (DEIR Appendix K)	December 27, 2018
DEP	Chapter 91 RDA Determination	Received (DEIR Appendix K)	January 28, 2019

Project Impacts and Mitigation:

Table B lists impacts and mitigation measures relative to construction and operation of the proposed Project features.

Table B. Summary of Project Mitigation Measures
Reservoir Dam Water Storage and Fish Passage Improvement Project

Category	Impact	Mitigation Measures
Wildlife Habitat	Fishway modification and Eelway construction	An application for a Fishway Construction permit will be submitted to DMF. The proposed changes to the fishway and spillway structures will restore river herring and American eel migration in First Herring Brook upstream of Reservoir Dam. Construction of these structures will be sequenced, and water management control measures implemented to minimize impacts on the instream habitat and fish passage at Old Oaken Bucket.

Findings: Based on review of the Fishway Construction Permit Application and public comments, and with implementation of the Project features and mitigation measures described in Table B above proposed by the Proponent, all practical means and measures will be taken to avoid or minimize the adverse impacts to the environment related to the Project and bring Reservoir Dam into compliance with the dam safety regulations. The DMR will include appropriate conditions associated with this Section 61 Findings on the Fishway Construction Permit Application.

DEPARTMENT OF MARINE FISHERIES

BY **DATE**

Department of Transportation (DOT)
Draft Findings Pursuant to MGL Ch. 30, Section 61

Project Name: Reservoir Dam Water Storage and Fish Passage Improvement Project
Project Location: Scituate, Massachusetts
Project Proponent: Town of Scituate
EEA Number: 15711

Permit: Non-Vehicle Access Permit

Project Description: The proposed Project would raise the Reservoir Dam impoundment and Tack Factory Pond 1.5 feet (ft.) above the existing maximum normal pool El. 38.9 ft. The spillway will be modified to lower the crest to El. 36.4 ft. and install a bottom hinged crest gate. The existing fishway at Reservoir Dam will also be modified to lower the fishway exit channel into the impoundment and incorporate removable weirs to provide passage of anadromous species (alewife and blueback herring) at all reservoir water levels during the spring and fall migration periods. The Project will add 113 ac-ft. of storage, which is approximately 25 days of water supply at the Town's average annual withdrawal rate. of 1.3 million gallons per day (mgd) and will allow for more robust stream flow releases in order to enhance overall ecological habitat in the Reservoir Dam impoundment, First Herring Brook, and Old Oaken Bucket Pond. The overall ecological modeling results indicate that proposed modifications and reservoir operation could dramatically improve fishway flow as well as reduce water temperature variability.

The project includes the following components:

Reservoir Improvements

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- Erosion protection for CJCH;
- Stormwater system upgrades for Sherman Drive;
- Modifications to Tack Factory Pond slide gate structure to access gate operators and
- Upgrade of the Tack Factory Pond pool and weir fishway.

Spillway and Fishway Modification Activities

- Implementation of a water control plan to maintain a lowered reservoir level during construction of the spillway and fishway modifications;
- Installation of sediment and erosion control measures around the construction area including turbidity curtains and silt fences;
- Excavation of the dam embankment at the spillway and fishway;
- Reconstruction of the spillway ogee crest and abutment walls;
- Installation of the bottom hinged gate with electric motor operator;
- Installation of the prefabricated walkway bridge across the spillway;
- Installation of the water level sensor and SCADA system upgrade;
- Demolition of the existing fishway upstream of weir #16 and the entire fishway exit channel;
- Reconstruction of the fishway exit channel;
- Reconstruction of the dam embankment at the spillway and fishway;
- Retrofitting the first fourteen weirs with fixed notched weirs;
- Installation of seven removable baffles with adjustable weirs in the fishway exit channel;
- Installation of an access walkway across the fishway exit channel;

- Installation of a 12-inch wide eel ladder along the spillway wall;
- Installation of two nature-like stone weirs in First Herring Brook at the fishway entrance to improve fish passage to fishway entrance; and
- Final site restoration.

Operation and Maintenance

- Monitoring pond levels on a daily basis with automatic spillway gate positioning to maintain an impoundment level no higher than El. 40.4 ft. then adjust to a frequency consistent with the effort currently being implemented for the IOP;
- Automatic operation of the low-level outlet and adjustment of the fishway adjustable weirs for each of the removable baffles to meet the water supply demand and instream habitat seasonal flow releases; and
- Annual inspection and routine maintenance of the spillway, fishway, and dam.

Project Permitting History:

The permitting history for the proposed Project is summarized in Table A.

Table A. Permitting History
Reservoir Dam Water Storage and Fish Passage Improvement Project

Agency	Permit/Grant	Status	Submittal Date
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DEP	Chapter 91 RDA Determination	Received (DEIR Appendix K)	January 28, 2019

Project Impacts and Mitigation:

Table B lists impacts and mitigation measures relative to construction and operation of the proposed Project features.

Table B. Summary of Project Mitigation Measures
Reservoir Dam Water Storage and Fish Passage Improvement Project

Category	Impact	Mitigation Measures
Transportation	Partial closure of CJCH.	A Non-Vehicle Access Permit will be submitted to the DOT. Proposed construction activities at CJCH (riprap installation) will be scheduled to avoid periods of peak automotive traffic along the highway.
Transportation	Changes in maximum water elevations in Reservoir Dam and Tack Factory Pond.	To prevent erosion of the highway embankment, approximately 300 linear feet (LF) and 80 LF of stone riprap would be installed along the northeast and southeast sides of the CJCH highway, respectively.

Findings: Based on review of the Non-Vehicle Access Permit Application and public comments, and with implementation Project features and mitigation measures described in Table B above proposed by the Proponent, all practical means and measures will be taken to avoid or minimize the adverse impacts to the environment and CJCH during construction. DOT will include appropriate conditions associated with this Section 61 Findings on the Non-Vehicle Access Permit Application.

DEPARTMENT OF TRANSPORTATION

BY **DATE**