UCONN

UNIVERSITY OF CONNECTICUT

Environmental Impact Evaluation
Mirror Lake Improvements

University of Connecticut | Storrs, Connecticut

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Executive Summary

The University of Connecticut (University or UConn) proposes to make improvements to Mirror Lake – an approximately 5-acre stormwater basin on the University's Storrs Campus. Mirror Lake serves a critical role in the management of stormwater runoff on campus and within the Roberts Brook subwatershed. However, over time Mirror Lake has slowly degraded and is now suffering from issues related to excessive plant growth, spillway damage, and diminished stormwater management capacity (BVH, 2021, p. 9; UConn & SOM, 2015a, p. 44). This project will be an opportunity for the University to address pressing needs by improving the Lake's hydrological performance and natural aesthetic, while also expanding access to the water's edge and celebrating the Lake as an important cultural landmark and entry point to the campus (UConn & SOM, 2015b, p. 9). The proposed project consists of the following elements (see **Figure ES 1**):

Project Need
Recently-completed feasibility study for Mirror Lake identified needed modifications to the stormwater basin, spillway, and dam to improve storage, quality, and safety

Project Purpose
Address dam/spillway safety deficiencies, manage stormwater and slow sediment accumulation, improve aquatic health/water quality and function of Mirror Lake as a landscape element on campus

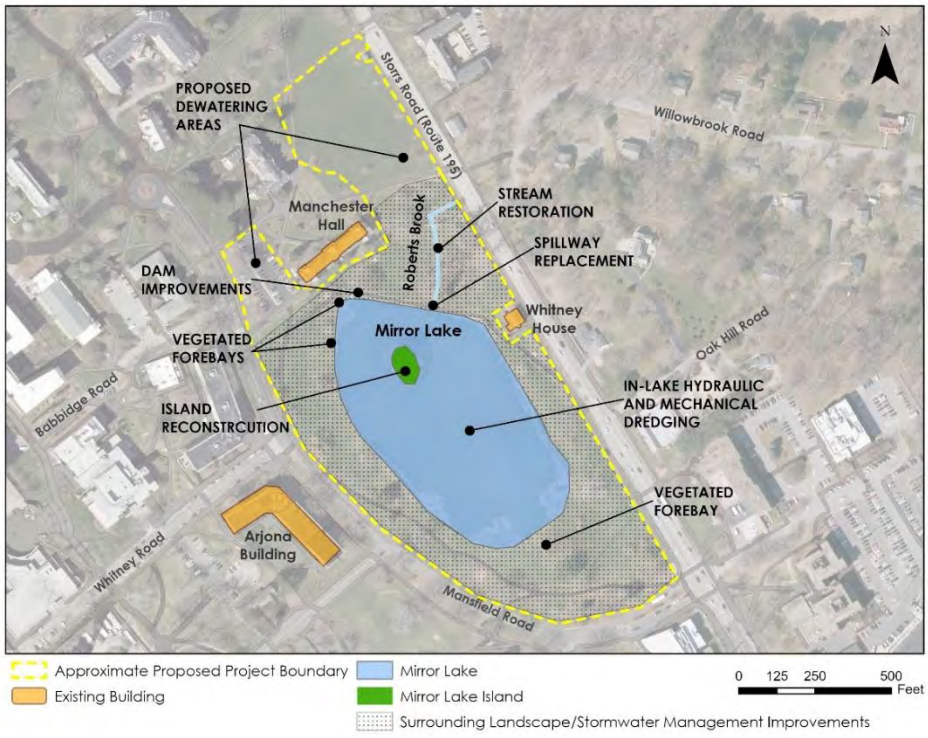

Figure ES 1. Proposed Action – Mirror Lake Improvements

- **Dam Safety Improvements –** To address dam safety concerns, and control and reduce stormwater flows out of the lake, the Proposed Action will replace the existing spillway, raise the dam's earthen embankment, add upstream erosion protection, and re-grade the upstream and downstream slopes. The existing concrete ogee spillway will be removed and replaced with a new notched, stepped, broad crested weir, concrete spillway. The dam/berm will be raised approximately 2 feet to allow for

the required 1-foot of freeboard, and to accommodate a 500-year spillway design flood in keeping with CT DEEP Dam Safety Regulations and the 2020 Memorandum of Understanding (MOU) agreement between UConn and CT DEEP (DEEP & UConn, 2020). Riprap will be added from the upstream toe of the embankment to provide erosion protection and improve stability, and a conventional toe drain will be constructed at the downstream embankment toe to help lower the shallow groundwater at the toe of the dam, lower the groundwater table through the dam, and improve stability. The toe drain will discharge to the downstream channel and will consist of a concrete apron that transitions to the Roberts Brook side channels, which will also be lined with riprap for additional erosion/scour protection.

- **Dredging and Improvements to Aquatic Health –** As part of the Proposed Action, hydraulic dredging will be used to remove the soft sediments that have accumulated in the lake from stormwater runoff. This can be achieved without having to drain the lake by hydraulically dredging the lake up to a depth of approximately 6 feet and storing an estimated 19,600 cubic yards of dredged soft sediments in large geotextile dewatering tubes to dry before transporting them to their final disposal location. As stated in the 2021 Mirror Lake Improvements Feasibility Study (BVH, 2021), to achieve further improvements to aquatic health, and better manage stormwater and associated sediments entering the lake, it is proposed that approximately 26,800 cubic yards of additional native till soil material be mechanically dredged from the lake by means of conventional excavation to deepen the bottom of the lake up to 9 +/- feet below the current spillway elevation (GZA, 2021c).

- **Stormwater Management Improvements –** The Proposed Action will reroute 4 of the 7 existing stormwater discharge points to allow for the creation of a total of 3 sediment forebays – 2 on the west side of Mirror Lake and 1 on the south side of Mirror Lake. The sediment forebays will capture and treat additional sediment and nutrients not collected and treated by the existing hydrodynamic separators within the storm drainage system. On the south side of Mirror Lake where there is a 42-inch storm pipe that transitions to two 24-inch pipes prior to discharging to the lake, hydrodynamic separators will be installed on each of the 24-inch pipes to allow for additional sediment removal within the drainage system prior to reaching the pond and to facilitate maintenance.

- **Landscape Improvements –** The proposed landscape improvements around Mirror Lake will allow the University to expand access to the water's edge and further amplify the lake's role as an important recreational, educational, and historical asset on campus – two key, near-term goals of the Campus Master Plan. The Proposed Action will implement shoreline and littoral zone plantings in curvilinear beds that improve the visual aesthetic of the lake and lead the eye around the lake, granting it a distinct sense of place. These plantings will also function as an additional filter for stormwater runoff, contributing to the overall improvements to aquatic health described in the section above. Potential alternate landscape features include incorporating a promenade around one end of the lake, which leads to an overlook and shelter that will extend over the water to the in-lake island as well as a pedestrian bridge that allows access for visitors.

- **Stream Restoration and Riparian Enhancement –** Stream restoration of Roberts Brook and riparian enhancement activities are proposed to improve water quality and stormwater management and enhance habitat. Roberts Brook will generally remain within the brook's existing footprint, with alterations to the streambed width and meanders expected from: widening of Roberts Brook at three locations, placing boulders within widened areas, replacing the streambed material with channel bed

stone, and minor reshaping. In addition, an approximately 16-foot-long culverted section of Roberts Brook will be daylighted. Rain gardens may be incorporated as an additional alternate feature to further improve stormwater management.

The University, as the sponsoring agency for this project, has prepared this Environmental Impact Evaluation (EIE) to further evaluate the potential environmental impacts of the proposed Mirror Lake Improvements project. In developing the EIE, UConn considered reasonable alternatives to the Proposed Action, including the No Action (i.e., "do nothing") alternative. The alternatives considered are summarized below:

- **No Action Alternative –** Under the No Action Alternative, the proposed stormwater management, dam safety, dredging, aquatic health, and landscape improvements to Mirror Lake would not be made. The Campus Master Plan (UConn & SOM, 2015a) and recent Mirror Lake Improvements Feasibility Study (BVH, 2021) highlight the need for these improvements to: (1) address dam and spillway safety deficiencies, (2) better manage current and future stormwater runoff, (3) improve aquatic health and water quality, and (4) enhance the function of the lake as an iconic landmark on campus. The No Action Alternative would therefore fail to address the need for these improvements and the purpose of the project. Consequently, the No Action Alternative was rejected by the University.

- **Enlarge the Footprint of Mirror Lake and Raise the Berm –** In a previous study, BVH presented an option to enlarge the footprint of the lake and raise the berm without deepening the lake or altering the spillway. Forebays and removal of soft sediment were recommended with this option, and this alternative was strictly focused on improving stormwater management and runoff quality. Although this alternative was not favored due to the changes it would create to the visual and aesthetic character of this area of the Storrs Campus south entrance and Great Lawn, this alternative was not selected for further consideration because it failed to address the current deficiencies associated with the Mirror Lake Dam. This alternative would not address safety concerns associated with inadequate factors of safety against slope stability and sliding for the spillway and inability to pass flows associated with the current 100-year flood event with 1-foot of freeboard. In addition, aquatic health considerations were not addressed under this alternative.

- **Dam and Spillway Alternatives –** To address the current deficiencies associated with the dam, all the alternative actions considered include improvements to the dam and spillway. The selection of a preferred design for the dam and spillway was based on an Incremental Damage Analysis (IDA) of the proposed dam configuration to recommend an appropriate Spillway Design Flood (SDF). This approach is consistent with methods recommended by the Federal Emergency Management Agency (FEMA) and the Federal Energy Regulatory Commission (FERC) for dam safety analysis, and the dam failure analyses were performed in accordance with guidance provided by CT DEEP. The IDA results showed that Route 195, located downstream of the dam, was subject to damage and/or destruction during the current natural 500-year flood with or without dam failure. As a result, the incremental consequence of dam failure during the current 500-year design flood was insignificant relative to flooding damage that would exist without a dam failure. As a result, the current 500-year flood was selected as the SDF.

- **In-Lake Sediment Alternatives –**

- Hydraulic Dredging of Soft Sediment Only and No Sedimentation Forebays – Hydraulic dredging of just the soft sediment in the lake (i.e., avoiding the additional mechanical dredging of hard bottom soils) would address the clear need to remove nutrient-rich sediments from Mirror Lake documented in several prior studies (Lenard Engineering, 2003; Milone & MacBroom, 2009; Northeast Aquatic Research, 2015). However, this would only increase the depth of Mirror Lake by up to 6 feet. While this would provide some improvement, as outlined in the recent feasibility analysis (GZA, 2021a), additional hard bottom soils would need to be excavated to further improve water quality, the health of the lake, and stormwater management controls needed to meet the 2020 MOU with CT DEEP (DEEP & UConn, 2020) and CT DEEP Dam Safety Regulations.

- Mechanically Dredge Soft Sediment and Hard Bottom – Mechanically dredging both the soft sediment and hard bottom may be less costly than hydraulically dredging the soft sediment and mechanically dredging the hard bottom, as it is likely that costs associated with dewatering of hydraulically dredged sediment could be eliminated. However, despite a significant cost savings, this approach may result in greater water quality and habitat impacts. Although this alternative dredging approach could address freeboard requirements, compared to conventional, mechanical dredging, hydraulic dredging has the benefits of causing less suspension of sediment and less mortality to certain aquatic wildlife. For this reason, hydraulic dredging of soft sediment was recommended in the 2009 Mirror Lake dredging plans prepared by Baystate Environmental Consultants[1] (BEC) due to the environmental sensitivity of Roberts Brook and the Fenton River downstream of Mirror Lake (BVH, 2021, p. 5).

- Mechanically Dredge Less Material – The proposed 9 +/- feet maximum dredging depth of Mirror Lake was based on limnologist recommendations (GZA, 2021a). While one of the previous studies of Mirror Lake has argued that dredging need only target the upper organic (or soft) sediment layer (Northeast Aquatic Research, 2015), the most recent assessment by GZA – and one prior study by Milone and MacBroom – have both noted the importance of removing significant amounts of deep till layers (GZA, 2021a; Milone & MacBroom, 2009) to address the purpose and need for the project. These assessments note that if Mirror Lake were only dredged to a depth of 5 to 6 feet, the entire bottom of the lake would remain within the photic zone (zone of light penetration), which would support the growth of aquatic plants and filamentous algae – further deteriorating the health of the lake. If dredged deeper with a gradual slope from shore to deep center (GZA, 2021a, p. 5), the lake would support a variety of emergent and submerged vegetation, which would enhance the overall landscape aesthetics while also allowing for more open water in the center of the lake.

- **Preferred Alternative –** The Preferred Alternative to emerge from the planning process allows for the necessary improvements to Mirror Lake that address the purpose and need for the Proposed Action. The Preferred Alternative includes the following "Base" and "Alternate" elements: (1) dam safety improvements, including replacing the existing spillway with a stepped spillway and raising the dam's earthen embankment (Base); (2) stormwater management improvements, including the rerouting of several stormwater discharge points into sedimentation forebays and regrading of

[1] BEC is now part of GZA.

upstream and downstream slopes (Base); (3) dredging and improvements to aquatic health, including the use of hydraulic and mechanical dredging to remove accumulated sediments and deepen the lake (Base); and (4) landscape improvements, including littoral zone plantings (Base) and site-specific amenities (e.g., pedestrian bridge, promenade, shelter, stream garden) that enhance cultural benefits and improve access to the water's edge (Alternates).

Unavoidable impacts anticipated with the Proposed Action include those associated with impacts to approximately 1,750 SF to 2,150 SF of inland watercourse and inland wetlands bordering Roberts Brook. While the proposed dredging and stormwater outfall improvements are also included in the Proposed Action, these activities – along with restoration improvements to Roberts Brook – will result in benefits to water quality, aquatic habitat, and stormwater management. Construction-related impacts to traffic/parking, air quality, noise, solid waste, and stormwater are unavoidable but are temporary in nature and will be mitigated using best management practices during construction.

Alterations to resource areas associated with Mirror Lake and Roberts Brook will be permitted under the CT DEEP Dam Safety and Inland Wetlands and Watercourses Permits, and Section 401 Water Quality and Flood Management Certification, and alterations to these resource areas will be subject to the conditions of the U.S. Army Corps of Engineers Connecticut General Permit. Appropriate mitigation will be identified through the permitting process.

Additionally, since the project is largely repair and restoration of the existing dam, lake, and stormwater outfalls, there is little potential for impact from encroachment-alteration. Although the Proposed Action is within the Roberts Brook watershed, the improvements to Mirror Lake – in particular, the improvements to stormwater management – are expected to have a net beneficial impact to water quality. Therefore, no adverse indirect effects associated with encroachment-alteration are anticipated as a result of the Proposed Action. Similarly, there are no foreseeable indirect impacts associated with induced growth.

Though the Proposed Action will result in changes to landscape features surrounding Mirror Lake, the impact analysis does not indicate any significant cumulative adverse effects to visual or aesthetic resources. Sharing and discussion of final landscaping plans with the State Historic Preservation Office (SHPO) will continue to support the initial SHPO finding of no adverse effect to historic resources. Additional cumulative impacts on wetlands and watercourses within the Roberts Brook watershed are not anticipated because the proposed improvements to Mirror Lake are consistent with larger stormwater management objectives identified by UConn in consultation with CT DEEP. Maintaining the discharges from Mirror Lake to be consistent with pre-1993 conditions represents a significant effort on the part of UConn to mitigate cumulative impacts to stormwater and water quality from development on campus over the past several decades, as well as reasonably foreseeable development in the South Campus area.

Anticipated impacts and proposed mitigation measures to avoid, minimize, or offset potential adverse impacts are summarized in **Table ES 1**.

Table ES 1 – Summary of Impacts and Proposed Mitigation Measures

Resource Category	Impacts	Proposed Mitigation
Consistency with Planning	• Will be consistent with Connecticut's State Conservation and Development Policies Plan • Will be consistent with Local Zoning and Planning • Will be consistent with Campus Master Planning	• None
Geology, Topography, and Soils	• No Prime Farmland Soils or Soils of Statewide Importance • Grading is anticipated throughout the project site. The site is already developed, and topography and soils have been previously modified.	• None
Water Resources	• Will improve aquatic health and water quality of Mirror Lake and Roberts Brook within the project site • Capacity of stormwater basin is anticipated to increase due to replacement of the spillway and increasing the dam embankment height. • Treatment of stormwater and the quality of flow leaving the site is anticipated to improve over existing conditions due to the proposed vegetated forebays, hydrodynamic separators, and landscaping improvements. • No floodplain-related impacts are expected.	• The design of stormwater features (i.e., vegetated forebays, hydrodynamic separators, and Mirror Lake, a stormwater pond) will be consistent with the guidelines of the CTDEEP *Connecticut Stormwater Quality Manual* (as amended). • Measures for additional water quality improvements (e.g., artificial circulation, etc.) may be considered in the future. • O&M Plan will ensure ongoing operation of stormwater features.
Wetlands	• Anticipate approximately 5 acres of inland watercourse (i.e., Mirror Lake) to be directly altered by dredging. • Surface area of Mirror Lake will be reduced by 10% (or less) compared to existing conditions. • Approximately 1,750 SF to 2,150 SF of inland watercourse and inland wetlands bordering Roberts Brook will be impacted	• Mitigation measures will be identified through the permitting process. • Dredging of Mirror Lake is designed to result in improvement in water quality.

Resource Category	Impacts	Proposed Mitigation
	by the Roberts Brook restoration depending on final design.	
Natural Communities, Flora, and Fauna	• Two federally threatened/endangered, or candidate species (northern long-eared bat, threatened; monarch butterfly, candidate) are potentially in the region. • NDDB Review indicated no negative impacts to state-listed species. • Select vegetation clearing, including trees. • No known northern long-eared bat hibernacula are mapped within the Town of Mansfield, therefore no impacts to are anticipated. • Aquatic habitat improvements from improved water quality and increased landscape diversity are anticipated.	• Proposed landscaping may provide additional host plants and food sources for the monarch butterfly.
Noise	• Consistent with existing institutional and commercial setting.	• None
Air Quality	• No anticipated direct effects to mobile sources of air pollution at the project site.	• None
Solid Waste	• Typical institutional waste stream.	• None
Toxic and Hazardous Materials	• No generation of toxic and/or hazardous materials is anticipated.	• None
Public Health and Safety	• Improvements to public safety by addressing dam/spillway deficiencies • Long-term public health benefits from water quality improvements reducing likelihood of harmful cyanobacteria blooms	• None
Cultural Resources	• Site is located within a National Register Historic District • Pending further review of landscape elements with the State Historic Preservation Office (SHPO), SHPO has indicated no	• UConn will host a follow-up meeting with SHPO and Preservation Connecticut to further discuss the project and provide additional comments on the design. • The final design team for the project will include a landscape architecture

Resource Category	Impacts	Proposed Mitigation
	anticipated adverse impact to historic resources • Nearby contributing structures to the Historic District will not be impacted.	firm with experience in cultural landscapes and contributing resources to historic districts.
Visual and Aesthetic Character	• Integration of the site with surrounding landscapes and built environment • Improvements of visual and aesthetic character from the proposed shoreline and littoral zone plantings in curvilinear beds and increased access to the water's edge	• Implementation of visual/aesthetic elements of the Campus Master Plan and District guidelines, incorporation of stormwater infrastructure into the visual landscape, and use of natural materials.
Socioeconomics	• No impacts to Environmental Justice Communities • Generates new construction jobs • Advances the environmental sustainability mission in the Campus Master Plan	• None
Traffic, Parking, and Circulation	• No expected increase in site-generated traffic volumes • No disruption of existing intersections • Supports pedestrian and bicycle access to Mirror Lake • No anticipated impacts to parking	• None
Utilities	• Will support the goals identified in the Drainage Master Plan to improve the stormwater management system and increase the resilience of the Roberts Brook system to stormwater runoff under future development and climate conditions • No anticipated impacts to electrical service, water, gas, and sewer utilities	• Stormwater systems will be designed in accordance with the *Connecticut Stormwater Quality Manual* and any memoranda of agreement between UConn and CT DEEP related to stormwater in effect at the time of construction
Energy Use and Conservation	• Consistent with the sustainability goals outlined in the Campus Master Plan and not anticipated to increase energy demands over existing conditions	• Added site lighting will be LED and will meet the University's standards and guidelines regarding high-efficiency lighting.

Resource Category	Impacts	Proposed Mitigation
Climate and Resilience	• Amplifies the University's commitment to sustainable, resilient landscapes • Proposed dam embankment height will better allow for future increases in precipitation intensity and runoff. • Increased stormwater storage capacity of Mirror Lake due to proposed dredging and increased embankment height	• None
Construction Period		
Public Drinking Water Supply Area / Water Resources	• Exposure of soil increases potential for erosion and sedimentation. • In-water work in Mirror Lake and Roberts Brook increases potential for turbidity.	• Require contractors to adhere to the Connecticut Department of Public Health Construction Best Management Practices (BMPs) for work in Drinking Water Supplies. • Use of appropriate erosion and sediment controls during construction, consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* (as amended) and the *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* • Monthly turbidity monitoring and inspections • Installation of a turbidity curtain during Mirror Lake dredging and a coffer dam during the spillway replacement
Noise	• Heavy construction equipment associated with site development may result in temporary increases in noise levels in the immediate area of construction.	• Contractors will be required to comply with noise control requirements in UConn's *Contractor EHS Manual: Environmental, Health, and Safety (EHS) Requirements for Construction, Service, and Maintenance Contractors,* including reference to such requirements in contract documents. • Ensure proper operation and maintenance of construction equipment. • Construction contractors should make every reasonable effort to limit construction noise impacts.

Resource Category	Impacts	Proposed Mitigation
Traffic, Parking, and Circulation	• Minor, temporary disruptions to traffic in the immediate area of construction • Potential for construction staging in S Lot.	• Use of construction-phase traffic management measures to maintain efficient traffic operations during the construction period including construction phasing to minimize disruptions to traffic, signage, and detours • May temporarily reallocate employee parking permits to other on-campus parking locations during the construction period if S Lot is used for construction staging
Air Quality	• Construction activities may result in short-term impacts to ambient air quality due to direct emissions from construction equipment and fugitive dust emissions.	• Contractors will be required to comply with air pollution control requirements in UConn's *Contractor EHS Manual: Environmental, Health, and Safety (EHS) Requirements for Construction, Service, and Maintenance Contractors,* including reference to such requirements in contract documents. • Ensure proper operation and maintenance of construction equipment. • Limit idling of construction vehicles and equipment to three minutes. • Implement traffic management measures during construction. • Implement appropriate controls to prevent the generation and mobilization of dust.
Solid Waste	• Generation of solid waste including construction and demolition debris	• Contractors will be required to comply with requirements for construction-related hazardous materials and solid waste in UConn's *Contractor EHS Manual: Environmental, Health, and Safety (EHS) Requirements for Construction, Service, and Maintenance Contractors,* including reference to such requirements in contract documents. • Construction-related solid waste will be handled and disposed of in a manner that meets current regulations and University standards. Construction and demolition debris will be managed in accordance with applicable state and federal regulations and the University's contractor policies.

Resource Category	Impacts	Proposed Mitigation
Toxic and Hazardous Materials	• Temporary on-site storage and use of fuels and other materials associated with construction vehicles and equipment	• Contractors will be required to comply with requirements for construction-related hazardous materials and solid waste in UConn's *Contractor EHS Manual: Environmental, Health, and Safety (EHS) Requirements for Construction, Service, and Maintenance Contractors,* including reference to such requirements in contract documents. • Hazardous or regulated materials or subsurface contamination encountered during construction will be characterized and disposed of in accordance with applicable state and federal regulations.
Utilities	• Proposed work at Mirror Lake and dewatering at the Great Lawn/Manchester Hall parking lot is within the vicinity of sanitary sewer, electric, potable water, and stormwater utilities.	• Care will be taken to protect existing utilities to avoid damage and/or interruption of service during the construction process.
Visual and Aesthetic	• Impairments to visual and aesthetics of Mirror Lake and the Great Lawn/Manchester Hall lot during construction due to site work, staging, and dewatering.	• Mirror Lake and surrounding area, and the Great Lawn/Manchester Hall parking lot will be restored following the conclusion of construction.

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List of Acronyms & Abbreviations

BMPs best management practices

CAAA U.S. Clean Air Act, as amended
CEPA Connecticut Environmental Policy Act
CEQ Council on Environmental Quality
CGS Connecticut General Statutes
CO Carbon Monoxide
CT NDDB Connecticut Natural Diversity Database
CTDEEP Connecticut Department of Energy and Environmental Protection
CUP Central Utility Plant

dB/dBa Decibel/A-weighted decibel

ECD Generic Environmental Classification Document
EIE Environmental Impact Evaluation
EPA U.S. Environmental Protection Agency

FEMA Federal Emergency Management Agency
FIRM Flood Insurance Rate Map

IPaC Information for Planning and Consultation
IWWA Inland Wetlands and Watercourses Act

LEED Leadership in Energy & Environmental Design
Leq Equivalent Noise Level

MGD million gallons per day

NAAQS National Ambient Air Quality Standards
NCSS National Cooperative Soil Survey
NO_2 Nitrogen Dioxide
NRCS Natural Resources Conservation Service
NRHP National Register of Historic Places
NWI National Wetlands Inventory

O_3 Ozone
OPM Office of Policy and Management
OSHA Occupational Safety and Health Administration

PAH polycyclic aromatic hydrocarbon
Pb Lead
PM_{10} particulate matter ten microns or smaller in diameter
$PM_{2.5}$ particulate matter 2.5 microns or smaller
PMC Pollutant Mobility Criteria

RCSA Regulations of Connecticut State Agencies

SDF spillway design flood
SHPO State Historic Preservation Office
SF square feet
SIP State Implementation Plan
SO_2 sulfur dioxide
SO_x sulfur oxides

TMDL Total Maximum Daily Loads

UConn University of Connecticut
USACE U.S. Army Corps of Engineers
USDA United States Department of Agriculture
USFWS United States Fish and Wildlife Service

VOCs Volatile Organic Compounds

WPCF Water Pollution Control Facility
WSS Web Soil Survey

1 Introduction

1.1 Background

The University of Connecticut (University or UConn) proposes to make improvements to Mirror Lake – an approximately 5-acre stormwater basin on the University's Storrs Campus. The proposed project, described in more detail in Section 1.3, consists of the following elements:

- Dam safety improvements, including replacing the existing spillway with a stepped spillway and raising the dam's earthen embankment
- Stormwater management improvements, including the rerouting of several discharge points into sedimentation forebays and regrading of upstream and downstream slopes
- Dredging and improvements to aquatic ecosystems, including the use of hydraulic and mechanical dredging to remove accumulated sediments and restore the lake depth
- Landscape improvements, including littoral zone plantings and site-specific amenities that enhance cultural benefits and improve access to the water's edge

Part of the original 1910 General Plan for the University, Mirror Lake is an iconic part of UConn's landscape, serving as the foreground to many of the South Campus buildings from Storrs Road. The lawns, sidewalks, and groves of trees that flank its banks are popular spots for recreation, studying, and socializing.

Mirror Lake also serves a critical role in the management of stormwater runoff on campus and within the Roberts Brook subwatershed. However, over time Mirror Lake has slowly degraded and is now suffering from issues related to excessive plant growth, spillway damage, and diminished stormwater management capacity (BVH, 2021, p. 9; UConn & SOM, 2015a, p. 44).

The Mirror Lake Improvements project was identified in UConn's Campus Master Plan as a key near-term landscape project aimed at amplifying the University's commitment to sustainable, resilient landscapes and enhancing Mirror Lake's function as a ceremonial entry to the South Campus (UConn & SOM, 2015a, p. 104). This project will be an opportunity for the University to improve the Lake's hydrological performance and natural aesthetic, while also expanding access to the water's edge and celebrating the Lake as an important cultural asset and entry point to the campus (UConn & SOM, 2015b, p. 9).

About This EIE

The University has prepared an Environmental Impact Evaluation (EIE) to further evaluate the potential environmental impacts of the proposed improvements to Mirror Lake (hereafter referred to as the Proposed Action), as well as other alternatives considered, including taking no action (see Section 2).

The format and content of this EIE are based on the requirements of the Connecticut Environmental Policy Act (CEPA) codified in the Connecticut General Statutes (CGS) Sections 22a-1 through 22a-1h[2], and where applicable, the Regulations of Connecticut State Agencies (RCSA) Sections 22a-1a-1 through 22a-1a-12[3]. According to the updated Generic Environmental Classification Document (ECD) for Connecticut State Agencies (OPM, 2021), the CEPA process applicable to the Proposed Action, as the following triggers apply:

[2] See https://www.cga.ct.gov/current/pub/chap_439.htm#sec_22a-1.
[3] See https://www.eregulations.ct.gov/eRegsPortal/Browse/RCSA/Title_22aSubtitle_22a-1a_HTML/.

- The Proposed Action will utilize State funds,
- The Proposed Action involves the reconstruction of an existing dam, and
- The Proposed Action will be located in the UConn Historic District, which is listed on the National Register of Historic Places (Ref #: 88003202).[4]

The central purpose of the CEPA process is for state agencies to determine whether a proposed action by the sponsoring agency (in this case UConn) will have a "significant environmental effect" – defined as a substantial adverse impact on the environment (RCSA 22a-1a-1, Definitions). Sponsoring agencies preparing an EIE must consider direct and indirect effects, as well as cumulative impacts. This EIE document includes:

- The purpose and need for the Proposed Action (Section 1.2),
- A description of the Proposed Action (Section 1.3),
- An analysis of alternative actions (Section 2),
- An evaluation of the direct, indirect, and cumulative impacts of the Proposed Action (Sections 3 & 4),
- A description of costs and benefits (Section 5), and
- A summary of potential certificates, permits, and approvals needed for the Proposed Action (Section 6).

1.2 Need and Purpose

According to the Connecticut Department of Energy and Environmental Protection (DEEP), the Mirror Lake Dam is currently classified as a Hazard Class BB (moderate hazard) dam (CT DEEP, 2020a). However, based on the results of recent regulatory dam inspections and hydrologic analysis of the Mirror Lake dam conducted by GZA GeoEnvironmental Inc. (GZA, 2016, 2019, 2020, 2021b), Mirror Lake Dam has the potential to be classified as a Class C (high hazard) dam. In the event of a severe storm or similar event that could cause failure of the dam, a Class C dam is one whose potential impact due to failure could result in:

- A probable loss of life,
- Major damage to habitable structures or residences,
- Damage to major utility facilities or arterial roadways, or
- Great economic loss.

Project Need
Recently-completed feasibility study for Mirror Lake identified needed modifications to the stormwater basin, spillway, and dam to improve storage, quality, and safety

Project Purpose
Address dam/spillway safety deficiencies, manage stormwater and slow sediment accumulation, improve aquatic health/water quality and function of Mirror Lake as a landscape element on campus

Specifically, the prior inspections have determined that the current deficiencies in Mirror Lake Dam include:

- Inadequate factors of safety against slope stability (Lenard Engineering, 2010),
- Inadequate factors of safety against sliding for the spillway (Lenard Engineering, 2010), and
- Inability to pass the 100-year flood with 1-foot of freeboard.

[4] See https://www.nps.gov/subjects/nationalregister/database-research.htm#table.

Due to funding constraints, UConn has already deferred dredging Mirror Lake following the completion of a 2009 lake dredging program by Baystate Environmental Consultants, Inc. Additionally, some temporary repairs were made to the Mirror Lake spillway in 2020. However, additional actions are now needed (described in more detail in Section 1.3) to more fully and proactively address the dam and spillway safety deficiencies for adequate protection of life and property consistent with CT DEEP Dam Safety requirements.

Over the years, the health of Mirror Lake has also been impacted by excessive aquatic plant growth, algal/cyanobacterial blooms, elevated and problematic nutrient loads, nuisance geese populations, and sediment accumulation (GZA, 2021a; Lenard Engineering, 2003; Milone & MacBroom, 2009; Northeast Aquatic Research, 2015). While the character of Mirror Lake has varied over the past couple of decades, all prior water quality studies have indicated the need to remove nutrient-rich sediment deposits that have accumulated over the years in Mirror Lake (GZA, 2021a, p. 4).

Additionally, UConn's Campus Master Plan and the recent Mirror Lake Improvements Feasibility Study have highlighted Mirror Lake's lack of landscape variation and limited features to enhance its experiential, ecological, and educational value (BVH, 2021, p. 2; UConn & SOM, 2015a, p. 40). The introduction of new plantings, improved landscape features, and attractive site amenities present an opportunity to reinforce a sense of place, provide ecological benefits, and improve access to water's edge in keeping with UConn's commitment to sustainable, resilient landscapes.

The purpose of the Proposed Action is to undertake these much-needed improvements to Mirror Lake by addressing dam and spillway safety deficiencies, better managing stormwater runoff, and improving the aquatic ecology, water quality, and function of the lake as an iconic landmark on campus.

1.3 Proposed Action

UConn proposes to make improvements to Mirror Lake and the Mirror Lake Dam (**Figure 1**).

The Mirror Lake Improvements project was identified as part of the University's commitment to sustainable, resilient landscapes in the Campus Master Plan. The proposed project consists of the following elements:

- Dam safety improvements, including replacing the existing spillway with a stepped spillway and raising the dam's earthen embankment
- Stormwater management improvements, including the rerouting of several discharge points into sedimentation forebays and regrading of upstream and downstream slopes
- Dredging and improvements to aquatic health, including the use of hydraulic and mechanical dredging to remove accumulated sediments and deepen the lake
- Landscape improvements, including littoral zone plantings and site-specific amenities that enhance cultural benefits and improve access to the water's edge

Each of these improvements is summarized and described in greater detail in the sections that follow.

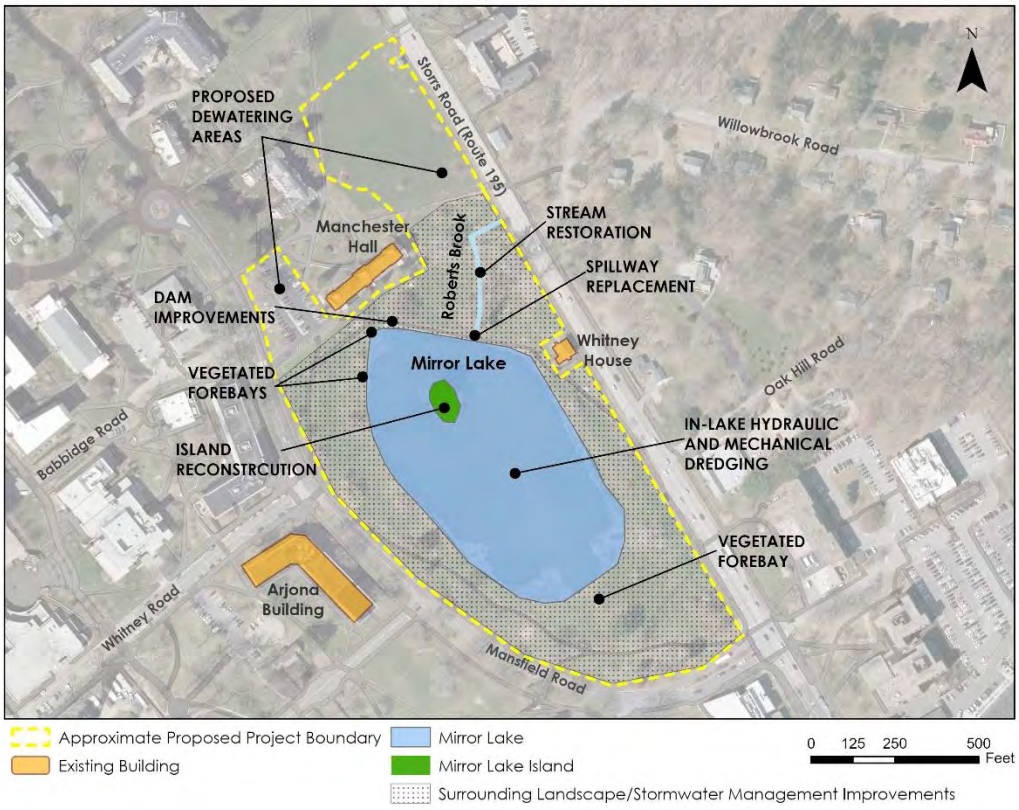

Figure 1 – Map of Proposed Action, Including Callouts for Mirror Lake Improvements

Dam Safety Improvements

Mirror Lake receives stormwater discharges from 7 inlets that convey runoff from the UConn campus, Edwin O. Smith High School, Route 195, and surrounding residential neighborhoods (**Figure 2**).

The berm (or dam) on the north side of Mirror Lake allows stormwater to be detained and discharged in a controlled manner from the dam spillway. However, on-campus and off-campus development over the years have resulted in an increased volume of stormwater runoff to the lake. This increased volume has in turn lead to increased flows out of the lake and higher water surface elevations in the lake during storm events.

According to a memorandum of understanding (MOU) signed on March 16, 2020 (DEEP & UConn, 2020), CT DEEP and UConn have agreed to maintain or reduce flows from the lake to pre-1993 levels – a baseline that represents a time prior to much of the recent development on campus. Additionally, CT DEEP Dam Safety Regulations require that Mirror Lake maintain 1 foot of freeboard[5] during the spillway design flood (SDF)[6]. However, as indicated in a recent report by GZA, Mirror Lake is unable to maintain the required one-foot freeboard during certain storm events (GZA, 2021b, p. 2).

[5] Freeboard is the distance between the top of the dam and the water surface elevation.
[6] The Spillway Design Flood (SDF) is defined as the flood where dam failure would not create a significant increase in the hazard to life and/or property above the natural base flood.

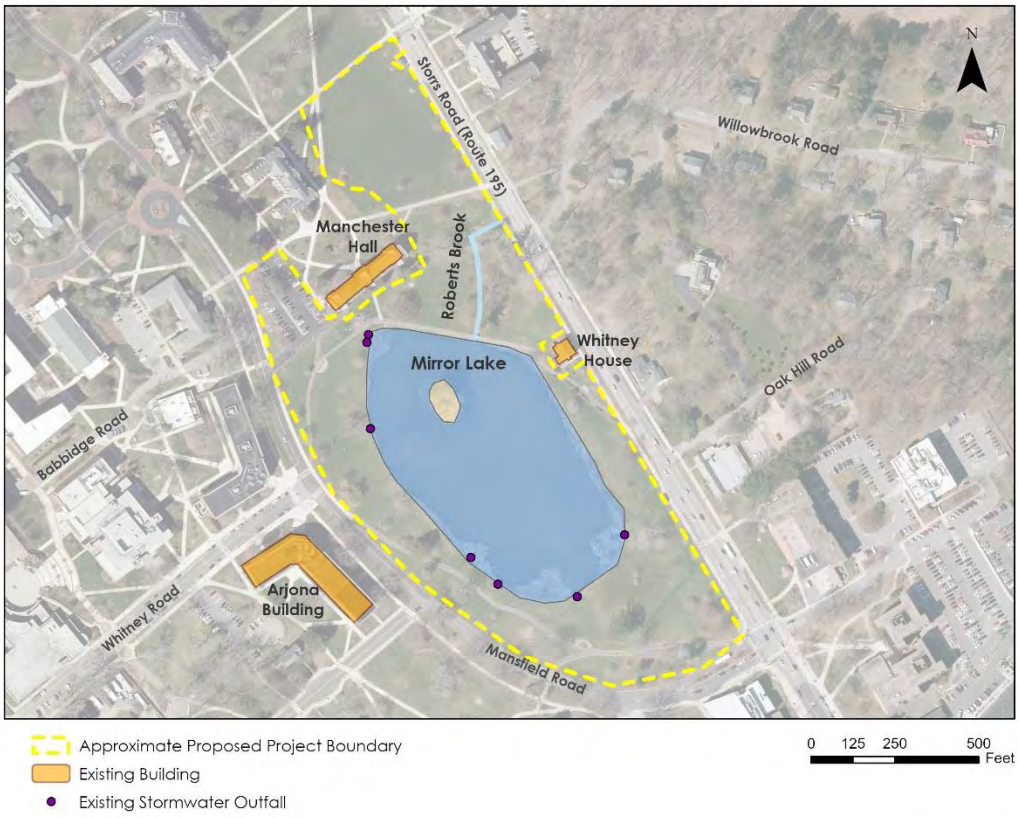

Figure 2 – Map of Existing Stormwater Outfalls within the Project Area

To address dam safety concerns, and control and reduce stormwater flows out of the lake, the Proposed Action (**Figure 3**) consists of replacing the existing spillway with a concrete stepped spillway in the same general footprint, raising the dam's earthen embankment, adding upstream erosion protection, and re-grading the upstream and downstream slopes.

The existing concrete ogee spillway will be removed and replaced with a new notched, stepped, broad crested weir, concrete spillway. The stepped spillway design dissipates up to three times the energy of the descending water compared to the conventional smooth chute(US Department of the Interior, 2015). The lowest level of the stepped spillway will be 8-feet long (weir length) at an elevation of 583.5 feet and then increase to 16-feet long at an elevation of 587 feet. The upstream and downstream concrete training walls and spillway apron will be replaced.

Figure 3 – Initial Concept Plan[7] for the Mirror Lake Improvements Project, Including Potential Alternate Designs (by Towers Golde)

[7] This is an early concept plan used for preliminary illustration purposes. It is not intended to represent the final design of the Mirror Lake Improvements project.

To allow for the required 1-foot of freeboard, and to accommodate a 500-year SDF, the dam/berm will be raised approximately 2 feet to an elevation of 590 feet, which is higher than the peak water surface elevation at of 588.9 feet at the current 500-year SDF.[8] Prior to adding new fill, the existing topsoil will need to be removed and the existing embankment fill will need to be compacted. Any weak or unstable areas identified during compaction will be excavated and replaced with engineered fill, and the upstream and downstream slopes of the proposed embankment will be constructed at a slope ratio of 3 horizontal to 1 vertical to ensure bank stability.

On the upstream slope, riprap will be added from the upstream toe of the embankment to 1 foot below the top of dam to provide erosion protection and improve the stability. A conventional toe drain will be constructed at the downstream embankment toe to help lower the shallow groundwater at the toe of the dam, lower the groundwater table through the dam, and improve stability. The toe drain will discharge to the downstream channel that will consist of a concrete apron that transitions to the Roberts Brook side channels that will be lined with riprap for additional erosion/scour protection.

Dredging and Improvements to Aquatic Health

Accumulated sediment from stormwater runoff is a key contributor to the poor health of the lake. Removing (or dredging) the existing sediment, and preventing or slowing the buildup of future sediment, is an important factor in improving the health of the lake.

As part of the Proposed Action, hydraulic dredging will be used to remove the soft sediments that have accumulated in the lake from stormwater runoff. This can be achieved without having to drain the lake by hydraulically dredging the lake up to a depth of approximately 6 feet and storing an estimated 19,600 cubic yards of dredged soft sediments in large geotextile dewatering tubes to dry before transporting them to their final disposal location.

A temporary sediment dewatering area will be constructed near the Proposed Action. Current areas under review and consideration include the Manchester Hall parking lot and area of campus adjacent to Mirror Lake known as the "Great Lawn" (see **Figure 1**). The area will be constructed with temporary soil fill to create a level pad to stage approximately 14, 75-foot by 200-foot geotextile tubes, a swale to collect water discharged from the tubes, and a sump pump to return clarified water to Mirror Lake. A barrier will be set up around the perimeter of the pad, and a heavy-duty poly film covering will be used to provide containment of water to be discharged from the geotextile tubes. At the completion of hydraulic dredging and dewatering of sediments, all equipment will be demobilized from the site. A site earthwork contractor will be engaged to remove and dispose of sediments and used geotextile tube materials, remove temporary fill, and restore the dewatering area to pre-construction conditions.

As stated in the 2021 BVH feasibility study (BVH, 2021), to achieve further improvements to aquatic health, and better manage stormwater and associated sediments entering the lake, it is proposed that approximately 26,800 cubic yards of additional native till soil material be mechanically dredged from the lake by means of conventional excavation to deepen the bottom of the lake up to 9 +/- feet below the current spillway elevation (GZA, 2021c).

[8] The current 500-year SDF is based on precipitation data from the NOAA Atlas 14 Precipitation Frequency Atlas of the United States (see https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=ct).

Stormwater Management Improvements

Additionally, as stated in the Dam Safety Improvements section above, there are 7 inlets that discharge into Mirror Lake. While the University has installed hydrodynamic separators at each inlet, they are not able to prevent some of the sediments and nutrients from entering the lake via stormwater runoff. The Proposed Action will include the installation of sediment forebays at each discharge point to capture and treat additional sediment and nutrients not collected and treated by the existing separators. The Proposed Action will reroute 4 of the 7 existing discharge points to allow for a total of 3 forebays – 2 on the west side of Mirror Lake and 1 on the south side of Mirror Lake. On the south side of Mirror Lake where there is a 42" storm pipe that transitions to two 24-inch pipes prior to discharging to the lake, hydrodynamic separators will be installed on each of the 24-inch pipes to allow for additional sediment removal and reduced maintenance.

Landscape Improvements

The proposed landscape improvements around Mirror Lake will allow the University to expand access to the water's edge and further amplify the lake's role as an important recreational, educational, and historical asset on campus – two key, near-term goals of the Campus Master Plan.

Currently, there exists little landscape variation or amenities to attract visitors and others from the campus community to the water's edge. The Proposed Action will address this issue in part by providing shoreline and littoral zone plantings in curvilinear beds that improve the visual aesthetic of the lake and lead the eye around the lake, granting it a distinct sense of place. These plantings will also function as an additional filter for stormwater runoff, contributing to the overall improvements to aquatic health described in the section above.

In additional to the natural landscape improvements, during the final design phase, the feasibility of addressing the need for increased access and accessibility to the water's edge by incorporating a promenade around one end of the lake, which leads to an overlook and shelter that will extend over the water, will also be assessed. This promenade may also serve an additional functional role of providing separate between the lake and forebays. The Proposed Action may also include transformation of the existing island, which is inaccessible in its current state, into a destination by providing a pedestrian bridge that allows access for visitors. New site amenities can also serve as sites for additional outdoor education opportunities.

Stream Restoration and Riparian Enhancement

Stream restoration of Roberts Brook and riparian enhancement activities are proposed to improve water quality and stormwater management, and enhance habitat. Roberts Brook will generally remain within the existing footprint with alterations to the streambed width and meanders expected from: widening of Roberts Brook at three locations, placing boulders within widened areas, replacing the streambed material with channel bed stone, and minor reshaping. An increase to lateral stream sinuosity increases the distance water travels, reduces the waters velocity, and consequently reduces susceptibility to bank and bed erosion. The inclusion of boulders in the design is also expected to result in long-term benefits to Roberts Brook by providing areas of reduced velocities, increased oxygenation, and increased diversity of habitat for fish and aquatic organisms. In addition, an approximately 16-foot-long culverted section of Roberts Brook will be daylighted.

The proposed work within the riparian zone of Roberts Brook includes grading for stormwater management features (rain garden), 25,000 square feet of riparian plantings, and pedestrian access improvements. Similar to landscape improvements described above, riparian plantings will improve aesthetics and serve as an additional

filter for stormwater runoff before reaching Roberts Brook. The existing headwall and culvert conveying Roberts Brook beneath Storrs Road (Route 195) will remain. Currently there are no pedestrian pathways in the vicinity of Roberts Brook, although pedestrians can cross Roberts Brook at the culverted section. This crossing will be replaced with an eight-foot wide and 25-foot long pedestrian bridge. Paved pedestrian pathways both east and west of Roberts Brook are proposed from the dam crest, over the proposed bridge crossing, and to existing walkways at the north side of the project area. Standard acorn pole lights are proposed along the pedestrian pathway to allow for use after dark.

1.4 Public Participation and Agency Coordination

Public input and participation and coordination with local, regional, state, and federal agencies are integral parts of the CEPA process. CEPA requires an early public scoping process to identify issues of concern related to the Proposed Action through coordination with interested persons and affected agencies. Scoping begins with the publication of a scoping notice in the Environmental Monitor, a semi-monthly online publication of the Council on Environmental Quality (CEQ)[9]. The scoping process includes a 30-day public comment period during which governmental agencies, as well as other organizations and the public, can submit comments on the proposed project and request a public scoping meeting. During the preparation of an EIE, the sponsoring agency must consider the issues raised and comments received during scoping.

A scoping notice for the Mirror Lake Improvements project appeared in the November 16, 2021 edition of the Environmental Monitor (see Appendix A), beginning the 30-day scoping period. During the scoping period, a virtual public scoping meeting was held on December 8, 2021. A copy of the slide presentation can be found in Appendix A. The meeting was livestreamed, and the recording of the meeting can be viewed at https://tinyurl.com/336ak3d7. Public comments were received during the public scoping meeting, in addition to written comments received during the public scoping period. Copies of public comments received during the scoping period are provided in Appendix A.

In addition to project scoping, the additional agency coordination occurred between the UConn and CT DEEP, as a Request for Natural Diversity Data Base (NDDB) State Listed Species Review for the Mirror Lake Improvements project was submitted on January 4, 2022. See Appendix B for a copy of the response to the request from CT DEEP on January 7, 2022.

A post-scoping notice for the Mirror Lake Improvements project also appeared in the February 22, 2022 edition of the Environmental Monitor (see Appendix A).

Formal notice of the availability of this EIE has been published in the Environmental Monitor on April 5, 2022. An electronic copy of this document is also available on the UConn University Planning, Design and Construction (UPDC) website (https://updc.uconn.edu). A hard copy may be made available to the public upon request by contacting Ian Dann (ian.dann@uconn.edu).

[9] See https://portal.ct.gov/CEQ/Environmental-Monitor/Environmental-Monitor/Environmental-Monitor---Current-Issue.

2 Alternatives Analysis

The Connecticut Environmental Policy Act (CEPA) requires state agencies undertaking a Proposed Action that may result in potential significant effects on the environment to consider reasonable alternatives – particularly alternatives that might enhance environmental quality or avoid potentially adverse environmental impact. This section describes alternatives that were considered in addition to the Preferred Alternative mentioned earlier in Section 1.3 (as the Proposed Action) and below in Section 2.3. These include the No Action alternative and other reasonable alternatives with regards to their ability to meet the project purpose and need (see Section 1.2) and the potential environmental considerations associated with each alternative. The No Action alternative (i.e., the baseline for analysis of impacts under CEPA) and Proposed Action are further evaluated in Section 3.

2.1 No Action Alternative

Under the No Action Alternative, the proposed stormwater management, dam safety, dredging, aquatic health, and landscape improvements to Mirror Lake would not be made. The Campus Master Plan (UConn & SOM, 2015a) and recent Mirror Lake Improvements Feasibility Study (BVH, 2021) highlight the need for these improvements to:

- Address dam and spillway safety deficiencies documented in recent regulatory dam inspections and hydrologic analysis conducted by GZA GeoEnvironmental Inc. (GZA, 2016, 2019, 2020, 2021b)
- Better manage current and future stormwater runoff to maintain at least 1 foot of freeboard during the spillway design flood (SDF) in keeping with CT DEEP Dam Safety Regulations and the 2020 MOU agreement between UConn and CT DEEP (DEEP & UConn, 2020)
- Improve aquatic health and water quality by addressing the issues associated with excessive aquatic plant growth, algal/cyanobacterial blooms, elevated and problematic nutrient loads, nuisance geese populations, and sediment accumulation shown in previous studies of the lake (GZA, 2021a; Lenard Engineering, 2003; Milone & MacBroom, 2009; Northeast Aquatic Research, 2015)
- Enhance the function of the lake as an iconic landmark on campus (UConn & SOM, 2015b, p. 9)

The No Action Alternative would therefore fail to address the need for these improvements and the purpose of the project, which are described in more detail in Section 1. Consequently, the No Action Alternative was rejected by the University.

2.2 Alternative Actions

Alternative actions for the improvements to Mirror Lake were assessed throughout the project planning process and documented in a recent feasibility study published by BVH (BVH, 2021). As was noted in the study, while these alternative actions may provide a cost savings to UConn, they do not completely meet the needs of the project or provide the same level of benefits as the Preferred Alternative. One alternative that did not include specifically addressing the dam safety concerns or dredging is described in Section 2.2. Other alternatives considered focus on dam and spillway design and alternatives for in-lake sediment removal. Landscape features are likely to be finalized through the later stages of design but are not anticipated to result in significantly different potential impacts from the alternative shown in **Figure 1**, especially potential impacts to natural resources. As a result, this alternatives analysis focuses on the actions associated with the dam and spillway, dredging methods and approach, and management of in-lake sediment.

Enlarge the Footprint of Mirror Lake and Raise the Berm

In a previous study, BVH presented an option to enlarge the footprint of the lake and raise the berm without deepening the lake or altering the spillway. Forebays and removal of soft sediment were recommended with this option, and this alternative was strictly focused on improving stormwater management and runoff quality. Although this alternative was not favored due to the changes it would create to the visual and aesthetic character of this area of the Storrs Campus south entrance and Great Lawn, ultimately this alternative was not selected for further consideration because it failed to address the current deficiencies associated with the Mirror Lake Dam. This alternative would not address safety concerns associated with inadequate factors of safety against slope stability and sliding for the spillway and inability to pass the current 100-year flood volume with 1-foot of freeboard. In addition, aquatic health considerations were not addressed under this alternative.

Dam and Spillway Alternatives

To address the current deficiencies associated with the dam, all the alternative actions considered include improvements to the dam and spillway as described in the Proposed Action in Section 1.3. It should be noted that the selection of a preferred design for the dam and spillway was based on an Incremental Damage Analysis (IDA) of the proposed dam configuration to recommend an appropriate Spillway Design Flood (SDF). This approach is consistent with methods recommended by the Federal Emergency Management Agency (FEMA) and the Federal Energy Regulatory Agency (FERC) for dam safety analysis, and the dam failure analyses were performed in accordance with guidance provided by CT DEEP.

In an IDA analysis, hydrologic and hydraulic modeling of downstream flooding impacts with and without dam failure is compared to determine at what flow the increase in flooding due to the dam failure is no greater than flooding impacts that would occur without the dam failure. These tend to be higher flow events where downstream flooding is already of a significant magnitude in the absence of a dam failure. For the Mirror Lake Dam, the IDA analysis determined an SDF equivalent to the current 500-yr flood event.[10] Specifically, the IDA analysis found that Route 195, located downstream of the dam, is subject to damage and/or destruction during the current natural 500-year flood with or without dam failure. As a result, the incremental consequence of dam failure during the current 500-year design flood was insignificant relative to flooding damage that would exist without a dam failure. As a result, the current 500-year flood was selected as the SDF.

Other alternatives associated with the Proposed Action are related to landscape alternatives and in-lake alternatives addressing the type and amount of sediment removal. The Preferred Alternative described in Section 1.3 describes the anticipated maximum extent of landscape improvements that would be included with the project. As such, the assessment of potential impacts described in Section 3 is broad. Any changes in the landscape elements as the project moves to final design and construction are likely to be reductions and result in less impact than the potential impacts identified and assessed in this EIE. For the purposes of this EIE, to be consistent with the recent Schematic Design documents for the project (BVH, 2022; BVH, Towers Golde, et al., 2022), the Proposed Action can be defined as consisting of "base" and "alternate" elements. The "base" elements consist of the dam and spillway improvements and lake dredging. "Alternate" elements are: (1) a 20'x30' shelter located on the eastern side of Mirror Lake, (2) the pedestrian bridge from the western side of Mirror Lake to the island within the lake, (3) a streamside rain garden ("stream garden")

[10] Precipitation and modeled flows associated with the 500-yr are described in (BVH, 2021, sec. 4).

downstream of the dam along Roberts Brook, (4) a concrete pedestrian promenade extending from the shelter along the eastern edge of Mirror Lake (see **Figure 3**).

In-Lake Sediment Alternatives

Hydraulic Dredging of Soft Sediment Only and No Sedimentation Forebays

Hydraulic dredging of just the soft sediment in the lake (i.e., avoiding the additional mechanical dredging of hard bottom soils) would address the clear need to remove nutrient-rich sediments from Mirror Lake documented in several prior studies (Lenard Engineering, 2003; Milone & MacBroom, 2009; Northeast Aquatic Research, 2015). However, this would only increase depth in Mirror Lake by up to 6 feet. While this would provide some improvement, as outlined in the recent feasibility analysis (GZA, 2021a), additional hard bottom soils would need to be excavated to further improve water quality, the health of the lake, and stormwater management controls needed to meet the 2020 MOU with CT DEEP (DEEP & UConn, 2020) and CT DEEP Dam Safety Regulations.

Additionally, as noted in the BVH feasibility study (BVH, 2021, p. 8), sediment would likely continue to accumulate in the lake over time without the installation of the forebays. Therefore, without these in place, stormwater management strategies for future development in the Roberts Brook subwatershed would need to be reviewed with CT DEEP.

Because this alternative failed to meet the need to provide adequate freeboard in Mirror Lake and would not address stormwater management issues, it was eliminated from further consideration.

Mechanically Dredge Soft Sediment and Hard Bottom

Mechanically dredging both the soft sediment and hard bottom may be less costly than hydraulically dredging the soft sediment and mechanically dredging the hard bottom, as it is likely costs associated with dewatering of hydraulically dredged sediment could be eliminated. However, despite a significant trade cost savings, this approach may result in more water quality and habitat impacts. Although this alternative dredging approach could address the freeboard requirements described in Section 2.2, compared to conventional, mechanical dredging, hydraulic dredging has the benefits of causing less suspension of sediment and less mortality to certain aquatic wildlife. For this reason, hydraulic dredging of soft sediment was recommended in the 2009 Mirror Lake dredging plans prepared by Baystate Environmental Consultants[11] (BEC) due to the environmental sensitivity of Roberts Brook and the Fenton River downstream of Mirror Lake (BVH, 2021, p. 5).

Mechanically Dredge Less Material

The proposed 9 +/- feet maximum dredging depth of Mirror Lake was based on limnologist recommendations (GZA, 2021a). While one of the previous studies of Mirror Lake has argued that dredging need only target the upper organic (or soft) sediment layer (Northeast Aquatic Research, 2015), the most recent assessment by GZA – and one prior study by Milone and MacBroom – have both noted the importance of removing significant amounts of deep till layers (GZA, 2021a; Milone & MacBroom, 2009) to address the Purpose and Need for the project.

[11] BEC is now part of GZA.

These assessments note that if Mirror Lake were only dredged to 5 to 6 feet, the entire bottom of the lake would remain within the photic zone (zone of light penetration), which would support the growth of aquatic plants and filamentous algae – further deteriorating the health of the lake. If dredged deeper with a gradual slope from shore to deep center (GZA, 2021a, p. 5), the lake would support a variety of emergent and submerged vegetation, which would enhance the overall landscape aesthetics while also allowing for more open water in the center of the lake.

Allowing for more open water in the center of the lake would provide a larger volume of water to be retained in the lake and likely sustain conditions for a longer timeframe before repeat dredging would be needed – both enhancements that would improve the lake's function as a stormwater basin.

2.3 Preferred Alternative

The Preferred Alternative to emerge from the planning process is shown in **Figure 1**. This alternative allows for the necessary improvements to Mirror Lake to be made to address the purpose and need for the Proposed Action highlighted above in Section 2.1. Consequently, the design shown in **Figure 1** was selected as the Preferred Alternative, which was carried forward for analysis as summarized in this Environmental Impact Evaluation document. As described in Section 1.2, the Preferred Alternative includes the following "Base" and "Alternate" elements:

- Dam safety improvements, including replacing the existing spillway with a stepped spillway and raising the dam's earthen embankment (Base)
- Stormwater management improvements, including the rerouting of several discharge points into sedimentation forebays and regrading of upstream and downstream slopes (Base)
- Dredging and improvements to aquatic health, including the use of hydraulic and mechanical dredging to remove accumulated sediments and deepen the lake (Base)
- Landscape improvements, including littoral zone plantings (Base) and site-specific amenities (e.g., pedestrian bridge, promenade, shelter, stream garden) that enhance cultural benefits and improve access to the water's edge (Alternates).

3 Existing Environment and Impact Evaluation

3.1 Environmental Resource of No Significant in the Project Area

Some environmental resources do not occur in the project area and consequently would not be affected by the Proposed Action. These resources, described below, are not included in the description of existing conditions or analysis of impacts in this EIE:

- **Aquifer Protection Area** – The project area is not within an identified Level A or Level B aquifer protection area (CT DEEP, 2022).

- **Consistency with Connecticut Coastal Management Act** – The project area is located outside of the coastal boundary, as defined in C.G.S. Section 22a-94(b), and consequently is not subject to the provisions of the Connecticut Coastal Management Act, Sections 22a-90 through 22a-112.

- **FEMA Flood Zone** – According to the Federal Emergency Management agency (FEMA) Flood Insurance Rate Map (Community Panel 090128 005 C, effective January 2, 1981),[12] the project area is not located within the 100-year or 500-year flood zones.

- **Sole Source Aquifers** - The project area contains no sole source aquifers, as identified by the U.S. Environmental Protection Agency (US EPA, 2022a).

- **Farmland Soils** – Natural Resource Conservation Service (USDA NRCS, 2022) soils mapping shows no prime farmland soils or farmland soils of statewide importance within the project area. Therefore, the project will not have impacts to farmland soils.

3.2 Consistency with Planning

State Conservation and Development Policies Plan

The Proposed Action seeks to make much-needed improvements to Mirror Lake by addressing dam and spillway safety deficiencies, better managing stormwater runoff, and improving the aquatic health, water quality, and function of the lake as an iconic landmark on campus. These actions are consistent with the State of Connecticut's current Conservation and Development Polices Plan (State C&D Plan) (OPM, 2013), as well as the revised draft of the updated 2018-2023 State C&D Plan (OPM, 2017), which has yet to be adopted. Consistency with the State C&D Plan is required by Connecticut General Statues (CGS) Section 16a-31 because the Proposed Action will use state funds to develop/improve real property at a cost in excess of $200,000.[13]

[12] The current Flood Insurance Rate Map (FIRM) for the project area (0901280005C) can be found at: https://msc.fema.gov/portal/search. Note: The only revision to this 1981 FIRM was made on January 11, 2019, and addresses changes to the mapping of Eagleville Book approximately 1,140 feet upstream of Hunting Lodge Road to approximately 920 feet upstream of North Eagleville Road. This area is not near the Proposed Action, and the current FIRM mapping continues to classify the area around Mirror Lake as Class C – Area of minimal flooding.

[13] See here for a link to CGS Section 16a-31: https://www.cga.ct.gov/current/pub/chap_297.htm.

Consistency with the current State C&D Plan is demonstrated in several ways:

- The Proposed Action promotes the following smart growth principles defined by Public Act No. 09-230 (2009):
    - The redevelopment of existing infrastructure and resources, including, but not limited to brownfields and historic places
    - The conservation and protection of natural resources by (i) preserving open space, water resources, farmland, environmentally sensitive areas and historic properties, and (ii) furthering energy efficiency
- The Proposed Action also conforms with several of the State C&D Plan's Growth Management Principles (GMP) and associated policies. While some of the GMPs address issues that are outside the scope of the project (e.g., housing, transit, and broad-scale planning), the following GMPs are directly relevant and supported by the Proposed Action:
    - GMP #1 – Redevelop and Revitalize Regional Centers and Areas with Existing or Currently Planned Physical Infrastructure(OPM, 2013, pp. 8–9, 2017, pp. 7–8): The location of the Proposed Action is in an urban area with connections to existing infrastructure (e.g., public water, sewer, etc.). Additionally, the Proposed Action is intended to ensure the safety and integrity of existing infrastructure over its useful life by making much-needed safety and operation improvements to the Mirror Lake Dam and dredging soft and hard bottom sediment material. It is anticipated that the Proposed Action will also promote the continued use of Mirror Lake as an iconic landmark on campus.
    - GMP #4 – Conserve and Restore the Natural Environment, Cultural and Historical Resources, and Traditional Rural Lands (OPM, 2013, pp. 18–20, 2017, pp. 17–19): The Proposed Action will contribute to the planned South Woodland on the UConn campus, restoring connectivity to its local and regional ecological setting. The Proposed Action will also utilize sound stormwater management design, including green infrastructure practices, that are intended to have a positive impact on the water quality of the Roberts Brook sub-watershed.
- Pursuant to the requirements of CGS Sec. 16a-35c,[14] the Proposed Action meets the definition of a growth-related project and is located within Priority Funding Areas (PFA) indicated on the Locational Guide Map.[15]

Local Zoning and Planning

As a state institution, the University of Connecticut is not subject to local zoning regulations. Nonetheless, the Proposed Action is consistent with future land use designations identified by the Town of Mansfield's 2015 Mansfield Tomorrow: Plan of Conservation and Development (Town of Mansfield, 2015). The location of the Proposed Action is designated for institutional use and falls within the UConn Core Campus area as defined in the Plan of Conservation and Development. The Town's preferred design characteristics for that area include mixed academic and residential use characterized by "large footprint, multi-story buildings with support facilities, including utilities…limited vehicular access and a strong pedestrian and bicycle network" (Town of Mansfield, 2015, p. 8.36). The components of the Proposed Action are consistent with this intended use.

[14] See here for a link to CGS Section 16a-35c: https://www.cga.ct.gov/current/pub/chap_297a.htm#sec_16a-35c.
[15] See here for a link to the Locational Guide Map: https://ctmaps.maps.arcgis.com/apps/webappviewer/index.html?id=ba47efccdb304e02893b7b8e8cff556a.

Additionally, the Proposed Action's plantings and landscape improvements, particularly its connection to the planned South Woodland Corridor and proposed on-site stormwater management, is consistent with several of the general Community Design Concepts defined in the Plan of Conservation and Development, including (Town of Mansfield, 2015, p. 8.14):

- Providing focal point for units such as a central green
- Incorporating natural features of site into design as amenities
- Integrating stormwater as a site amenity

Lastly, given the Proposed Action's location in the Core Campus, the project is consistent with the Town's Conservation and Development Plan, Goal 8.1, Strategy D, Action 1, which states: "Encourage UConn to focus development and non-agricultural activities in the Core Campus, North Campus and Depot Campus areas" (Town of Mansfield, 2015, p. 8.47). This action encourages the redevelopment in existing campus areas as a means for the Town to preserve its rural character and minimize impacts on adjacent neighborhoods.

University Planning

The Proposed Action is consistent with UConn's planning, as exemplified by the UConn Campus Master Plan (UConn & SOM, 2015a). The Mirror Lake Improvements were identified in UConn's Campus Master Plan as a key near-term landscape project aimed at amplifying the University's commitment to sustainable, resilient landscapes and enhancing Mirror Lake's function as a ceremonial entry to the South Campus (UConn & SOM, 2015a, p. 104). These aims will be met by the Proposed Action in the following ways.

- The Mirror Lake Improvements project will be implemented in accordance with the Master Plan's "Campus District Guidelines" (UConn & SOM, 2015a, pp. 70–101), which call for the creation of a Heritage District that includes existing historic structures/landscapes and can be reinforced and better defined through landscape improvements and improved pedestrian access. (See **Figure 4**.)

Figure 4 – Rendering of the Vision for Mirror Lake Improvements with a View Looking West along the South Side of Mirror Lake from the Campus Master Plan (UConn & SOM, 2015a, p. 44)

- In keeping with the "Master Plan Vision" from the Campus Master Plan, the Proposed Action will also introduce new plantings, improve dam/spillway and landscape features, and incorporate attractive site amenities intended to reinforce a sense of place, provide safety and ecological benefits, and improve access to water's edge. These actions are in keeping with UConn's vision of better integrating Mirror Lake with a campus woodland corridor (see Figure 5) and improving the health and hydrological performance of the lake as a key element of the new ceremonial entry to campus (UConn & SOM, 2015a, pp. 40 & 44).

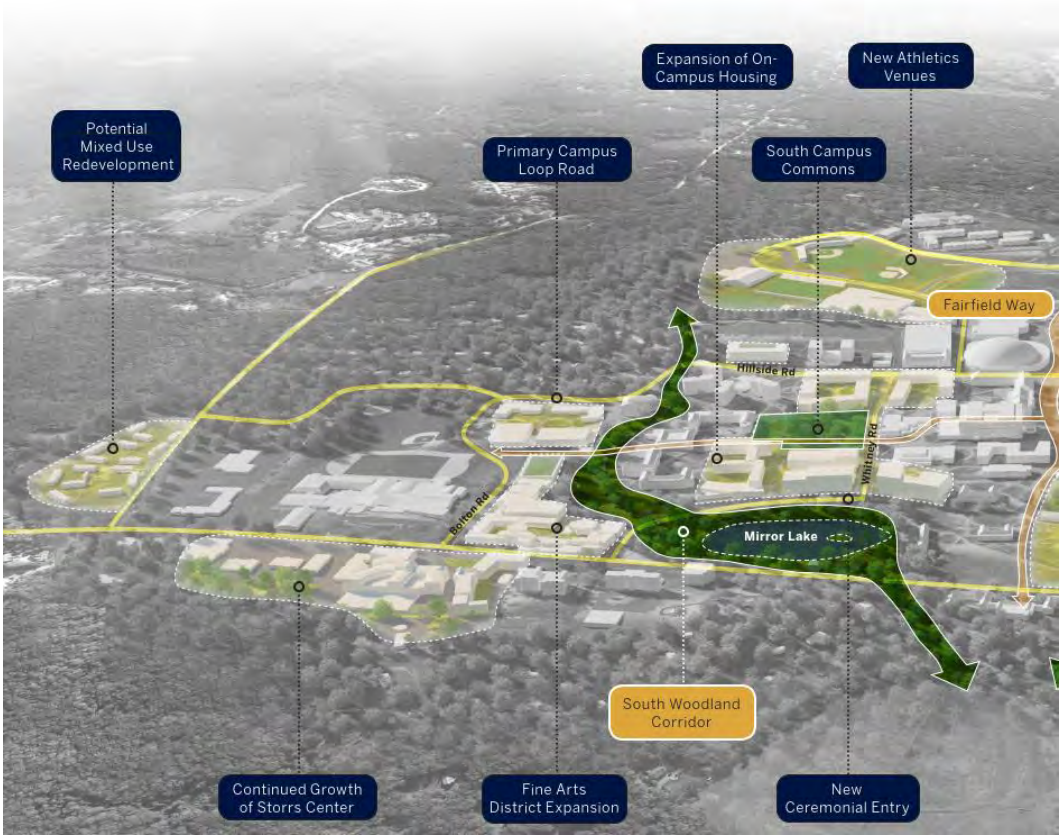

Figure 5 – Overview of Major Campus Initiatives Adapted from the Campus Master Plan, Highlighting the Location of Mirror Lake along the Planned South Woodland Corridor (UConn & SOM, 2015a, p. 46)

3.3 Geology, Topography, and Soils

3.3.1 Existing Condition

Mirror Lake is located within a depressed area in which all the surrounding slopes drain to it. The slopes are more gradual to the southeast, south, and west of Mirror Lake towards Storrs Road and Mansfield Road, respectively. The dam is found on the north side of Mirror Lake and includes steeper slopes along the embankment. Elevation of the site ranges from 586 feet[16] generally along the bank of Mirror Lake to 600 feet

[16] All elevations are referenced to NAVD88.

along Storrs Road and Mansfield Road (CT DEEP & UConn CLEAR, n.d.). The top of the existing berm at the low point of the bridge is at 588 feet.

Soils surrounding Mirror Lake are designated by the Natural Resources Conservation Service (NRCS) as primarily Udorthents-Urban Land Complex (USDA NRCS, 2021; **Figure 6**). These soils have been influenced by site development, including filling and grading, and are mostly covered by paved areas, lawn, buildings, and/or other structures making the soil properties varied and unknown. The estimated saturated hydraulic conductivity ranges from 0.0 to 1.98 inches per hour. The Hydrologic Soil Group (HSG) classification is "Group B." Group B soils generally have a moderate infiltration rate when thoroughly wetted and consists chiefly of moderately-deep to deep, moderately-well to well drained soils with moderately-fine to moderately-coarse textures. No Prime Farmland Soils or Soils of Statewide Importance are present on the site.

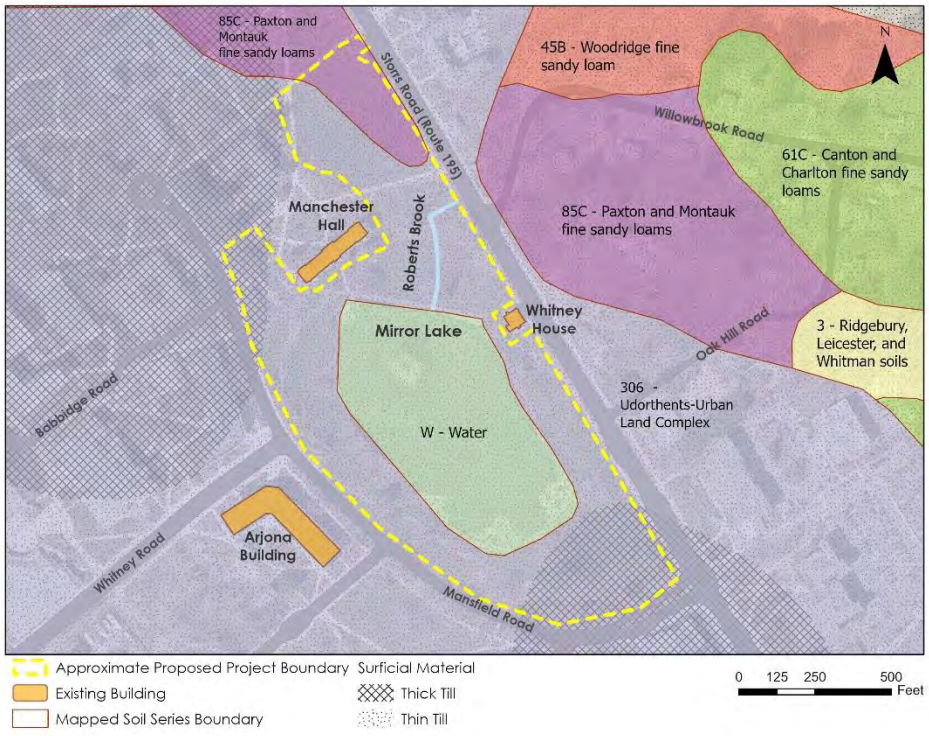

Figure 6 – Soils Surrounding Mirror Lake as designated by the Natural Resources Conservation Service (NRCS)

Beneath the soil layer, surficial materials on the site are glacial ice-laid deposits consisting of non-sorted, generally non-stratified mixtures of grain-sizes ranging from clay to large boulders. The deposits at the project site are mapped primarily as thin till, which are areas where till is less than 10 to 15 feet thick. The till is predominantly upper till which is loose to moderately compact, generally sandy, commonly stony (CT DEEP & UConn CLEAR, 2022). A portion of the project site's southern extent is mapped as thick till, with till thickness generally exceeding 10 to 15 feet.

NRCS does not include soils data for Mirror Lake since it is mapped as water by NRCS. A 2021 bathymetric survey of the lake estimated a total of 19,600 cubic yards of soft sediment present in Mirror Lake with

sediment thicknesses ranging from < 1 ft to approximately 5 ft (BVH, 2022). Soft sediment is underlain by hard bottom sediment (glacial till) over bedrock, with depths to bedrock typically 19 to 28.5 feet below grade, corresponding to elevation 555.8 to 563.4 feet (NAVD88) (GZA, 2021c). Analysis of in-lake sediment quality relative to the CTDEEP Remediation Standard Regulations (RSRs) indicated that the sediments are impacted by Extractable Total Petroleum Hydrocarbons (ETPH), arsenic, polycyclic aromatic hydrocarbons (PAH), and pesticides. While the results of a few glacial till samples collected from below Mirror Lake sediments exceeded RSR,[17] the majority of glacial till materials are not impacted by contaminants (BVH, 2021; GZA, 2021c). Note that sediments and glacial soils located within the lake footprint are not considered a "waste" and subject to waste regulations, while in-situ, but once excavated the sediments and soils will need to be characterized and managed accordingly as hazardous waste, solid waste, or clean fill for reuse (i.e., clean fill) or disposal.

3.3.2 Impact Evaluation

No Action Alternative

Under the No Action alternative, no change or impact will occur to the existing geology, topography, soils, or sediments at or near the site.

Proposed Action

Under the Proposed Action, grading and site work will be necessary to improve dam safety, stormwater management, and enhance recreational access. Site grading adjacent to Mirror Lake and downstream of the dam, adjacent to Roberts Brook will result in more topographical variation of the project area. Based on the current Schematic Design (BVH, Towers Golde LLC, et al., 2022), regrading adjacent to Mirror Lake is required for the construction of three planted forebays along the southern and western boundaries of the lake, as well as for the possible installation of a concrete promenade surrounding Mirror Lake. The proposed grading along the banks of Mirror Lake is intended to increase topographic variation and promote revegetation of various strata of vegetation. Grading is also anticipated for the replacement of the spillway and improvements to Roberts Brook. Proposed activities within Roberts Brook include replacement of small portions of the streambed with channel bed stone, widening the streambed in select locations, and placement of boulders in the streambed. Grading directly adjacent to Roberts Brook is anticipated for construction of a rain garden and a pedestrian walkway (BVH, Towers Golde, et al., 2022). Grading may also be required if a planned pedestrian bridge spanning Mirror Lake is incorporated into the final design. According to the grading plan, reconstruction/relocation of the island will require importing 3,500 cubic yards of granular fill. This relocation of the island is required to ensure flow patterns and depths that will create a healthy ecosystem.

Soils and dredged materials will be re-used on-site to the maximum extent practicable. Approximately 19,600 cubic yards of soft sediment and 26,800 cubic yards of glacial till are anticipated to be removed from Mirror Lake as part of the Proposed Action. Disposal of excess dredged sediments and some glacial till at a licensed waste disposal facility is anticipated based on results from the 2008-2009 and 2021 laboratory analysis (See Sections 3.9 and 3.10 for further discussion). The majority of glacial till materials are not impacted by contaminants and based on their characterization can be removed from the lake bottom for reuse off-site as clean fill (BVH, 2021; GZA, 2021c).

[17] These included the Residential Direct Exposure Criteria (R-DEC), the Industrial/Commercial Direct Exposure Criteria (I/C-DEC), and the Pollutant Mobility Criteria for a GA groundwater area (GA-PMC).

The site topography and soils have already been historically modified, as they have been classified as Udorthents-Urban Land Complex soils. Portions of the Great Lawn topography may be temporary altered if a dredged sediment dewatering area is located there during construction. The topography of the Great Lawn will be restored to pre-project conditions when dewatering activities are complete. However, the Proposed Action is not expected to result in either direct or indirect adverse impacts to soils or topography of the already disturbed project area.

3.4 Water Resources and Water Quality

3.4.1 Existing Conditions

Surface Water

The proposed project area is located in the Fenton River watershed, a subregional basin within the larger Thames watershed. Topography of the proposed project area slopes down toward Mirror Lake, which has a surface area of approximately 4.7 acres. Mirror Lake impounds the headwater of a perennial watercourse, Roberts Brook. Roberts Brook flows generally north/northeast within a defined channel and passes under Storrs Road (Route 195) approximately 300 feet downstream of the dam. Outside of the proposed project area, Roberts Brook flows generally northeast for approximately 1.7 miles until it discharges into the Fenton River.

Inland waters in Connecticut are assigned a Water Quality Classification based on the Connecticut Water Quality Standards (2015). Mirror Lake and Roberts Brook are classified as AA waters, with designated uses including existing or proposed drinking water supply, fish and wildlife habitat, recreational use (may be restricted), agricultural and industrial supply. Discharges to Class AA waters are restricted to discharges from public or private drinking water treatment systems, dredging and dewatering, emergency and clean water discharges. Roberts Brook (CT3207-12_01) is listed as an impaired water on the 2020 State of Connecticut Integrated Water Quality Report (CT DEEP, 2020b) as a waterbody not supporting aquatic life, and unassessed for recreation. The cause of impairment (Habitat for Fish, Other Aquatic Life and Wildlife) is unknown, but stormwater was noted as a potential source in a previous Integrated Water Quality Report (CTDEEP, 2017). The figure below (**Figure 7**) shows local and subregional basins and water resources within the vicinity of Proposed Action.

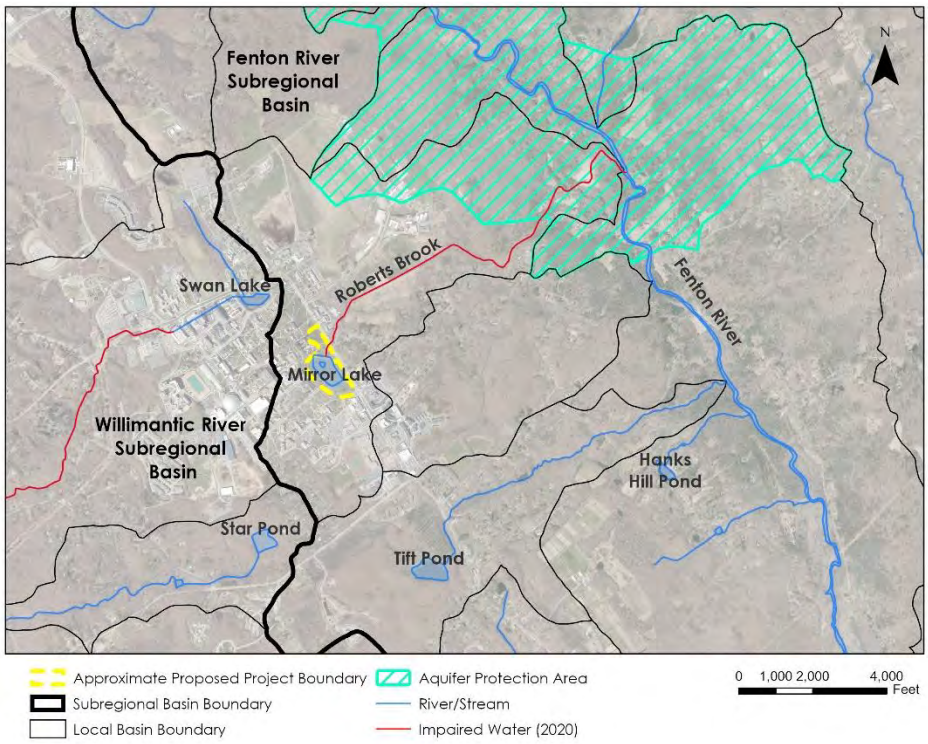

Figure 7 –Map Showing Local & Subregional Basins and Water Resources within the Vicinity of Proposed Action

Previous studies have identified multiple water quality issues at Mirror Lake including excessive aquatic plant growth, algal/cyanobacterial blooms, elevated and problematic nutrient levels, nuisance geese populations, and sediment accumulation. The Water Quality Study Report (Lenard Engineering, 2003) noted the following indicators of impaired water quality in Mirror Lake: high levels of total phosphorous and nitrogen, very poor light penetration, sparse plants, abundant floating filamentous algae, and episodes of low dissolved oxygen levels. A more recent report on Mirror Lake water quality conducted by Northeast Aquatic Research in 2015 described improved water quality compared to the 2003 report, likely a result of stormwater management actions on campus (Northeast Aquatic Research, 2015) and the suction harvesting of excessive aquatic vegetation and a proactive chemical treatment program. The 2015 report indicated lower nutrient content, algae with slightly limited phosphorous and nitrogen, less turbidity and greater light penetration, and dominance by emergent vegetation rather than algae (see **Figure 8**). A primary water quality concern identified in the 2015 study (and also present in the 2003 report) was that nutrient-rich sediment was easily resuspended into the water column.

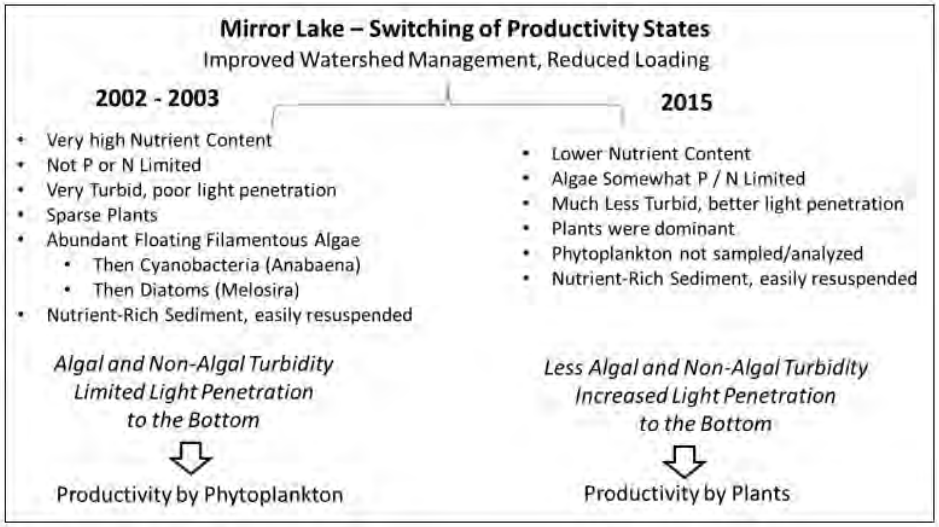

Figure 8 – Summary of Mirror Lake Water Quality and Productivity Changes (GZA, 2021a)

The Mirror Lake watershed is approximately 170 acres (or 0.27 square miles); 71% of the watershed is within the UConn Storrs campus, with the remaining 29% located with the Town of Mansfield (BVH, Towers Golde, et al., 2022). A Campus Drainage Master Plan was completed in December 2019 for Eagleville Brook and Roberts Brook Watershed (BVH, 2019). This Drainage Master Plan provides hydrologic analysis of the two watersheds to help guide development of the UConn Storrs campus while considering stormwater management. According to this Plan, impervious area in the Mirror Lake drainage area, which is located within both on-campus and off-campus areas, has increased by approximately 8.3 acres since 1993. This has resulted in increased flows and volumes of runoff into and out of Mirror Lake, as well as an increase in water surface elevations in Mirror Lake. Approximately 30% of the runoff volume into Mirror Lake is from non-UConn controlled areas (**Figure 9**).

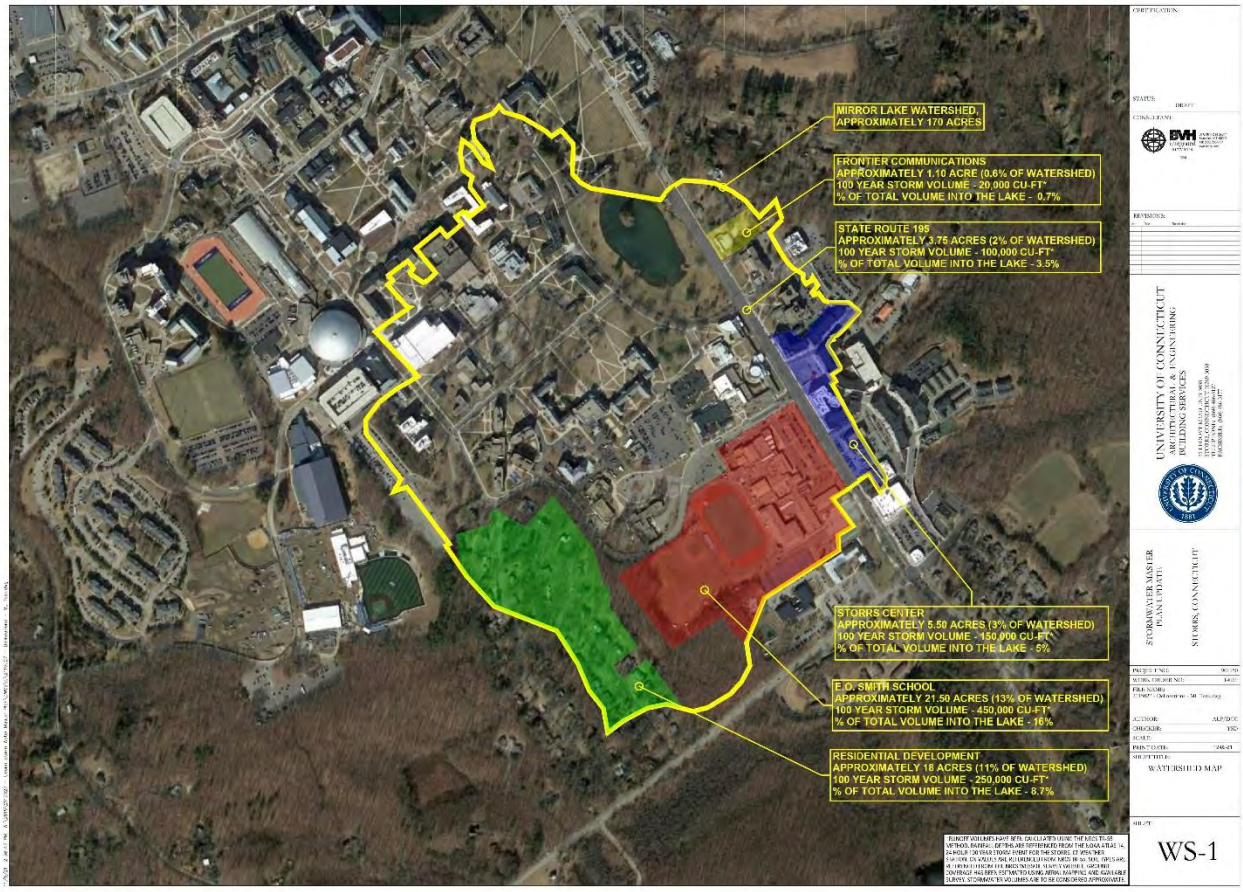

Figure 9 – Copy of Watershed Map from BVH Integrated Services, PC

Mirror Lake receives stormwater discharges from seven stormwater outfalls located on the UConn campus, E.O. Smith School campus, Route 195, and residential neighborhoods (BVH, 2021). According to the Storrs Campus Stormwater Management Plan, UConn maintains drainage outfalls for Mirror Lake and utilizes hydrodynamic separators (Storm-ceptors) to reduce sediment and pollutants prior to discharge (UConn, 2017). The separators are inspected monthly and cleaned out as needed. Although the separators reduce the amount of sediment and pollutants discharged, some sediment and pollutants are still discharged to Mirror Lake. The campus stormwater system is discussed in more detail in Section 3.16.

Groundwater

The quality of groundwater beneath the proposed project area is classified by CTDEEP as Class GAAs. This class designates groundwater used for existing or potential public supply of water suitable for drinking without treatment – baseflow for hydraulically connected surface water bodies. GAAs also include ground water that is tributary to a public water supply reservoir (CT DEEP & UConn CLEAR, 2022). The proposed project area is located within the drinking water watershed for Windham Water Works.

A portion of Roberts Brook, approximately one mile downstream (northeast) from Mirror Lake, is located within the Fenton River Aquifer Protection Area. Gravel-packed groundwater supply wells are located within this Aquifer Protection Area along the Fenton River, upstream and downstream of the confluence with Roberts Brook. The groundwater supply wells that are greater than 5,000 feet from the proposed project area generally to the northeast. An area approximately 0.25 miles northwest of Mirror Lake between North

Eagleville Road, and Glenbrook Road is designated as GA-impaired, indicating actual quality of groundwater does not meet the assigned classifications criteria for GA – the modified class designation unique to digital data.

Floodplain

According to the Federal Emergency Management agency (FEMA) Flood Insurance Rate Map (Community Panel 090128 005 C, effective January 2, 1981), the proposed project area is not located within the 100-year or 500-year flood zones. The proposed project area is located within Zone C, indicating areas of minimal flooding.

3.4.2 Impact Evaluation

No Action Alternative

Under the No Action Alternative, stormwater management, aquatic health, and water quality improvements would not be made. Mirror Lake will continue to function at sub-optimal stormwater management capacity, and as mentioned in Section 1.3, with no action taken, Mirror Lake would be unable to maintain the required one-foot freeboard during certain storm events (GZA, 2021b, p. 2) . Sediment from stormwater runoff will continue to accumulate within Mirror Lake and contribute to aquatic health and water quality issues of the lake. Under the No Action Alternative, Mirror Lake is expected to continue to experience excessive aquatic plant growth, algal/cyanobacterial blooms, elevated and problematic nutrient levels, nuisance geese populations, and sediment accumulation from stormwater into the lake.

Proposed Action

The Proposed Action will not result in an direct or indirect negative impacts to water resource and water quality, as it is intended to improve aquatic health and water quality by addressing the issues associated with excessive aquatic plant growth, algal/cyanobacterial blooms, elevated and problematic nutrient loads, nuisance geese populations, and sediment accumulation described in previous studies of the lake (GZA, 2021a; Lenard Engineering, 2003; Milone & MacBroom, 2009; Northeast Aquatic Research, 2015). Under the current Schematic Design (BVH, 2022; BVH, Towers Golde, et al., 2022), the Proposed Action includes the following elements to improve water quality, resulting in positive direct and indirect water quality benefits:

- Spillway Replacement – designed to better manage current and future stormwater runoff to maintain at least 1 foot of freeboard during the spillway design flood, therefore reducing the likelihood of dam overtopping and uncontrolled discharge downstream.
- Vegetated Forebays – designed to capture any sediment that may have bypassed by the separators and to treat some of the nutrients and other pollutants that the separators cannot treat. Includes rerouting four of the seven existing stormwater outfalls to a total of three new planted forebays, to reduce direct stormwater discharge to Mirror Lake.
- Hydrodynamic Separators – for additional sediment and pollutant removal prior to discharging to the lake, an existing hydrodynamic separator that received flow from two 24-inch pipes will be replaced with two separators for each pipe.
- Landscape Improvements – aim to increase vegetation within littoral zone and riparian zone to filter stormwater runoff. Plantings will also improve aesthetics at the lake.
- Dredging of Mirror Lake – will remove nutrient rich sediment susceptible to resuspension and phosphorus release into the water column and deepen the lake to improve overall aquatic health/water quality.

- Boulder Placement in Roberts Brook – increases turbulence and oxygenation of water. Boulder clusters also create habitat for fish other aquatic organisms.

Because of its stormwater management function, Mirror Lake will continue to receive nutrient-rich runoff. Nutrient-rich waters encourage the growth of either aquatic plants or algae or cyanobacteria and depending on the final depth of dredging, additional measures (e.g., artificial circulation, etc.) may be warranted in the future to avoid intermittent thermal stratification. This can result in low oxygen at depth and could provide a competitive advantage to cyanobacteria, which can create human health risks, odors, and impact aquatic health, over more desirable eukaryotic phytoplankton (green algae).

Refer to Section 3.19 for a discussion on construction-period impacts to water quality.

3.5 Wetlands

Inland wetlands and watercourses are regulated in the State of Connecticut by CGS, Chapter 440, Sections 22a-36 to 22a-45 (Inland Wetlands and Watercourses Act, IWWA). Wetland and watercourse resources located on property owned by the University of Connecticut are regulated by the Connecticut Department of Energy and Environmental Protection (CTDEEP) through the State Inland Wetlands and Watercourses Permit program. All-Points Technology Corporation, PC conducted a wetland delineation on December 3, 2021, and all flags were field located on December 3, 2021. On December 29, 2021, a Fuss & O'Neill, Inc. wetland scientist conducted a site investigation at Mirror Lake and the upper reach of Roberts Brook. The investigation consisted of reviewing the wetlands and watercourses, examining existing wetland delineation flag locations, and documenting existing vegetation and wildlife (**Figure 10**)

Figure 10 – Map Showing Delineated Wetlands and Watercourses in the Area of the Proposed Action

Mapping resources consulted during the investigation included the Web Soil Survey (WSS), provided by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) and compiled by the National Cooperative Soil Survey (NCSS), as well as National Wetlands Inventory (NWI) wetland mapping provided by the U.S. Fish and Wildlife Service.

3.5.1 Existing Conditions

The project area soils are classified as Udorthents-Urban land complex on the NRCS Web Soil Survey map of the area (see **Figure 6**). These soils have been influenced by site development, including filling and grading, and are mostly covered by paved areas, buildings, and/or other structures making the soil properties varied and unknown. Udorthents-Urban land complex are not rated as a hydric soil by NRCS.

According to the February 6, 2022 All-Points Wetlands Inspection Report (All-Points, 2022), Mirror Lake, Roberts Book, and a vegetated wetland bordering Roberts Brook were identified as wetland and watercourse resources subject to state and federal jurisdiction. Mirror Lake is a perennial waterbody, with a surface area of approximately 5 acres. The formation of Mirror Lake began in the 1920s when the existing marsh meadow/headwaters of Roberts Brook was impounded. Mirror Lake currently drains northeasterly via a spillway located approximately 220 feet west of Storrs Road. Limited bordering wetlands were identified along the lake boundary. Note that Mirror Lake largely serves as a stormwater management feature on the Storrs Campus, although it is identified as a perennial waterbody.

Roberts Brook measures approximately 1.7 miles in length and flows generally northeast from the base of the spillway, underneath multiple road crossing, until it discharges into the Fenton River. Roberts Brook consists of a 3-ft to 5-ft wide, well-incised, stone armored channel with a cobble and stone streambed (All-Points, 2022). A fringe vegetated wetland was identified bordering the banks of Roberts Brook and primarily consisted of narrow seeps and floodplain areas.

3.5.2 Impact Evaluation

No Action Alternative

Under the No Action alternative, no change or impact will occur to wetlands or watercourses at or near the site.

Proposed Action

The Proposed Action will result in the deepening of Mirror Lake by dredging and changes to the Mirror Lake boundary and size. This will result in a net loss of aerial extent of Mirror Lake and vegetated wetlands bordering Roberts Brook. UConn initiated consultation with CTDEEP, and as the design progresses, applicable state and federal permits will be submitted for the Proposed Action. Potential permits related to wetlands are identified in Section 6.

Under the Proposed Action, grading and site work will be necessary to improve dam safety and stormwater management and enhance recreational access. Mirror Lake will largely remain within the existing footprint, with modifications to the lake depth, boundary, and size resulting from dredging and excavation. Based on the current schematic design, the reduction in area and perimeter of Mirror Lake will be reduced by 10% (or less) compared to existing conditions. Although the aerial extent of Mirror Lake will be reduced by the proposed project, the proposed dredging will result increase the depth of the lake and have a positive impact

to overall water quality. Approximately 19,600 cubic yards of soft sediment will be hydraulically dredged, and 26,800 cubic yards of underlying glacial till well be excavated and removed from the lake. The hydraulically dredged sediment will be conducted at normal lake pool elevation. Following hydraulic dredging, Mirror Lake will be dewatered for the excavation of glacial till. The dewatering will temporarily expose the glacial till. Mechanical dredging will take place during low flow periods, and as noted in Section 3.19, measures will be put in place during the construction period to protect water resources and mitigate stormwater and water quality impacts from erosion and sedimentation in keeping with the *CTDEEP General Permit for the Discharge of Stormwater and Dewatering Wastewater Associated with Construction Activity* and the *Connecticut Guidelines for Erosion and Sedimentation Control.*

The aerial extent of Mirror Lake will also be reduced by the reconstruction of the island larger than the existing island. Approximately 3,500 cubic yards of granular fill are expected to be used for reconstruction of the island. To replace the existing vegetated borders of Mirror Lake, areas of aquatic and emergent planting are proposed along the boundaries of Mirror Lake and around the island to provide multiple vegetative strata and enhanced habit diversity within the lake.

The dredging and excavation of Mirror Lake is anticipated to restore water quality, as accumulated sediment from stormwater runoff is a key contributor to the current water quality impairments. In addition, the proposed vegetated forebays and riparian plantings adjacent to Mirror Lake are incorporated in the design to reduce pollutants expected from future stormwater loading to Mirror Lake.

Alterations to Roberts Brook between the spillway and crossing beneath Storrs Road (Route 195) are also anticipated from stream restoration activities. Based on the current schematic design, disturbance to resource areas associated with Roberts Brook will be approximately 1,750 ft^2 to 2,150 ft^2 depending on the landscape elements incorporated into the final design. The stream will generally remain within the existing footprint, with widening of the stream in select locations including at the base of the spillway and 115 ft and 203 ft downstream of the spillway. The streambed materials will be replaced with channel bed stone and placement of boulders is proposed within each of the three stream widening locations. The boulders will be locally sourced with an average size of 4-ft x 4-ft x 4-ft, and the channel stone will consist of locally sourced 4-inch to 6-inch rounded river cobbles installed to a depth of 12 inches. The proposed stream restoration will increase sinuosity, and the boulders will increase habitat diversity, reduce velocities, and create turbulence and oxygenation of the water.

A riparian planting area ranging in elevation of 572 feet to 576 feet (NAVD88) is located approximately 115 feet downstream of the spillway east of Roberts Brook. This depressional area may result in the expansion of wetland area at this location. Although permanent wetland loss is anticipated resulting from the widening of Roberts Brook and construction of the possible rain garden at the bend of Roberts Brook (near flag 1-53), the proposed possible rain garden and depression areas provide ecosystem functions associated with wetlands including groundwater recharge, sediment, pollutant, and nutrient removal, and flood flow alteration.

3.6 Natural Communities, Flora, and Fauna

Field visits to review natural communities in the Mirror Lake area were performed by All-Points Technology Corporation, PC (All-Points) and Fuss & O'Neill, Inc. (Fuss & O'Neill). All-Points conducted a wetland

delineation on December 3, 2021 and all flags were field located on December 3, 2021 (All-Points, 2022). On December 29, 2021, a Fuss & O'Neill wetland scientist conducted a site visit at Mirror Lake and the upper reach of Roberts Brook. The site visit consisted of reviewing wetlands and watercourses and documenting existing vegetation and wildlife.

3.6.1 Existing Conditions

The land area surrounding Mirror Lake and the upper reach of Roberts Brook are developed and maintained; there are only two buildings (Whitney House along Storrs Road to the east of Mirror Lake and Harry Grant Manchester Hall to the north) and limited impervious surfaces (walkways, Manchester Hall parking, surrounding roads) near these surface waters. Dominant vegetation is turfgrass (unknown graminoids), followed by: black oak (*Quercus velutina*), eastern white pine (*Pinus strobus*), red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), dogwood (*Cornus florida*), paper birch (*Betula papyrifera*), river birch (*Betula nigra*), sweetgum (*Liquidambar styraciflua*), eastern hemlock (*Tsuga canadensis*), and various ornamental trees (willow (*Salix sp.*), maple (*Acer sp.*), oak (*Quercus sp.*), crabapple (*Malus sp.*), etc.).

Direct wildlife observed during the site visit by Fuss & O'Neill included: eastern grey squirrel (*Sciurus carolinensis)*, American crow (*Corvus brachyrynchos*), black-capped chickadee (*Poecile atricapillus*), English sparrow (*Passer domesticus*), blue jay (*Cyanocitta cristata*), downy woodpecker (*Picoides pubescens*), tufted titmouse (*Baeolophus bicolor*), and dark-eyed junco (*Junco hyemalis*). Droppings of Canada geese (*Branta canadensis*) were observed on the lawns located east, south, and west of Mirror Lake. Other wildlife species may utilize Mirror Lake and the surrounding area, but no other direct observations or trace evidence of fish or wildlife usage were observed during the December 29, 2021 site visit.

Current Natural Diversity Database (NDDB) mapping, dated December 2021, indicates that portions of the project site are within areas of concern due to the potential occurrence of a state species of special concern in the vicinity of the project area (**Figure 11**).

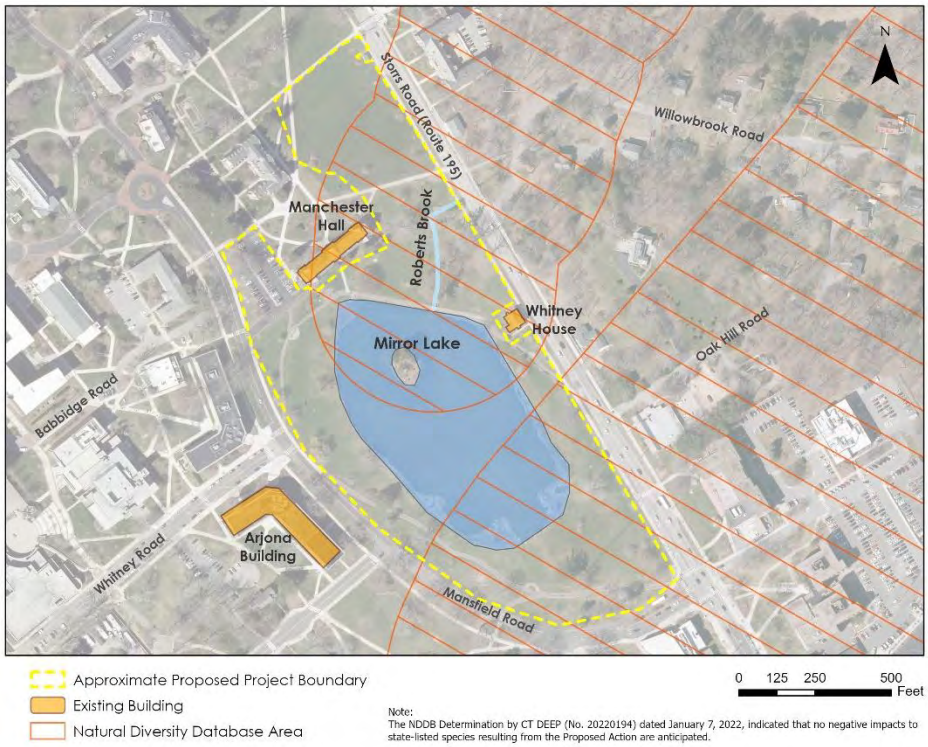

Figure 11 – Natural Diversity Database (NDDB) Mapping Surrounding the Project Area

The NDDB Determination by DEEP (No. 20220194) dated January 7, 2022, indicated that no negative impacts to state-listed species resulting from the Proposed Action are anticipated. In addition, no evidence of any state-listed species was observed during the December 29, 2021 site visit.

3.6.2 Impact Evaluation

No Action Alternative

Since no change to existing site conditions would take place under the No Action alternative, no direct or indirect impacts to existing natural communities in the project area would occur.

Proposed Action

The Proposed Action is anticipated to result in improvements to water quality and habitat diversity of Mirror Lake and Roberts Brook. Water quality improvements include removal of nutrient-rich sediment from the lake bottom and increased oxygenation of Roberts Brook resulting from the placement of boulders in multiple locations. Boulder clusters create velocity gradients, diversity of water depth and substrate, and therefore increase habitat diversity within the streambed. Lower velocity areas at the boulder clusters may provide refuge areas for fish and microhabitats for other aquatic organisms (Washington State Department of Forestry, 2004). Fish habitat improvements and potential fish stocking of Mirror Lake are being considered during the final design and permitting phase. CTDEEP has indicted general support for the Proposed Action since deepening of the lake would project additional habitat diversity and offer overwintering habitat for fish (see Appendix A, Brunza, 2021). Temporary habitat impacts during project construction are discussed in Section 3.19.

The proposed design also includes the following to address long-term water quality improvements: construction of three (3) planted forebays around Mirror Lake, littoral and riparian zone plantings around Mirror Lake and Roberts Brook, and installation of two hydrodynamic separators to further manage stormwater quality discharging to Mirror Lake. Refer to Section 3.4 for addition details on water quality improvement.

NDDB review of the Proposed Action (see Appendix B) indicated no negative impacts to state-listed species are anticipated. According to the Official Species List generated from the Information for Planning and Consultation (U.S. Fish & Wildlife Service), two federal threatened, endangered, or candidate species may be present in the area of the proposed action: the northern long-eared bat (*Myotis septentrionalis*; Threatened) and the monarch butterfly (*Danaus plexippus*; Candidate). Refer to Appendix B for the Official Species List generated for this project. Although limited tree removal is proposed, no known northern long-eared bat hibernacula are mapped within the Town of Mansfield (CT DEEP, 2019). Therefore, impacts to the northern long-eared bat are not anticipated. The proposed landscaping improvements surrounding Mirror Lake may provide additional host plants and food sources for the monarch butterfly, which is currently being reviewed to determine if it warrants listing under the Endangered Species Act. No impacts to the monarch butterfly are anticipated form the Proposed Action.

3.7 Noise

3.7.1 Existing Conditions

CTDEEP has established Noise Zone Standards for the evaluation of noise generated by adjacent noise zones (RCSA 22a-69-1 through 22a-69-7.4), with Class A being the most noise-sensitive of the three types and Class C being the least sensitive.

As an educational institution, the UConn campus is classified as a Class B Noise Zone. According to RCSA Section 22a-69-3.5, a Class B emitter shall not emit noise exceeding Leq[18] levels of 55 dBA[19] (daytime) or 45 dBA (nighttime) to an adjacent Class A Noise Zone, or 62 dBA at any time to an adjacent Class B or C Noise Zone. Nighttime is defined as between 10 p.m. to 7 a.m. Noise created by on-site recreational or sporting activity which is sanctioned by the state or local government is exempt from the Noise Zone Standards.

The existing noise environment of the site is dominated by traffic along Storrs Road (Route 195) and Mansfield Road, noise associated with academic and administrative buildings, and foot traffic around Mirror Lake.

[18] The Leq, or Equivalent Level, is the steady-state noise level for a given time period that has the same acoustic energy as the fluctuating noise levels observed during that time period. The Leq can be evaluated over different time periods including one hour (expressed as a one-hour Leq or Leq(h)) or 24 hours (expressed as a 24-hour Leq or Leq (24)).
[19] The unit typically used to describe sound levels perceptible to human is the A-weighted decibel (dBA). The A-weighting attempts to approximate the human ear's sensitivity to sounds of varying frequencies and pitch. The decibel is a logarithmic unit of measure. For instance, a 10-decibel change in noise level is perceived as a doubling or halving of loudness. A 3-dB change would be barely perceivable for most people.

3.7.2 Impact Evaluation

No Action Alternative

Under the No Action alternative, no measurable change nor subsequent impact will occur to the existing noise environment at or near the site.

Proposed Action

The Proposed Action is consistent with the existing institutional and commercial land uses in the vicinity of the site and is not expected to exceed the Class B emitter levels based on the nature of the proposed site activities of maintaining the existing use of the area. The Proposed Action may increase passive recreational use of the area, but no direct or indirect noise-related impacts are anticipated to result from the Proposed Action. The existing noise environment is suitable for the proposed educational institution use.

Noise impacts from the Proposed Action would be most noticeable during construction; however, construction noise is exempt from the Connecticut noise regulations per RCSA 22a-69-1.

3.8 Air Quality

Under the Clean Air Act (CAA), the U.S. Environmental Protection Agency (EPA) established National Ambient Air Quality Standards (NAAQS) for concentrations of six criteria air pollutants, including: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter ($PM_{2.5}$ & PM_{10}), sulfur dioxide (SO_2), and lead (Pb). Primary standards have been established to protect public health; secondary standards have been established to protect plants and animals and to prevent economic damage.

The State of Connecticut adopted the NAAQS and subsequently developed State Implementation Plans (SIPS) to attain and maintain these standards.[20] CT DEEP has pollutant monitoring stations across Connecticut that are used to determine compliance with the EPA primary and secondary air quality standards, and to evaluate the effectiveness of pollution control and abatement strategies.

This section addresses existing air quality and potential environmental consequences associated with the Proposed Action and No Action alternative, including both regional (i.e., mesoscale) and local (or microscale) potential air quality impacts associated with mobile and stationary sources of air pollutants. Mobile sources of air pollutants consist of vehicles and construction equipment. Stationary sources include boilers, emergency generators, and other fuel-burning equipment.

3.8.1 Existing Conditions

The State of Connecticut is divided into designation areas by pollutant for air quality planning purposes. Each area is then designated as being in attainment, or non-attainment, with the air quality standards established for each criteria pollutant. The UConn campus is located within the Eastern Connecticut Intrastate Air Quality Control Region (AQCR 041) and the Greater Connecticut Area designation areas, depending on the pollutant designation.

[20] See here for a link to the SIPS prepared by CT DEEP: https://portal.ct.gov/DEEP/Air/Planning/Air-Quality-Planning.

The project site is located in a non-attainment area for ozone (serious non-attainment for the 2008 8-hr standard and marginal non-attainment for the 2015 8-hr standard)[21] and is located in unclassified or attainment air quality designation areas for the other criteria pollutants, including CO, NO_2, Pb, SO_2, $PM_{2.5}$, and PM_{10}.

Stationary Sources

Under the Clean Air Act Amendments (CAAAs) of 1990, major sources of air pollution are required to obtain a Title V operating permit, which is administered in Connecticut by the CT DEEP Bureau of Air Management. The University campus at Storrs is considered a major source because it has the potential to emit pollutants in excess of thresholds established for regulated air pollutants. As such, the University currently holds an active Title V permit for the Storrs campus (CT DEEP, 2019a). The pollutants covered by the Title V permit include nitrogen oxides (NOx), volatile organic compounds (VOCs), carbon monoxide (CO), sulfur oxides (SOx), particulate matter (PM_{10} & $PM_{2.5}$), other hazardous air pollutants (HAPs), and greenhouse gas (GHG) emissions. The campus is a major source for each pollutant except the HAPs. UConn is considered an area source for HAPs (CT DEEP, 2019a, p. 7).

Fuel burning equipment is the major stationary source of air emissions on the campus. All emission sources with applicable permitting and regulatory requirements are accounted for in the Storrs campus Title V permit. This includes emergency and non-emergency engines, boilers, heating equipment, and combustion turbines. Fuel burning equipment currently at the Central Utility Plant (CUP) (see Section 3.16) includes three dual fuel combustion turbines each with heat recovery steam generators (HRSG) and natural gas duct burners, four dual fuel steam boilers (Boil 1, 2, 7, and 9), four natural gas chiller units, and three diesel emergency generators. A separate South Campus Chiller Plant includes one natural gas chiller engine and one diesel emergency generator. A Supplemental Utility Plant (SUP) is under construction, at least in part, to support the new Science 1 building, and this facility includes an emergency generator and a dual fuel steam boiler. Other stationary sources of air pollutants throughout campus include emergency generators, as well as natural gas or oil-fired heating equipment for building locations not serviced by the CUP or SUP.

The site of the proposed Mirror Lake Improvements project does not currently have any stationary sources present.

Mobile Sources

Mobile sources of air pollutants on the UConn Campus include vehicles and service equipment. The air quality effects of mobile sources are considered on a regional, or mesoscale, level in the context of the SIP. The CAAAs require that each state submit a SIP for attainment of the NAAQS to the EPA, and the SIP and subsequent SIP revisions submitted to EPA have demonstrated that Connecticut has met all requirements mandated by the CAAAs for moderate 8-hour ozone nonattainment areas (EPA, 2010).

At the local, or microscale level, concern with mobile sources of air pollution focus on increased emissions from greater vehicle volumes or increases in vehicle congestion, especially at intersections, where delays can lead to vehicle queuing and idling. There are no documented existing concerns with mobile sources of air pollution near the project area.

[21] See this following link for current Connecticut nonattainment/maintenance status for each county by year for all criteria pollutants: https://www3.epa.gov/airquality/greenbook/anayo_ct.html. Also see here for the US EPA's SPeCS for SIPs Public Dashboard: https://edap.epa.gov/public/extensions/S4S_Public_Dashboard_1/S4S_Public_Dashboard_1.html.

3.8.2 Impact Evaluation

Stationary Sources

Under the No Action alternative, there would continue to be no new direct stationary sources of air pollutant emissions. Similarly, under the Proposed Action, no new stationary sources of air pollutants would result from the improvements to Mirror Lake.

Mobile Sources

Under the No Action alternative, there would be no anticipated direct effects to the mobile sources of air pollution at the project site.

The Proposed Action will not increase student enrollment or staff, as a result there will be no direct or indirect impacts to air quality from mobile sources due to the improvements to Mirror Lake. As discussed in Section 3.19, during the construction period, temporary redistribution of traffic during construction (i.e., not new traffic generation) may influence traffic and mobile source generation in the project area. Deliveries to the Mirror Lake Improvement project area will be made by both light-duty and heavy-duty diesel truck and gasoline and diesel fueled equipment will be used during construction. Consistent with Regulations of Connecticut State Agencies (RCSA) 22a-174-18 (Control of Particulate Matter and Visible Emissions, 2018), idling of vehicles will be limited to less than 3 minutes and no direct or indirect impact to air quality from these mobile sources is anticipated.

3.9 Solid Waste

3.9.1 Existing Condition

The proposed project area includes Mirror Lake and the maintained areas adjacent to Mirror Lake. Portions of the Great Lawn and/ or the Manchester Hall parking lot may be utilized as potential dewatering areas. No solid waste is currently generated within the proposed project area. Small amounts of solid waste may be present in lake sediments from trash discarded into the lake over the last 20 to 30 years. The solid waste will be removed from the lake along with sediment during the planned dewatering and lake bottom excavation activities, and the solid waste will be disposed of separately or along with excavated sediment.

3.9.2 Impact Evaluation

No Action Alternative

Under the No Action alternative, no change will occur to existing solid waste conditions.

Proposed Action

Post-construction activities associated with the Proposed Action are not anticipated to result in any increase the volume of solid waste generated on campus. Enclosed waste and recycling receptacles will be located throughout the area surrounding Mirror Lake at landscape features where pedestrians would gather or pass though (i.e., shelter, island bridge, overlooks, etc.). As part of the on-going maintenance of the stormwater system, sediment will be collected from the forebays and pretreatment systems. That sediment will be

characterized for appropriate reuse or disposal consistent with CTDEEP guidance and regulations and is not anticipated to result in a significant direct or indirect impact on solid waste generation or disposal.

3.10 Toxic and Hazardous Materials

3.10.1 Existing Conditions

Regulated Waste/Hazardous Materials Generation and Disposal

UConn Environmental Health and Safety (EHS) in the Division of University Safety manages the regulated waste on campus. Regulated wastes include biological and medical wastes, chemical waste, radioactive waste, and universal waste. Universal waste includes mercury-containing lamps, automotive and non-automotive batteries, mercury thermostats, and used electronic equipment. There is currently no active regulated waste generation in the proposed Mirror Lake project area.

Site Contamination

A review of available information on the project site and nearby properties was conducted as part of a Phase I Environmental Site Assessment (ESA) prepared in general conformance with the scope and limitations of ASTM Practice E 1527-13 and Connecticut's Site Characterization Guidance Document (Fuss & O'Neill, 2022). Based on a review of site history and federal, state, and local environmental databases, no Areas of Concern (AOCs)[22] have been identified within the area bounded by Manchester Hall, Storrs Road (Route 195), Bolton Road, and Hollister Road (Fuss & O'Neill, 2022). The environmental database review (EDR, 2021) identified the following spills greater than five gallons in quantity within 500 feet of Mirror Lake:

- 4/29/2010 - Less than 1 gallon of petroleum was released to the ground surface at the intersection of Storrs Road and Mansfield Road as the result of an aboveground tank failure. The report indicates the release spread over a half mile area (status listed as "closed").
- 10/18/2004 - 1,800 gallons of drinking water reportedly containing small traces of red dye and bio-cyde seeped into Mirror Lake (status listed as "closed")
- 11/14/2002 - 100,000 gallons of raw sewage reportedly released to stream/ brook (status listed as "closed") However, lead-impacted soils were also encountered below the lawn that surrounds the two historic homes studied, as described above, and similar conditions would be expected at the other cottages.

In addition, several small spills (most less than 10 gallons) were identified in the environmental databases within the minimum search radii required by ASTM Practice 1527-13. Based on distance from the Mirror Lake and the local hydrogeology, these parcels are not anticipated to have a negative effect on the Mirror Lake project area, with the following possible exceptions noted in the Phase I ESA (Fuss & O'Neill, 2022):

- 13 Dog Lane- A leaking underground storage tank (LUST) was reported on October 6, 1994, which is located approximately 700 feet east of Mirror Lake. This property has been listed under the Recovered Government Archive Leaking Underground Storage Tank (RGA LUST) from at least 1994-2014, and under the Contaminated or Potentially Contaminated Sites (CPCS).

[22] The definition of an AOC is generally consistent with the definition of a recognized environmental condition (REC) contained in Standard Practice for Environmental Site Assessments E 1527-13 developed by ATSM International (ASTM, 2013), but may also include additional areas, such as loading areas where hazardous materials may have been handled, even in the absence of release indicators.

- Spills- Several spills are listed in the EDR report within 500 feet of the Site. The majority of the spills were less than 10-gallons and were listed as closed. On August 12, 1997, 75-gallons hydraulic fluid reportedly released to the ground surface along Route 195 as a result of a crane tipping over. The status of this spill is listed as closed.

Although there are buildings adjacent to the project area (e.g., Whitney House and Manchester Hall), these were not investigated. However, as with any building constructed prior to 1978 that contains painted exterior surfaces, there is some potential that lead-containing paint chips or other hazardous building materials may have been introduced to the soil around the building foundation. Chipping of painted exterior surfaces was observed during our site inspection on the Whitney House. While not specifically identified this as an AOC, the potential for impacted soil should be considered if substantial site work is planned adjacent to the area.

UConn Division of University Safety
- Police Department
- Fire Department
- Office of Emergency Management
- Fire Marshal and Building Inspector
- Environmental Health and Safety

3.10.2 Impact Evaluation

Under the No Action alternative there would be no change in solid waste generation or hazardous materials generation and disposal. The Proposed Action is evaluated in terms of potential impacts associated with the post-construction use of Mirror Lake. Other construction-related waste generation is addressed in Section 3.19.

Regulated Waste/Hazardous Materials Generation and Disposal

It is anticipated that no regulated waste will be generated in the Mirror Lake area after construction. As discussed in Section 3.9, there will be trash and recycling receptacles available. Should any regulated waste be generated at the project site, it will be handled according to existing University protocols[23] and relevant state and federal requirements for waste handling and disposal.

Site Contamination

No AOCs have been identified at or in the immediate vicinity of the project site, nor is it anticipated that post-construction activities will result in site contamination. Handling of dredged sediment, excavated material, and constriction debris is discussed in Section 3.19.

3.11 Public Health and Safety

3.11.1 Existing Conditions

Public Safety

The UConn Division of University Safety maintains campus fire, police, emergency management, fire marshal and building inspector, and environmental health and safety for the safety of the entire University community

[23] See UConn's Division of University Safety, Environmental Health and Safety webpage on Regulated Waste Management for more details: https://ehs.uconn.edu/regulated-waste-management/

at the Storrs campus. The police and fire departments are co-located on campus at 126 North Eagleville Road. The campus has a state-of-the-art Emergency 911 center, and a system of emergency phones is located throughout the campus.

The UConn Police Department (UCPD) is an internationally accredited law enforcement agency, and fully functional police agency, with the same statutory authority and responsibilities as any municipal police department in the State of Connecticut. The UCPD has an authorized staff of ninety-four sworn police officers. The department is responsible for, and its primary mission is, the protection of lives and property at the University of Connecticut and all adjacent areas within the jurisdiction of the UConn Police Department. This includes the main campus in Storrs, regional campuses located throughout the state, and UConn Health Center.

The UConn Fire Department (UCFD) is a fully operational department providing 24/7 response from the University Safety Complex on North Eagleville Road, also known as Station 22. UCFD responds to all emergencies and performs routine duties including education in fire, life safety, and disaster preparedness. The Department consists of three divisions: Fire Operations, Fire Administration, and the Fire Marshal Unit. All personnel in Fire Operations are state certified in fire suppression operations, technician-level hazardous materials operations, and are licensed Emergency Medical Technicians providing ambulance transport services from the Storrs station. The UCFD is also a member of the Connecticut Eastern Region Response Integrated Team (CERRIT) team and the Capitol Region Hazardous Materials Response Team. UCFD resources include appropriate metering and decontamination equipment and proper protective clothing for hazardous materials response.

The Mansfield Fire Department provides first responder services for incidents within Mansfield and outside of the University campus and provides backup for the UCFD.

The UConn Office of Emergency Management provides emergency preparedness, response, and recovery activities coordination and is responsible for the development, implementation, training, and review of UConn's Emergency Operations Plan. The Office of Emergency Management serves the Storrs campus as well as other UConn campuses and operates the Emergency Operations Center (EOC), which is located at the University Safety Complex (alternate EOC is located at 28 Professional Park Road) and is linked to the statewide Division of Emergency Management & Homeland Security and the State Emergency Operations Center.

Public Health

Medical care, mental health, pharmacy, and health promotion services are all offered on campus through Student Health and Wellness (SHaW). SHaW staff is available 24 hours a day for medical, mental health, and sexual assault response. Area health and medical services are also available to UConn students, faculty, and staff and include UConn Health Urgent Care (in Storrs), Windham Hospital (9 miles from campus), Rockville General Hospital (13 miles from campus), and Manchester Memorial Hospital (19 miles from campus).

Environmental Health & Safety

UConn's Environmental Health and Safety department (EHS), which is part of the Division of University Safety, provides campus leadership in the identification and management of safety, health, and environmental risks on campus through programs and services that ensure the health and safety of faculty, staff, students, visitors, and the environment. Service and compliance areas with EHS include biological, chemical,

occupational, and food health and safety, as well as radiation safety and regulated waste management. EHS also provides a variety of safety training programs. The UConn Environmental Programs team is located within the EHS department. The team provides environmental compliance oversight and permitting support for University operations and construction projects and supports water and energy conservation.

3.11.2 Impact Evaluation

No Action Alternative

The No Action alternative creates the potential for adverse impacts on public safety in the event of dam failure. As mentioned in Section 1.2, the aging Mirror Lake Dam and related infrastructure has multiple deficiencies, and a recent dam safety inspection and hazard class assessment identified that failure of the dam could result in significant life, environmental, and infrastructure impacts, including major damage to roads, structures, and utilities, as well as potential injury or loss of life. Although some repairs have been undertaken by UConn to maintain the integrity of the dam,[24] if the dam remains at its current elevation and condition under the No Action alternative, potential for impacts to public health and safety associated with the lack of freeboard[25] and the poor spillway performance under a flood condition remains. Note, chemical treatments to aquatic vegetation will continue each growing season as poor water aquatic ecology conditions persist.

Proposed Action

The proposed dam improvements are anticipated to improve public safety by addressing dam/spillway deficiencies identified during recent inspections (see Section 1 for more details).

It is anticipated that the improvements to water quality resulting from the project will generate long-term benefits to public health by reducing the likelihood for harmful cyanobacteria blooms, which are expected to be more prevalent under elevated nutrient conditions and warmer temperatures as a result of future climate conditions. Cyanobacteria can generate toxins that can cause health effects ranging from mild skin rash to serious illness depending on the type of cyanobacteria present and the route and intensity of exposure.

Existing public health and safety services on campus are able to respond to changes in overall public health and safety needs. The Proposed Action is not anticipated to impact the provision of public or environmental health and safety. The Proposed Action will not encourage in an increase in the population on the Storrs Campus, nor will it result in activities, equipment, or processes that are new to the campus.

3.12 Cultural Resources

3.12.1 Existing Conditions

Mirror Lake is located within the University of Connecticut Historic District, which was listed on the National Register of Historic Places in 1988 (NPS, 1988). The District, as shown in **Figure 12**, is located on both sides of State Route 195 (Storrs Road) and includes part of the secondary road network that extends to the east and west from this major roadway. It contains all the principal institutional buildings associated with the historic development of the University and a several smaller-scaled buildings – some of which are still

[24] Maintenance deficiencies were identified during a required dam safety inspection and addressed in December of 2020 through the incorporation of a spillway apron, tree/stump removal, and minor dam erosion repairs.
[25] Freeboard is the vertical distance between the water surface and the dam crest.

used as residential buildings. Mirror Lake and other landscapes within the Historic District were not identified as contributing resources. Two structures immediately adjacent to the Project Area – Manchester Hall, located north of Mirror Lake, and Whitney House, located to the east of Mirror Lake and along Storrs Road (Route 195) – were identified as contributing resources within the District (NPS, 1988).

The National Register nomination form refers to the 1910 General Plan for the then named Connecticut Agricultural College (which later became the University of Connecticut) prepared by landscape architect, Charles Lowrie, with influence by Beaux Classicism, which was a style that was popularized by landscape architect Frederick Law Olmsted. In addition to other characteristics of Lowrie's 1910 plan, the nomination points to the incorporation of a constructed lake (Mirror Lake), broad sweeping lawns, and informal paths that contribute to a park-like setting as examples of Olmstead's influence on Lowrie (NPS & Cunningham Associates, 1988, Section 8, p. 6).

Following the preparation of the Campus Master Plan (UConn & SOM, 2015a), a separate companion document was prepared - *University of Connecticut Historic District: Evaluation and Process* (UConn & SOM, 2017). This document provides additional guidelines and strategies for the historic preservation and adaptive reuse of contributing resources, including buildings and landscapes with cultural importance in the Historic District.

Mirror Lake and Roberts Brook are identified as examples of "water and hydrological features" – one of several cultural landscape typologies highlighted in the document. The document identifies these (and other) campus water features as being "integral to the character of campus, creating open views and spaces along their banks that are unique within this context" (SOM, 2017, p.54).

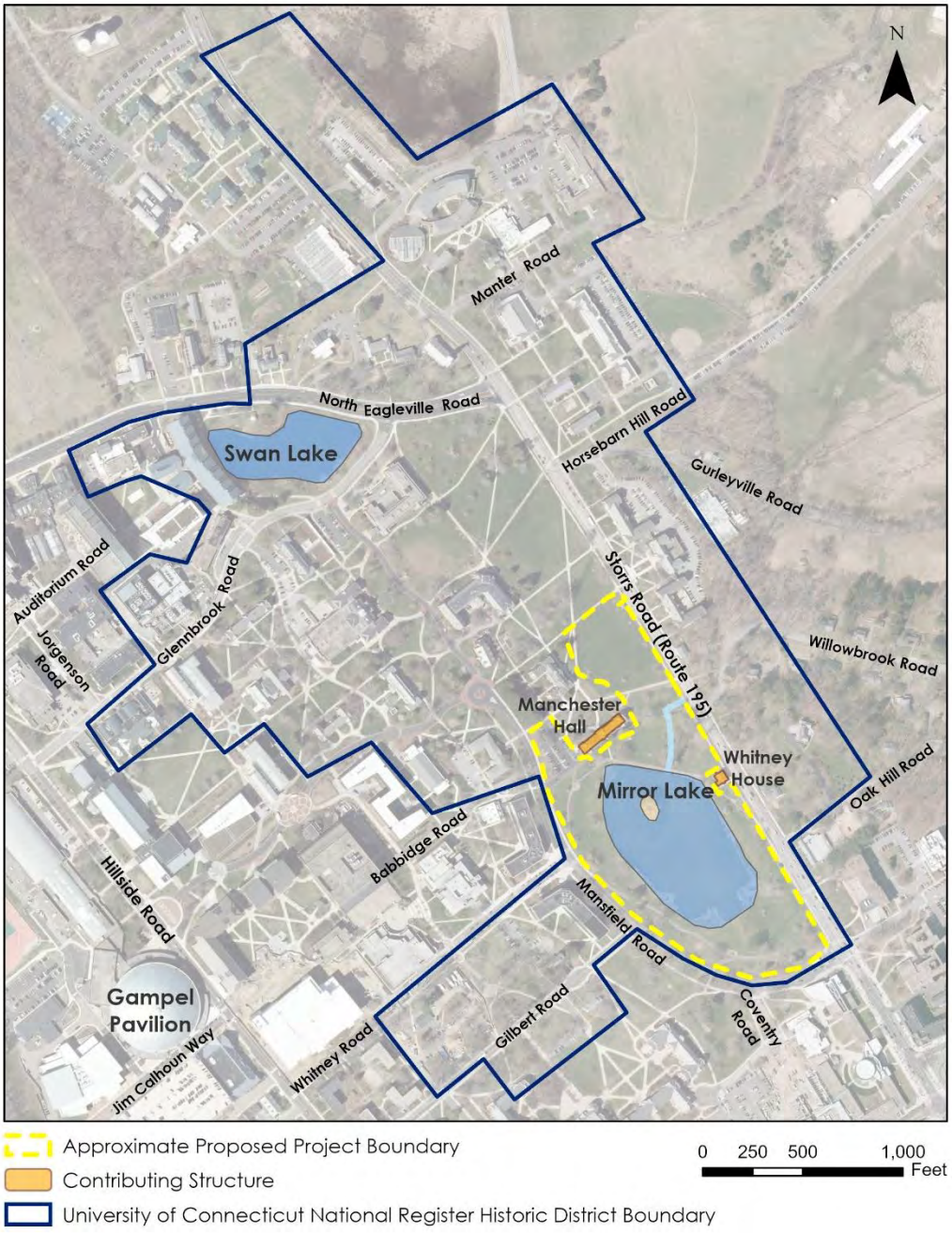

Figure 12 – Map Showing the Location of the Proposed Project Boundary Relative to the Location of the University of Connecticut Historic District and Contributing Resources immediately adjacent to Mirror Lake

3.12.2 Impact Evaluation

No Action Alternative

No change to the existing cultural resources, in the proposed project area would result under the No Action alternative.

Proposed Action

The Proposed Action does not result in any direct impact to features that are listed as contributing resources to the Historic District. Whitney House and Manchester Hall will not be directly impacted by the lake dredging or other improvements to Mirror Lake. There will be regrading and landscape features (e.g., plantings) downslope from each of these structure between the existing structures and Mirror Lake. In keeping with the vision of 2015 Campus Master Plan and Lowrie's 1910 General Plan, the proposed landscape improvements are intended to reinforce Mirror Lake as an iconic landmark, while also addressing the needs and uses of the modern-day campus.

In response to written comments provided by the Connecticut State Historic Preservation Office (SHPO)[26] and Preservation Connecticut on December 12, 2021 (see Appendix A), UConn is in progress of hosting a meeting with SHPO and Preservation Connecticut to further discuss the project and provide additional comments on the design. The design team for the project includes a landscape architecture firm with experience in cultural landscapes and contributing resources to historic districts. That firm is assisting the design team in balancing program, aesthetics, and function with qualitative and quantitative requirements for stormwater management – a primary function of the Mirror Lake waterbody.

3.13 Visual and Aesthetic Character

3.13.1 Existing Conditions

Part of the original 1910 General Plan for the University, Mirror Lake became an iconic part of UConn's landscape, serving as a visual foreground and character setting element for Campus from Storrs Road. Historically, its lawns, sidewalks, and the trees flanking its banks have been popular spots for recreation, studying, and socializing. Although located within the University of Connecticut Historic District, Mirror Lake was not identified as a contributing resource.[27]

Presently, there exists a limited diversity of landscape typologies, a lack of performative green infrastructure, and few amenities that invite users safely to the water's edge or attract events for guests and the campus community. The Proposed Action will enhance the visual, functional, educational, and aesthetic character of the site through various landscape improvements.

3.13.2 Impact Evaluation

No Action Alternative

No changes to the existing visual and aesthetic character of Mirror Lake would result under the No Action alternative. However, given the degraded water quality associated with current conditions in Mirror Lake, anticipated impacts to both aesthetic and visual characteristics are anticipated under the No Action Alternative.

Proposed Action

[26] These comments were provided during the public comment period following the publication of the original scoping notice in the Environmental Monitor on November 16, 2021

[27] See Section 3.12 for a discussion of Proposed Action relative to historic and cultural resources.

The Proposed Action will improve the visual and aesthetic character of Mirror Lake in part by providing shoreline and littoral zone plantings in curvilinear beds. These plantings will enhance the visual aesthetic of the lake and lead the eye around the lake, granting it a distinct sense of place. As mentioned in Section 1, these plantings will also function as additional filters for stormwater runoff, contributing to the overall improvements to aquatic health.

Additionally, the schematic designs for the Proposed (BVH, 2022; BVH, Towers Golde, et al., 2022) call for the rerouting of 4 existing discharge points to 3 new planted forebays – 2 on the west side of Mirror Lake and 1 on the south side of Mirror Lake. The planted forebays will primarily function as a filter for stormwater sediment prior to runoff entering the lake. However, they will also improve the visual character of the lake by reinforcing the surrounding natural aesthetic.

Current design plans include planting the forebays with a variety of perennials and woody shrubs and be graded in such a way that the edge of the lake will visually transform as it fills with stormwater runoff. As the surface elevation of the lake changes, the visible plantings will similarly shift and change. Final design will also incorporate considerations for ongoing maintenance of the forebays to allow for continued effective function for stormwater management.

In the main forebay on the south side of Mirror Lake, there are planned structural outfalls that will allow the water to be viewed from the concrete promenade as it spills into the lake.

In addition to the natural landscape improvements, the Proposed Action plans to address the need for increased access and accessibility to the water's edge by considering the incorporation of a promenade around one end of the lake, leading to overlook and shelter that will extend over the water.

The Proposed Action may also include the transformation of the existing island, which is inaccessible in its current state, into a destination by providing a pedestrian bridge that allows access for visitors. These proposed site amenities will not only further enhance the visual character of Mirror Lake, but they will also serve as sites for additional outdoor education opportunities – furthering the mission of the University.

Overall, the proposed landscape improvements and site amenities included in the Proposed Action are designed to have a positive impact on the visual and aesthetic character of Mirror Lake.

3.14 Socioeconomics

3.14.1 Existing Conditions

Economy, Employment, and Income

The University of Connecticut is a major employer and provides a significant positive economic impact for the Town of Mansfield and the State of Connecticut. Higher education is Mansfield's leading traded sector by a wide margin (Town of Mansfield, 2015, p. 6.14), and as noted by the Town, UConn delivers "direct economic benefits to Mansfield's economy in the form of jobs for faculty and staff and spending by students" (Town of Mansfield, 2020, p. 13). Across the State, UConn delivers an approximately $5.1 billion worth of economic activity, including over 25,00 jobs and $276 million in state and local tax revenue. For

every dollar spent by UConn, an estimated 68 cents in economic output are generated elsewhere in the Connecticut economy (UConn, 2022).

Local Economic Indicators (2021)

- Mansfield Unemployment – 3.2%
- Hartford Labor Market Area Unemployment – 4.5%
- Mansfield Median Household Income (in 2019 dollars) – $51,911
- Tolland County Median Household Income (in 2019 dollars) – $87,069
- State of Connecticut Median Household Income (in 2019 dollars) – $78,444

(CTDOL, 2022a, 2022b; US DOC, 2021)

UConn Economic Impact (2021)

- 32,669 Students
- 9,783 Faculty and Staff Employed
- $3 billion in statewide economic output directly from UConn
- $285.8 million External Funding, Sponsored Awards

(UConn, 2021, 2022)

Environmental Justice

According to the Connecticut Department of Energy and Environmental Protection (CT DEEP) Environmental Justice Program, "environmental justice" means that "all people should be treated fairly under environmental laws regardless of race, ethnicity, culture or economic status" (CT DEEP, 2022). CT DEEP's Environmental Justice Policy ensures that Environmental Justice (EJ) Communities are provided enhanced notice and opportunities for public participation in certain permitting processes. The Environmental Equity Policy states that "no segment of the population should, because of its racial or economic makeup, bear a disproportionate share of the risks and consequences of environmental pollution or be denied equal access to environmental benefits" (CT DEEP, 1993).

According to CT DEEP's Environmental Justice Program, the Town of Mansfield is not considered a distressed municipality according to the latest Connecticut Department of Economic and Community Development (DECD) list of distressed municipalities.[28] However, the location of the Proposed Action is in a census block (Block Group 1, Census Tract 8812)[29] considered under Section 22a-20a of the General Statutes and the Environmental Justice Policy,[30] which qualifies it as being located in an EJ community.[31]

[28] Connecticut Department of Economic and Community Development (DECD) list of distressed municipalities: https://portal.ct.gov/DECD/Content/About_DECD/Research-and-Publications/02_Review_Publications/Distressed-Municipalities

[29] See here for a link to the mapping of Connecticut 2021 Environmental Justice Communities: https://ctdeep.maps.arcgis.com/apps/webappviewer/index.html?id=d04ec429d0a4477b9526689dc7809ffe

[30] Section 22a-20a of the General Statutes: https://www.cga.ct.gov/current/pub/chap_439.htm#sec_22a-20a

[31] EJ communities include distressed municipalities as defined by the CT Department of Economic and Community Development (DECD), as well as census block groups that are not in distressed municipalities in which 30% or more of the population lives below 200% of the federal poverty level (FPL). EJ census block groups are determined using poverty data from the 2019 American Community Survey (ACS) 5-year Estimates.

Note that although U.S. Census data and the criteria for designation as an EJ community is based on income, the census block population consists primarily of UConn students (median age 19.1 years in the 2019 ACS) living in group housing including Shippee, Buckley, and South Campus Residence Halls.

3.14.2 Impact Evaluation

Economy, Employment, and Income

It is expected that the proposed Mirror Lake Improvements project will result in employment of construction workers from the surrounding area and the purchase of construction materials from local and regional suppliers within the State of Connecticut.

While the Proposed Action will likely not generate direct long-term positive impacts on the economy, employment opportunities, and incomes, the Mirror Lake Improvements project is part of a larger investment by UConn to transform aspects of the academic and student life and advance the environmental sustainability mission of the University in keeping with the Campus Master Plan (UConn & SOM, 2015a). Investments like these will continue to make UConn an attractive place to study, live, and work – and in turn, it is expected that the Proposed Action will indirectly generate long-term positive impacts on the economy, employment, and incomes as the Mirror Lake Improvements help serve as a vehicle to drive larger transformational change on campus.

Environmental Justice

No impacts to Environmental Justice Communities will result from either the No Action or Proposed Action alternatives.

3.15 Traffic, Parking, and Circulation

3.15.1 Existing Conditions

Mirror Lake is bounded by Storrs Road (Route 195) to the east and Mansfield Road to the west and south; direct vehicle access to the lake is restricted. A series of sidewalks/pathways surround the lake and provide pedestrian connection to Storrs Road, Mansfield Road, and Manchester Hall to the north. The Great Lawn is located north of Mirror Lake, bounded by Manchester Hall to the south, North Eagleville Road to the north, Storrs Road (Route 195) to the east and campus buildings to the west. The area is dominated by Mirror Lake and the Great Lawn with academic and administrative buildings located along Storrs Road.

Roadway Network

There are several internal campus streets classified as State Institutional roadways that surround Mirror Lake; direct vehicle access to Mirror Lake from these streets is restricted. Storrs Road to the east of Mirror Lake and is classified as a Principal Arterial and a major travel corridor to and from the UConn campus from points north and south. Storrs Road intersects both Route 44 and Interstate 84 to the north. To the south, Storrs Road intersects Route 6 in the Town of Windham. University traffic arrival/departure patterns on Storrs Road are split 35% to the north and 30% to the south (BETA, 2015).

Mansfield Road borders Mirror Lake to the south and west, intersects Storrs Road to the east, and continues northwesterly through the South Campus area to its terminus (to general traffic) within the Central Campus area. The roadway ends at a turnaround intersecting with connections to Mansfield Way and Fairfield Way, with restricted vehicle access. In the South Campus area, Mansfield Road intersects with Coventry Road, Gilbert Road, and Whitney Road.

Figure 13 shows the location of existing roads, parking lots, and pedestrian paths within the Project Area and surrounding areas. Bus stops that provide connections with the existing transit network are also included.

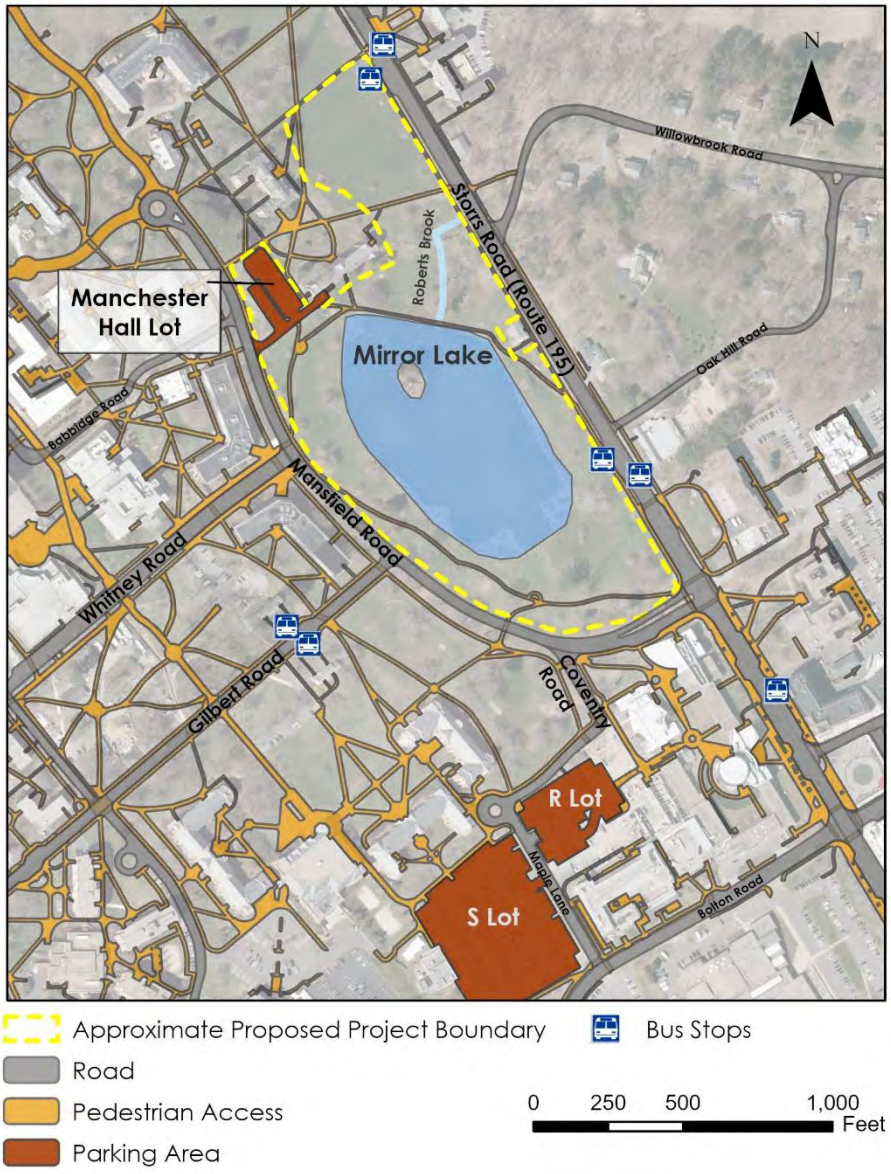

Figure 13 – Map of Existing Roads, Parking Lots, Bus Stops, and Pedestrian Paths within the Proposed Project Area and Surrounding Areas

Existing Traffic Operations

The most recent traffic counts in the Mirror Lake area were collected as part of traffic impact analyses supporting the South Campus Development projects (Langan, 2015), the overall Traffic Model (BETA, 2015), and the Ice Hockey Arena Development EIE (FHI, 2020). Traffic counts in the South Campus area were collected on March 31, 2015 at 9 locations in the South Campus area, with 4 of those locations in proximity to Mirror Lake. Counts were taken for the 2020 study at 13 locations, with Mansfield Road at Storrs Road as the only one in the Mirror Lake area:

1. **Mansfield Road and Storrs Road (Route 195)** – The Mansfield Road and Storrs Road (Route 195) intersection is controlled by a fully actuated traffic signal. The Storrs Road southbound approach consists of a right turn lane, a through lane, and a left turn lane. The northbound approach consists of a through lane and a left turn lane. The Mansfield Road eastbound approach consists of a right turn lane and a through/left turn lane. The westbound approach from Bishop Circle and the Bishop/Buckley/Shippee parking lots is a single lane used for all movements. All four approaches have crosswalks that connect to continuous sidewalks.

2. **Coventry Road and Mansfield Road** – Coventry Road and Mansfield Road is a T-intersection with stop control on Coventry Road. One lane in each direction is provided for all approaches going into the intersection. Mansfield Road eastbound splits into two lanes east of the intersection on its approach to Route 195 – a right turn only lane and a left/through lane. A sidewalk is provided on the southern side of Mansfield Road. A crosswalk is provided across the Coventry Road approach.

3. **Gilbert Road and Mansfield Road** – Gilbert Road and Mansfield Road is an all-way stop controlled intersection. Mansfield Road has a continuous sidewalk on the southern side of the street with a crosswalk across Gilbert Road. All three approaches are single lane with no auxiliary turning lanes.

4. **Whitney Road and Mansfield Road** – Whitney Road and Mansfield Road is an all way stop controlled intersection. Mansfield Road has a continuous sidewalk on both sides of the street. Crosswalks are provided across all three approaches. All three approaches are single lane with no auxiliary turning lanes.

The results of the traffic counts (FHI, 2020; Langan, 2015) showed that both morning and evening peak hour traffic volumes were greatest on Storrs Road (Route 195). Turning movements from southbound Storrs Road onto Mansfield Road were greater than those onto Bolton Road to the south, and turning movement counts were similar at each location regardless of peak hour. Turning movements from northbound Storrs Road were greater during the morning peak onto Bolton Road and greater during the afternoon peak onto Mansfield Road. Afternoon peak hour counts for turning movements onto Route 195 either northbound or southbound from Bolton Road and Mansfield Road were greater than morning counts for turning movements from those roadways.

Existing (2018) Levels of Service (LOS)[32] near the campus are available for two major signalized intersections and one unsignalized intersection (FHI, 2020) (**Table 1**).

[32] Level of service (LOS) is a qualitative measure used to relate the quality of traffic service, with A being the best (free flow of traffic) and F being the worst (forced or breakdown flow).

Table 1 – Existing Levels of Service for Two Major Signalized Intersections and One Unsignalized Intersection Near Campus

Intersection	Approach	AM Peak Hour	PM Peak Hour
Storrs Road/Route 44 (signalized)	EB	C	E
	WB	D	D
	NB	C	C
	SB	E	E
	Overall	**C**	**D**
Storrs Road/South Eagleville Road (signalized)	EB	C	D
	WB	D	D
	NB	B	C
	SB	B	C
	Overall	**C**	**C**
South Eagleville Road/Separatist Road (unsignalized)	NB	C	C
	SB	D	F

Additional traffic data on Storrs Road (Route 195) has been collected by the Connecticut Department of Transportation.[33] Total Annual Average Daily Trips (AADT) on Route 195 were 9,700 in April 2021, an increase from 7,400 in April 2020, but a decrease from the previous pre-COVID pandemic AADT of 13,200 collected in April 2014. The 2021 data found that traffic on Route 195 was dominated by passenger vehicles (93.75%) and that volume was slightly higher in the southbound direction. Peak traffic hours were generally late morning (11 AM) and early afternoon (3 PM), although combined volume was relatively consistent during the period from 11 AM to 4 PM.

Transit, Bicycle and Pedestrian Access

UConn Parking and Transportation Services operates a network of shuttle buses, accessible vans, and small vehicles for university students, faculty, and staff. Several of UConn's seven campus transit lines pass in proximity to Mirror Lake. There are currently transit stops within 500 feet of Mirror Lake on Gilbert Road, Mansfield Road, and Storrs Road, where the stop also serves a regional transit system.

Lighted pathways ring Mirror Lake and provide connection to Storrs Road, Mansfield Road, and Manchester Hall.

No bike racks are currently located on the perimeter of Mirror Lake. Bike racks are currently provided near the entrances to the residence halls and academic buildings on South Campus, with the closest to Mirror Lake being the west side of Manchester Hall. While biking on-street is permitted, there are no marked or separated bike facilities along the streets surrounding Mirror Lake.

Transportation Demand Management

The University continues to implement strategies intended to limit background congestion on and near the campus by encouraging travel mode shifts. These include improvements to campus shuttle services, improved

[33] CTDOT Traffic Monitoring Data Viewer - https://www.arcgis.com/apps/View/index.html?appid=ffe10262a59648299b4da1fe326a42f0&extent=-76.2254,39.7428,-68.8206,43.4586 and https://tminfo-dot.ct.gov/TMINFO/drilldown?wgid=e0f171119,w=.showdata4268,b=2

local and regional transit access to campus, ride matching and carpooling. All these strategies help in managing the number of cars traveling to and around campus.

Parking

While parking is provided throughout the University campus, the on-campus parking facilities are primarily located at the outer radius of the campus. The closest parking area to Mirror Lake is the employee parking area adjacent to Manchester Hall north of Mirror Lake and south of the Great Lawn. This lot includes 49 spaces. On the west side of Storrs Road (Route 195), other parking areas include the 112-space Fine Arts Lot (also known as R Lot) and S Lot, a 344-space employee parking lot.

3.15.2 Impact Evaluation

Transportation Network

The Proposed Action will not result in any permanent changes to the existing vehicle transportation network and is consistent with the goals articulated in the Campus Master Plan (2015). These goals include strengthening the pedestrian core of the campus by providing additional pedestrian access to Mirror Lake, a campus amenity. As a result, the Proposed Action will not result in any direct or indirect adverse impact to the campus or surrounding transportation networks.[34]

Traffic Operations

The proposed improvements to Mirror Lake will not result in any new vehicle trips following construction. As a result, no direct or indirect impacts to traffic operations or LOS at nearby intersections are expected from the Proposed Action. As discussed in Section 3.19 – Construction Impacts, construction vehicle access to the site will likely be from Storrs Road (Route 195) and from Mansfield Road, which may require temporary changes in traffic operations during construction.

Transit, Bicycles and Pedestrian Access

The proposed Mirror Lake improvements will not alter the route of campus transit vehicles and thus no direct or indirect impact to the availability of campus transit service or the operation of transit service is anticipated to result from the proposed Mirror Lake improvements. As shown in **Figure 1**, the current schematic design plans for Mirror Lake include additional pedestrian features that provide access to the lake. The feasibility of installing additional bike racks within the project area will be considered as the design progresses.

Parking

The proposed Mirror Lake improvements will not result in any significant changes to the number or permanent location of parking spaces on the Storrs Campus. As a result, no direct or indirect impacts to parking capacity on campus are anticipated due to the Proposed Action.

[34] Construction period impacts are addressed in Section 3.19, Construction Period Impacts.

3.16 Utilities

3.16.1 Existing Conditions

Campus-wide utilities consist of electrical service, potable water, gas, sewer, steam/condensate, chilled water, and stormwater. This section focuses on utilities that serve or are located within the footprint of the Mirror Lake Improvements, which includes stormwater and sewer adjacent to Mirror Lake. The function of Mirror Lake as part of the campus stormwater management system is also addressed. Potential construction-related impacts to utilities, including those related to dredged material dewatering activities, are addressed in Section 3.19. (See **Figure 14**.)

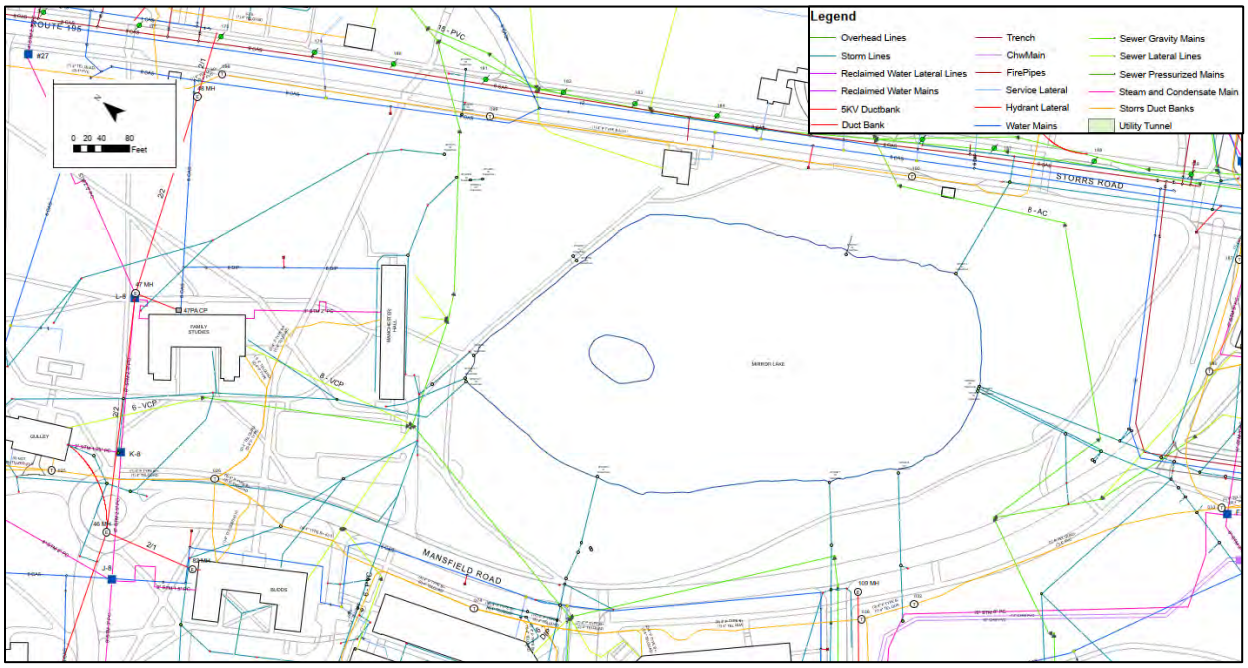

Figure 14 – Map of Utilities in the South Campus Area (BVH & CDM Smith, 2016, fig. M12)

Sanitary Sewer

The University owns and operates a wastewater collection and treatment system that serves the Main Campus, the Depot Campus, and some non-University properties in proximity to the campus, including local residences, businesses, schools, and Town of Mansfield properties. The water pollution control facility (WPCF) has a design capacity of 3.0 million gallons per day (MGD) average daily flow and 7.2 MGD peak flow. Although the WPCF is permitted to discharge an average of 3.0 MGD, the average daily discharge fluctuates with the seasonal nature of the campus population, and the WPCF currently operates at approximately 51% of its average daily design capacity during the academic year.

Sanitary sewer lines are located along Mansfield Road and convey wastewater in an easterly direction via lines located north and south of Mirror Lake to a sanitary sewer line located along Storrs Road (Route 195). Wastewater from Manchester Hall discharges to the line located north of Mirror Lake. Wastewater from Whitney House discharges to the east to the Storrs Road sanitary sewer line. There are currently no connections to the sanitary sewer from the area immediately surrounding Mirror Lake.

Stormwater/Drainage

Mirror Lake is located within the Roberts Brook watershed, which is part of the larger Fenton River watershed (approximately 7,000 feet southwest of the Fenton River) and the drainage basin of the Willimantic Reservoir. Stormwater in the South Campus area is collected via catch basins and piped to Mirror Lake via several outfalls located around the perimeter of the lake (**Figure 2**). Flows from Mirror Lake combine with flows from Swan Lake and portions of the campus east of Route 195 in Roberts Brook.

The dam (berm) on the north side of Mirror Lake is an important part of the stormwater management system since it allows stormwater to be detained within the lake and discharged in a controlled manner from the dam spillway. For safety reasons, there should be at least one foot of freeboard (the distance between the water surface elevation of the lake and the top of the dam) during the current 100-yr flood event. Studies of the dam and spillway have identified several safety concerns with the current dam and spillway, including:

- Inadequate factors of safety against slope stability
- Inadequate factors of safety against sliding for the spillway
- Inability to pass the 100-year flood with 1-foot of freeboard

Impervious area in the Mirror Lake drainage area, which includes both on-campus and off-campus areas, has increased by approximately 8.3 acres since 1993. This has resulted in increased flows and volumes of runoff into and out of Mirror Lake, as well as an increase in water surface elevations in Mirror Lake. Off-campus areas account for approximately 29% of the Mirror Lake 170-acre drainage area, and for most design storm events, approximately 30% of the runoff volume into Mirror Lake is estimated to originate from off-campus areas (**Figure 15**).

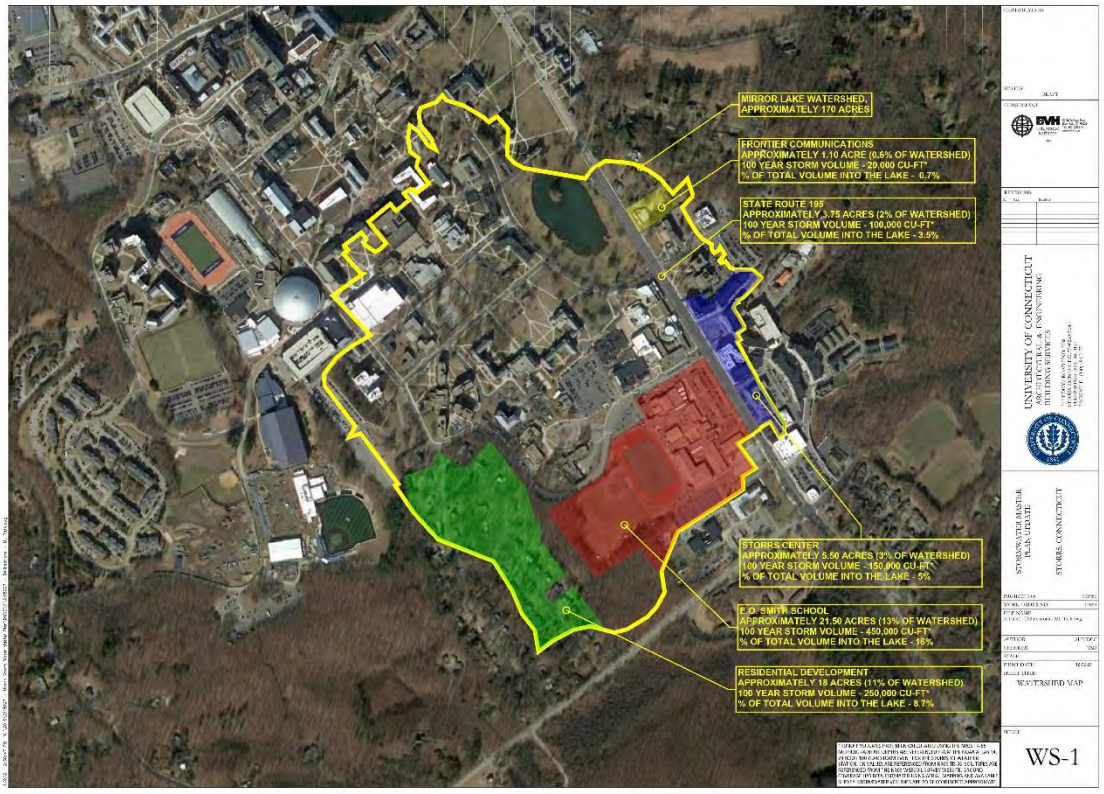

Figure 15 – Watershed Map of South Campus Area (BVH, 2019)

UConn recently updated the Storrs Campus Drainage Master Plan to guide development of the UConn campus from a stormwater perspective, including an updated hydrologic analysis of the Mirror Lake drainage area. One overall goal of the Drainage Master Plan was to identify ways to reduce stormwater flows to below 1993 levels. Comprehensive modeling of campus watersheds, including Roberts Brook, was performed for 1993 (as a baseline year before a period of notable campus development), 2013, 2018, 2020 and 2025, with 2020 and 2025 model years based on planned development as outlined in the Campus Master Plan (UConn & SOM, 2015a). The Drainage Master Plan identified several actions for the Roberts Brook watershed including reducing impervious cover in future development to the maximum extent practicable, exploring and implementing opportunities for flow attenuation to enhance the performance of downstream culverts, which are currently overtopped during 10-year storm event and greater. Specific to Mirror Lake, the Drainage Master Plan recommended studying solutions for increasing the freeboard in Mirror Lake and mitigating downstream impacts from outflows from the lake. Specifically, assessment of the spillway and dam integrity and analysis of the effects of raising the berm, expanding the lake, and modifying the outlet control structure from Mirror Lake (BVH, 2019). In 2020, UConn and CTDEEP signed a Memorandum of Understanding (MOU) regarding UConn's plans to undertake, improve and construct flood mitigation and water quality enhancements in the Roberts Brook (and Eagleville Brook) Watershed in conformance with finding in the Drainage Master Plan (DEEP & UConn, 2020).

3.16.2 Impact Evaluation

Sanitary Sewer

The Proposed Action will not result in any new sources that will tie into the sanitary sewer system, so no impacts to the system will occur under either the No Action or Proposed Action alternatives.

Stormwater/Drainage

Under the No Action alternative, stormwater from the project area would continue to discharge to the existing campus stormwater drainage system and to Mirror Lake, with no additional modifications to either the treatment or management of runoff peak flows or volumes. The No Action alternative will not support the actions identified in the Drainage Master Plan and 2020 MOU between UConn and CTDEEP regarding stormwater management. Deficiencies in freeboard and concerns with slope stability and spillway sliding would remain.

The Proposed Action will address issues associated with stormwater related to both stormwater entering Mirror Lake and the function of Mirror Lake as part of the stormwater management system for the south and eastern portions of the Storrs Campus. The Proposed Action will also improve the quality of stormwater discharging to Mirror Lake by treating existing and any anticipated (based on campus master planning) stormwater runoff in accordance with the Connecticut Stormwater Quality Manual (CTDEEP, 2004). Although the details will be finalized as the design progresses, current schematic design includes hydrodynamic separators (HDS) upstream of all outfalls to the lake, as well as three (3) forebays to supplement sediment and pollutant capture prior to discharge (BVH, 2022; BVH, Towers Golde, et al., 2022). HDSs will be of the type included on the Department of Transportation's list of approved separators and will be sized to treat the Water Quality Flow[35] draining to each unit. Additionally, improvements to Mirror Lake will be designed as a Primary Stormwater Treatment Practice, specifically a Stormwater Pond as defined by

[35] The Water Quality Flow (WQF) is the peak flow rate associated with the water quality design storm or water quality volume (WQV) (CTDEEP, 2004).

the Connecticut Stormwater Quality Manual, and should incorporate all the design features and criteria specified in the manual, including appropriate sizing of forebays. UConn recognizes that long-term maintenance of the forebays will be needed and sizing, planting plans, and access for the forebays will identified in the permitting process to facilitate such maintenance.

In addition to the installation of HDSs and creation of forebays, the installation of vegetated buffers around the lake will provide treatment for stormwater runoff into the lake from adjacent lawn areas and also discourage congregation of waterfowl, particularly, Canada Geese (a source of bacteria and nutrients) from the banks of Mirror Lake.

The dredging of soft sediment and till from the lake bottom will deepen and add volume to Mirror Lake. The removal of the soft sediment deposited from stormwater runoff to the lake, will improve water quality and add storage capacity to the waterbody, and – together with an increase in the elevation of the dam (berm) of approximately 2 feet – will allow for increased freeboard during high flow events. The current schematic design used an incremental damage assessment to identify a spillway design flood (SDF) for the dam. Under this approach, the SDF is the flood where flows from the failure of the dam (i.e., uncontrolled release) would not create a significant increase in the hazard to life and property above the damage already created due to natural flooding of the watercourse. Analysis by GZA identified the current 500-yr (0.2% annual exceedance probability) flood event as the SDF, which has a modeled spillway discharge of approximately 340 cfs (GZA, 2021b). While the recurrence interval of the 340 cfs flow is likely to change over time (i.e., become a 100-yr (1% AEP) or 200-yr (0.5% AEP) event rather than a 500-yr event), the impact of the flow remains relevant. Another way to express this is that for flood events that result in more than 340 cfs of discharge from Mirror Lake, the impact of flooding from failure of the Mirror Lake dam will not result in increased damages compared to the flooding generated by the surrounding downstream watershed.

Overall, the Proposed Action will have a direct positive impact on stormwater utilities on campus since it will support the goals identified in the Drainage Master Plan to address campus stormwater management, improve the stormwater management system in the South Campus area, and increase the resilience of the Roberts Brook system to stormwater runoff under future development and climate conditions (see also Section 3.18).

3.17 Energy Use and Conservation

3.17.1 Existing Conditions

Existing Energy and Sustainability Initiatives

UConn has several active, emerging, and aspirational energy efficiency and sustainability initiatives at the Storrs campus that address energy use and conservation. These include the following:

- Campus Sustainable Design Guidelines (UConn, 2004): The guidelines include specific measures for reduction of energy consumption on new construction projects on campus, including planning sustainable sites, safeguarding water, conserving materials and resources, improving energy efficiency, and enhancing indoor environmental quality.
- Sustainable Design & Construction (LEED Policy) (UConn, 2016a): Adopted in 2007 and revised in 2016, the policy requires all building construction or renovation projects entering the pre-design

planning phase – and projects with estimated total costs more than $5 million – to achieve a LEED Gold rating as a minimum performance standard.

- UConn Climate Action Plan (UConn, 2009): As a signatory for the Presidents' Climate Leadership Commitments, the University has a goal of achieving carbon neutrality by 2050. The UConn Climate Action Plan focuses on strategies for reducing greenhouse gas emissions from the University, including strategies to reduce energy demand, maximize efficiency, make use of "green" or alternative energy solutions.
- 2020 Vision for Campus Sustainability and Climate Leadership (UConn, 2016b): The 2020 Vision for Campus Sustainability and Climate Leadership is a set of specific guidance metrics to support the goals outlined in the UConn Climate Action Plan, which were endorsed by the University President in 2016. The metrics establish baselines and numeric goals to measure successful implementation of the UConn Climate Action Plan across a variety of areas, including energy and buildings, water reduction, outreach and engagement, water resources, food and dining, grounds and open space, purchasing, and transportation.
- UConn Renewable Energy Strategic Plan (UConn, 2012b): The Preliminary Feasibility Study and Strategic Deployment Plan for Renewable & Sustainable Energy Projects identifies and assesses target locations for the development of 12 demonstration-scale renewable and sustainable energy projects for the following technologies: solar thermal, solar photovoltaic, wind, fuel cells, geothermal, and biofuels.
- Sustainability Framework Plan (UConn, 2015): The Sustainability Framework Plan includes initiatives in the areas of energy, water, land, materials, and movement; these initiatives serve as a lens to direct the development of the Campus Master Plan and ensure sustainable growth. The energy initiatives outlined in the Sustainability Framework Plan are intended to support the campus goal of reaching carbon neutrality by 2050.
- President's Working Group on Sustainability and the Environment Report - Transforming UConn to a Zero Carbon Campus: A Path Forward (PWGSE, 2021) – This report presents and analyses implementation scenarios, as well as cost and benefit estimates for achieving a zero-carbon campus by 2040 through phased infrastructure updates at the Storrs Campus. The scenarios include adoption of renewable energy, infrastructure conversions, and plans to retire fossil fuel-powered infrastructure operating within the Central Utility Plant (CUP).

Additional sustainability and energy-related initiatives can be found at: https://sustainability.uconn.edu/.

Existing Lighting and Fountain Pump Conditions

The existing site lighting around Mirror Lake is fed by two different sources. One lighting power source is a panelboard located in Manchester Hall that feeds the site lighting along the north and west sides of Mirror Lake, extending towards the south. The second lighting power source is a panelboard located in the basement of the Whitney House. This panelboard serves the lighting along the east side of Mirror Lake and extends towards Route 195.

Power for the fountain pumps and island lights are provided by a 100-amp panel that is located at the spillway. The existing panel is fed from the panelboard that is in the basement of Whitney House. A 120/240V feeder is extended to the outdoor panel. Controls for the island lights, fountain lights, and fountains are located in a box adjacent to the panelboard. Feeders through Mirror Lake are removed in the fall and re-installed in the spring.

3.17.2 Impact Evaluation

Under the No Action alternative, there would be no anticipated change to energy use from current conditions.

Consistent with the sustainability goals outlined in the Campus Master Plan, the Proposed Action will include underground electrical utilities, an action that has been identified by the University as being important to increasing resiliency to storm events, public safety, and maintaining valuable viewsheds (UConn & SOM, 2015a, p. 67). Fiber cabling and power will be fed to 4, 24"x20"x24" high NEMA 4X enclosures, and wireless access points will be installed on light poles and fed via copper cabling from the enclosures.

Following the 2020 Vision for Campus Sustainability and Climate Leadership, all added site lighting will be LED and will meet the University's standards and guidelines regarding high-efficiency lighting (UConn, 2004, pp. 19–20, 2016b, p. 1). Lighting will also be dark sky compliant to reduce light pollution in the area around Mirror Lake.

Overall, the Proposed Action is not anticipated to result in increased energy demands over existing conditions given the consistent use and activities in the project area, as well as the installation of energy efficient lighting and equipment as part of the Proposed Action

3.18 Climate and Resilience

3.18.1 Existing Conditions

Climate Action at UConn

UConn has been a signatory to the Presidents' Climate Leadership Commitments[36] since March 26, 2008. As a signatory, UConn has committed to developing and implementing a climate action plan (CAP) to help the University achieve carbon neutrality by 2050.

UConn's original CAP was developed in 2009 by five Climate Action Task Forces and focused primarily on strategies for reducing greenhouse gas (GHG) emissions through reductions in energy demand, increases in energy efficiency, and the implementation of sustainable development principles (UConn, 2009). Progress in implementing these strategies and achieving targets for GHG emissions reductions has been tracked through an annual GHG emissions inventory that is published on:

- UConn's Office of Sustainability's GHG inventory webpage,[37]
- The Association for the Advancement of Sustainability in Higher Education (AASHE) Sustainability Tracking, Assessment, and Rating System (STARS),[38] and
- The Second Nature Reporting Platform.[39]

[36] For more on the Presidents' Climate Leadership Commitments see: https://secondnature.org/signatory-handbook/commitments-implementation-handbook/
[37] UConn Greenhouse Gas Inventory: https://sustainability.uconn.edu/2020-uconn-greenhouse-gas-inventory/
[38] UConn AASHE STARS reports: https://reports.aashe.org/institutions/university-of-connecticut-ct/report/
[39] UConn Second Nature reporting platform: https://reporting.secondnature.org/institution/detail!765##765

In 2011, a new task force, known as the Climate Change Adaptation Task Force (CCATF), was created to update the 2009 CAP. The work of the CCATF resulted in an additional section being added to the CAP in 2012 to couple GHG emissions mitigation strategies with adaptation strategies targeted at improving climate resilience (UConn, 2012a).

In December 2016, a new 2020 Vision for Campus Sustainability & Climate Leadership was endorsed by University President Susan Herbst, which provided additional suggestions and metrics for reaching the interim goals in keeping with the CAP (UConn, 2016b). These goals included (but were not limited to):

- Protecting water quality in rivers, streams, lakes, and ponds by replacing storm drains and pipes with green stormwater features
- Creating more naturally-landscaped open spaces to increase biodiversity, maintain UConn's Tree Campus USA designation, and enhance the campus arboretum

Most recently, UConn also joined the University Climate Change Coalition (UC3) [40] in 2018, and in 2020, formed a President's Working Group on Sustainability and the Environment to establish potential pathways to accelerate climate action to achieve a 60% reduction in GHG emission by 2030 and zero GHG emissions by 2040 (PWGSE, 2021). These scenarios included the adoption of renewable technologies, infrastructure conversions, and plans to retire fossil fuel-powered infrastructure operating within the Central Utility Plant.[41]

Existing Climate Conditions

In 2019, a team of UConn researchers reviewed the current state of knowledge regarding observed and projected climate trends and extremes in the State of Connecticut. Results from their state-level assessment for temperature and precipitation revealed the following trends and predictions (CIRCA, 2019):

Observational Climate Trends

- Since 1895, Connecticut's annual average temperature has been increasing by 0.3°F per decade, or 3°F warmer in 2020.
- Seasonal average temperatures have also been increasing, with winter experiencing the greatest increase.
- Precipitation across Connecticut has been increasing by 0.17 inches per decade since 1985, with the largest increases in fall.

Future Climate Predictions

- By the midcentury, average temperatures are expected to increase about 5°F degrees relative to average temperatures from 1970 to 1999 under high CO_2 emission scenarios (RCP 8.5).[42]
- Similarly, under RCP 8.5, average annual precipitation is expected to increase about 8% by 2050 relative to average annual precipitation from 1970 to 1999.
- Indices of hot weather, summer drought, and extreme precipitation, are expected to increase.

[40] UC3 is a network of leading global research university committed to working together to accelerate climate action on campus, in communities, and at a global scale to deliver on the most ambitious goals of the Paris Agreement.
[41] Note: UConn also has several ongoing energy use and conservation initiatives at the Storrs campus that relate to climate and resilience and are referenced in Section 3.17.
[42] In the Representative Concentration Pathway (RCP) 8.5 emissions scenario the radiative forcing level reaches 8.5 Watts per m^2 characterized by increasing greenhouse gas emissions over time representative for scenarios leading to high greenhouse gas concentration levels.

Within Tolland County specifically, the average daily maximum temperature is expected to increase by 4.6°F to 6°F in 2050 over previously observed conditions between 1961 and 1990 where the average temperature was 58.2°F (Figure 16) (U.S. Federal Government, 2021: U.S. Climate Resilience Toolkit Climate Explorer). And, the total annual precipitation within Tolland County is expected to increase by 3.12 inches to 4.73 inches over previously observed conditions between 1961 and 1990 where the average total annual precipitation was 45.95 inches (U.S. Federal Government, 2021: U.S. Climate Resilience Toolkit Climate Explorer).

In addition to changes in total annual precipitation, the number of days with very heavy precipitation, and the amount of heavy precipitation, has also increased (CIRCA, 2019). Current climate projections indicate that this trend will continue, increasing flood risk in Connecticut. The frequency of extreme events of a given size are projected to increase, happening approximately 3-4 times as often during the mid-century and 2-3 times as often during the late-century (CIRCA, 2019).

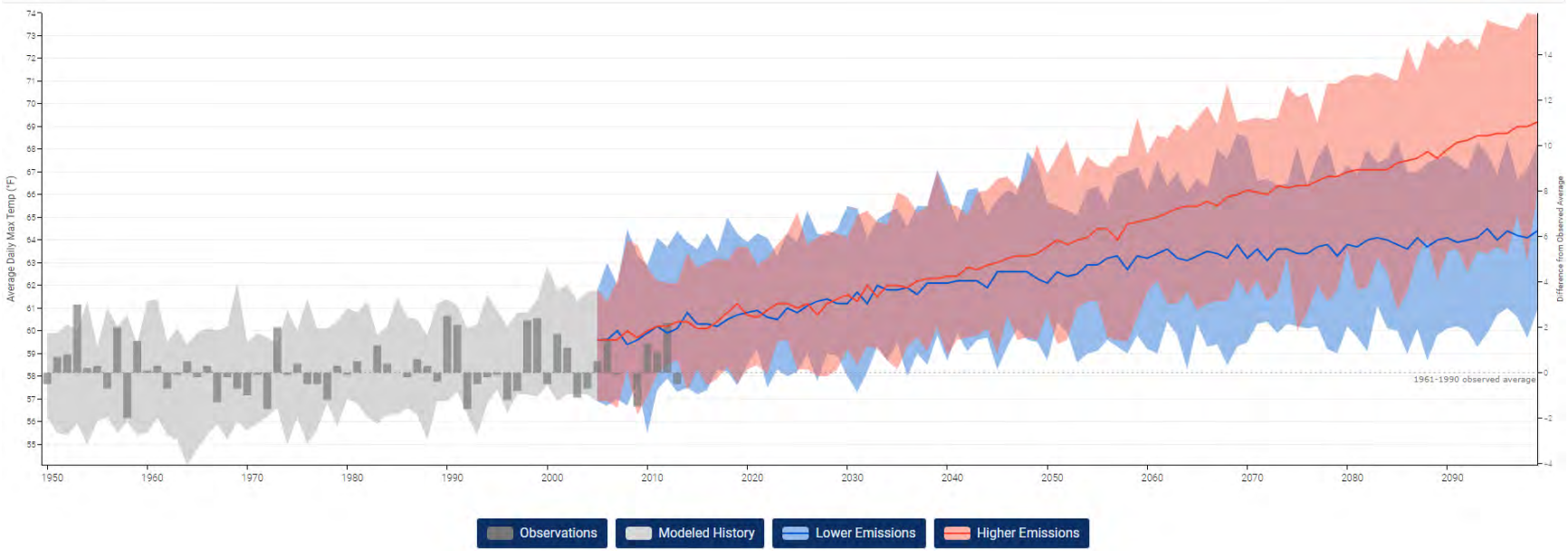

Figure 16 – Observed and Projected Average Daily Maximum Temperature for Tolland County Under Lower Emissions (RCP4.5) and High Emissions (RCP8.5) Scenarios (U.S. Federal Government, 2021)

3.18.2 Impact Evaluation

No Action Alternative

Under the No Action alternative, changing climatic conditions are expected to further exacerbate current environmental health and safety issues at Mirror Lake, although there would be no anticipated impact to GHG emissions under the No Action alternative given the lack of fuel-burning equipment at Mirror Lake. Having been designed and constructed in the 1920's to help manage stormwater runoff, Mirror Lake will continue to inadequately manage current and projected stormwater flows.

As highlighted above in Section 1.2, Mirror Lake continues to be impacted by excessive aquatic plant growth, algal/cyanobacterial blooms, elevated and problematic nutrient loads, nuisance geese populations, and sediment accumulation (GZA, 2021a; Lenard Engineering, 2003; Milone & MacBroom, 2009; Northeast Aquatic Research, 2015). As temperatures across Connecticut are expected to increase by an average of 5°F by 2050 (CIRCA, 2019), it is likely that many of these water quality issues will be exacerbated by the changing climate, including:

- Warmer temperatures and a longer growing season, which can encourage the formation and persistence of algal blooms (US EPA, 2022b)
- Increases in extreme precipitation, which can increase deposition of sediments and nutrients into waterbodies via stormwater runoff.

Additionally, in its current state, prior inspections have indicated that Mirror Lake Dam is unable to pass the current 100-year flood with the required 1 foot of freeboard to satisfy dam safety requirements. Under current conditions, the dam is also unable to pass even the 25-year event with 1 foot of freeboard, illustrating the need for the proposed improvements. In addition, projected increases in precipitation and severe storm events resulting from climate change will likely increase the vulnerability of the Mirror Lake Dam in the absence of improvements to the dam and spillway since the frequency of extreme rainfall, and subsequently flood events, is likely to increase through the end of century compared to 1970-1999 reference conditions (CIRCA, 2019).

Proposed Action

The Mirror Lake Improvements will not result in any direct or indirect adverse impacts to UConn's climate resilience goals and will allow for increased resilience to future increases in precipitation and temperature. The project was identified in UConn's Campus Master Plan as a key near-term project aimed at amplifying the University's commitment to sustainable, resilient landscapes (UConn & SOM, 2015a, p. 104). To address concerns over current and future precipitation and runoff, the Proposed Action will allow for at least 1-foot of freeboard and will be able to accommodate increased flow volumes and greater storm recurrence intervals as a result of changing climatic conditions. Additionally, to achieve further improvements to aquatic health and improve water quality, hydraulic and mechanical dredging will be used to remove the soft sediments and native till soil to deepen the bottom of the lake up to approximately 9 +/- feet below the current spillway elevation. Although stormwater basins may serve as minor sources of GHG emissions compared to other sources on campus (e.g., electricity consumption, mobile sources, direct combustion, etc.), deepening the lake by dredging may also improve potential methane emissions from the lake by allowing for methane oxidation in the water column and reducing diffusive flux to the atmosphere where methane gas acts as a potent GHG (Madeline Reinsel, 2020).

The Proposed Action will also include the installation of sediment forebays at each discharge point to capture and treat additional sediment and nutrients not collected and treated by the existing separators. The Proposed Action will reroute 4 of the 7 existing discharge points to allow for a total of 3 forebays – 2 on the west +/- ide of Mirror Lake and 1 on the south side of Mirror Lake. This is in keeping with the goal of the 2020 Vision for Campus Sustainability & Climate Leadership that emphasizes the protection of water quality in lakes and ponds by replacing storm drains and pipes with green stormwater features.

And lastly, the Proposed Action introduces performative landscapes with native species planting that will provide additional filters for stormwater runoff, contributing to the overall improvements to aquatic health of Mirror Lake under current and future climate conditions.

3.19 Construction Period Impacts

Temporary impacts may occur as a result of the proposed demolition and construction activities. Potential construction-period impacts are related to water resources, noise, air quality, solid and regulated waste, traffic and parking, and stormwater. Measures will be implemented during construction to avoid or minimize potential impacts. Such measures will be incorporated as requirements in the construction specifications or as best management practices (BMPs). In addition, contractors will be required to follow the measures as outlined in the Proposed Actions Drawings and Specifications, as well as the UConn Contractor EHS Manual: Environmental, Health, and Safety (EHS) Requirements for Construction, Service, and Maintenance Contractors (UConn, 2019).

Public Drinking Water Supply Area

UConn will require that contractors adhere to the Connecticut Department of Public Health (DPH) Construction Best Management Practices (BMPs) for Sites within a Public Drinking Water Supply Area (July 2014). A note will be added to the construction documents stating the sensitivity of the area and the need for adherence to the DPH BMPs.

The BMPs address general site conditions, the operation and storage of vehicles and machinery, hazardous materials storage, sanitation, and the need for an emergency response plan. The BMPs require that notification of the project start date be sent to the applicable public water supplier (i.e., UConn Facilities and Operations (FACOPS) and Windham Water Works) and that UConn FACOPS and Windham Water Works personnel be granted daily site access to review compliance with site best management practices. In addition, UConn EHS, Windham Water Works, the Connecticut Department of Public Health Drinking Water Section, and appropriate sections of the CT Department of Energy and Environmental Protection (DEEP) must be notified immediately of any chemical/fuel spill or any major failure of an erosion and sedimentation control at the construction site. Emergency telephone numbers and a statement identifying the construction site as a sensitive public water supply area will be posted where they are readily visible to contractors and other on-site personnel.

Water Resources

Construction activities will impact Mirror Lake, Roberts Brook, and wetlands adjacent to Roberts Brook throughout construction. Impacts to Mirror Lake include dredging, dewatering, and grading of the lake bottom and island. Impacts to Roberts Brook include streambed replacement and grading of the banks.

Impacts to resource areas will be subject to inland wetlands and watercourses permitting as discussed in Section 6.

BMPs will be implemented to protect water quality of Mirror Lake and Roberts Brook, an impaired surface waterbody.[43] Sedimentation and erosion controls consisting of silt fencing, straw bales, and/or straw wattles will be installed upgradient of Roberts Brook and Mirror Lake as per the Site Soil Erosion and Sedimentation Control Plan (BVH, Towers Golde LLC, et al., 2022). Turbidity monitoring, in addition to routine site inspections, will be required monthly. The construction team shall provide all necessary "Qualified Inspectors and Professionals" as defined in the permit regulations. Additional BMPs and other conditions may be identified through the permitting process.

During hydraulic dredging on the lake, a turbidity curtain will be installed in the water around the approach area to the Mirror Lake Dam temporary spillway to limit mobilization of suspended solids to Roberts Brook. Drawdown of the lake will be initiated in a controlled manner to prevent damage to Roberts Brook and prevent downstream flooding or a fish kill. A water diversion pipe and pump will be utilized to remove water remaining in the lake after the controlled drawdown. A sump will be formed in the lake bottom that will receive all diversion channel flow. Flow will be pumped over the dam to the Roberts Brook channel downstream.

For the spillway work, a temporary sheet pile cofferdam will be installed on the upstream side of the spillway to facilitate the new training wall[44] and spillway construction in the "dry."

Noise

Construction activities are a potential source of short-term noise impacts. It is difficult to reliably predict the sound levels that may occur at a particular receptor or group of receptors as a result of construction activity. Heavy construction equipment is the principal source of noise during construction activity, and the pattern of heavy equipment use is constantly changing during construction. For the most part, construction activity would occur during daytime hours when higher sound levels are more tolerable at nearby receptors.

Construction noise is exempt from Connecticut's Noise Regulations contained in section 22a-69-1 through 22a-69-7.4 of the RCSA. However, existing residential and academic buildings within the vicinity of the project area could potentially be impacted by project-related construction noise. Contractors at the University are required to comply with the Occupational Safety and Health Administration's (OSHA's) Noise Standard, 29 CFR 1910.95 and CTDEEP's regulations on the Control of Noise, 22a-69-1 through 7 to minimize potential noise impacts to nearby receptors. In addition, the University has also established noise requirements as part of its Contractor EHS Manual requirements and its standard specifications, which include:

- Limiting on-site work hours to 7:00 AM (or 8:00 AM in the vicinity of a dormitory) to 4:30 PM, Monday through Friday
- Coordinating operations that may result in high levels of noise and vibration, odors, or other disruption
- Providing notification not less than two days in advance of proposed disruptive operations

[43] Waterbodies are considered impaired when an applicable water quality standard is not being attained. Impaired waters require a total maximum daily load (TMDL) or alternative restoration plan to reduce pollutant loadings and restore the waterbody.

[44] A training wall is a wall used to direct the course of a stream.

- Obtaining written permission before proceeding with disruptive operations
- Prohibiting noise levels that can be expected to exceed 85 db (8-hour TWA) at the nearest locations occupied by UConn employees, staff, and/or students

Air Quality

Potential construction-related air quality impacts are associated with the use of diesel-powered construction vehicles. Emissions from diesel equipment include carbon monoxide, hydrocarbons, nitrogen oxides, and particulate matter (PM_{10} and $PM_{2.5}$). Emissions from construction equipment are anticipated to be significantly less than the total emissions from other industrial and transportation sources in the region, and therefore, are expected to be insignificant with respect to compliance with the National Ambient Air Quality Standards (NAAQS). However, potentially localized temporary air quality impacts could occur as a result of diesel exhausts from construction equipment in the vicinity of the project site.

The Connecticut Department of Administrative Services Division of Construction Services (DCS) has adopted requirements for contractors in Article 39 of their General Conditions of the Contract for Construction for Design-Bid-Build. These conditions include the following requirements:

- All contractor and subcontractor diesel powered non-road construction equipment with engine horsepower (HP) ratings of 60 HP and above, that are on the Project or are assigned to the Contract for a period more than 30 consecutive Days, shall be retrofitted with emission control devices in order to reduce diesel emissions. In addition, all motor vehicles and/or construction equipment (both on-highway and non-road) shall comply with all pertinent State and Federal regulations relative to exhaust emission controls and safety.
- Idling of delivery and/or dump trucks, or other diesel-powered equipment shall be limited to three (3) minutes during non-active use in accordance with the Regulations of Connecticut State Agencies Section 22a-174-18(b)(3)(C).
- All work shall be conducted to ensure that no harmful effects are caused to adjacent Sensitive Receptor Sites. Diesel powered engines shall be located away from fresh air intakes, air conditioners, and windows.

The University of Connecticut will include language similar to the DCS General Requirements, Article 39 in contract documents for the Proposed Action to mitigate potential diesel emissions from construction-related activities.

Fugitive dust emissions can occur during ground excavation, material handling and storage, movement of equipment, and transport of material to and from the project site. The potential for fugitive dust emissions is the greatest during periods of intense construction activity and during windy and/or dry weather conditions. Potential air quality impacts from fugitive dust would be addressed through a variety of mitigation measures incorporated into contract specifications for the project, including:

- Reducing exposed erodible earth area to the extent possible through appropriate construction phasing
- Stabilizing exposed earth with grass, pavement, or other cover as early as possible
- Application of stabilizing agent (i.e., calcium chloride, water) to the work areas and haul roads
- Covering, shielding, or stabilizing stockpiled material as necessary
- Use of covered haul trucks
- Limiting dust-producing construction and demolition activities during high wind conditions

- Rinsing of construction equipment with water or any other equivalent method to minimize drag-out of sediment by construction equipment onto the adjacent roads
- Installation of anti-tracking gravel pads at truck/equipment entrances to the job site
- Street sweeping of roads within construction areas

Solid and Regulated Waste

Land clearing debris from site preparation, and construction and demolition waste, other than clean fill (defined as natural soil and rock), will be recycled, reused, and/or disposed of at a permitted landfill or other solid waste facility in accordance with applicable regulatory requirements and the University's policy regarding waste recycling by contractors. The University's Contractor EHS Manual (UConn, 2019) outlines the University's policy for contractor recycling, including materials that must be recycled, collection and disposal of solid waste, and proper treatment or disposal of hazardous and regulated waste.

Specifically, demolition of the existing concrete ogee spillway and dam repair will generate waste during the construction period. All solid waste generated during construction will be characterized prior to disposal and the construction debris recycled, reused, and/or disposed of at a permitted landfill or other solid waste facility in accordance with applicable regulatory requirements and the University policy regarding waste recycling by contractors.

As described in Section 3.3, sediment samples from Mirror Lake exceeded several of the Connecticut Remediation Standard Regulations (RSRs). Therefore, appropriate disposal of the dredged sediments at a licensed waste disposal facility is anticipated based on waste characterization at the time of dredging. It is anticipated that a soil management plan will be developed for the project that will describe segregation and disposal (or reuse) of fill and should also include provisions to temporarily halt excavation and evaluate soils if evidence of petroleum or chemical impacts is observed during excavation.

The need for a CTDEEP General Permit for Contaminated Soil and/or Sediment Management will need to be assessed once final soil pre-characterization is completed during design. Excavated clean fill and natural soils can be reused on-site. Excess natural soils can be taken off-site as "clean" fill without restriction. The University and/or its contractors must follow applicable state and federal regulations regarding the proper management of potentially impacted media.

Traffic and Parking

The Proposed Action may result in some short-term construction-related impacts to traffic and parking due to temporary lane closures, rerouting, and construction vehicle access and staging. These impacts would be short-term, lasting only during construction – significant project-related traffic disruptions are not anticipated. Any potential traffic-related construction impacts would be mitigated by implementing logistic plans, stakeholder meetings, and appropriate traffic management measures that would maintain efficient traffic operations during the construction period. These measures may include construction phasing to minimize disruptions to traffic, signage, detours, and police officers to direct traffic and assist with pedestrian street crossings as needed. If a designated parking area is used for construction staging, there may be temporary loss of use of some or all of that parking area. If necessary, temporary reallocation of employee parking permits to other on-campus parking locations will be used during the construction period.

Stormwater

Construction activity is a potential source of stormwater and water quality impacts from erosion and sedimentation. The construction phase of the project would be subject to the CTDEEP General Permit for the Discharge of Stormwater and Dewatering Wastewater Associated with Construction Activity since the area of site disturbance exceeds 1 acre and is not subject to local review. Construction activities shall also comply with the Connecticut Guidelines for Erosion and Sedimentation Control, as amended. Erosion and sedimentation control measures will be implemented for the project, which may consist of, but shall not be limited to, temporary sediment basins, turbidity curtain, diversion swales, inlet protection, silt fence, construction entrances, etc.

Other Utilities

Other utilities are present in the project area – including sanitary sewer in the immediate vicinity of Mirror Lake; electric, potable water, sanitary sewer and stormwater; and a utility duct bank along Storrs Road (Route 195) where construction vehicle access may be located. Care will be taken to protect existing utilities to avoid damage and/or interruption of service during the construction process.

Visual and Aesthetic

Given the prominent location of Mirror Lake on the Storrs campus, construction activities including the dredging, dewatering, and dam and spillway construction in Mirror Lake will result in construction period impacts to the visual and aesthetic nature of that portion of the campus. Any areas that may be disturbed outside of the project area will be restored to pre-construction conditions.

4 Summary of Impacts

Based upon the findings presented in Section 3, Existing Environment and Analysis of Impacts, this section summarizes unavoidable adverse impacts associated with the proposed project, irreversible and irretrievable commitments of resources, and mitigation measures to reduce or minimize potential impacts associated with the Proposed Action.

4.1 Unavoidable Adverse Impacts

The preceding sections of this EIE have analyzed the potential for "significant effects" (i.e., substantial adverse impacts on the environment) associated with the Proposed Action. Anticipated potential impacts associated with the Proposed Action are summarized in **Table 2**. Design elements and best management practices will be incorporated into the Proposed Action, as described in Sections 1 and 3, to avoid, minimize, or mitigate potential adverse impacts. Where relevant, positive impacts are also noted.

Unavoidable impacts anticipated with the Proposed Action include those associated with impacts to approximately 1,750 SF to 2,150 SF of inland watercourse and inland wetlands bordering Roberts Brook.[45] While the proposed dredging and stormwater outfall improvements are also included in the Proposed Action, these activities – along with restoration improvements to Roberts Brook – will result in benefits to water quality, aquatic habitat, and stormwater management. Construction-related impacts to traffic/parking, air quality, noise, solid waste, and stormwater are unavoidable but are temporary in nature and will be mitigated using best management practices during construction (see Section 3.19 and Section 4.4).

Alterations to resource areas associated with Mirror Lake and Roberts Brook will be permitted under the CTDEEP Dam Safety, Inland Wetlands and Water Courses permits, and Section 401 Water Quality and Flood Management Certification, and these resource areas will be subject to the conditions of the U.S. Army Corps of Engineers Connecticut General Permit. Appropriate mitigation will be identified through the permitting process.

4.2 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments of resources associated with the Proposed Action consist of resources that remain committed to a project through its lifespan (i.e., irreversible commitment) or those that are consumed or permanently impacted during project construction and operation as a result of the Proposed Action (i.e., irretrievable commitment). Note that there is no change in land use.

Irreversible and irretrievable resources that would be committed to the Proposed Action include energy (electric), construction materials, land, human labor, and finances:

- **Energy** – Energy will be consumed for project construction, but lighting installed around Mirror Lake is not expected to result in any significant overall energy use on campus.

[45] The exact area of impact will depend on the selection of alternatives included in the final design.

- **Construction Materials** – A variety of construction materials will be utilized for the Mirror Lake Improvements project. Some of the materials used may be reused or recycled.
- **Human Labor** – The dedication of human labor to the construction and operational phases of the project represents an irretrievable expenditure of time and production that cannot be used for other purposes.
- **Financial** – The required expenditures represent funds that, once committed, are no longer available for other purposes and once spent, cannot be regained.

4.3 Indirect and Cumulative Impacts

CEPA requires that the sponsoring agency consider the indirect (or secondary) impacts and cumulative impacts of its actions. Secondary or indirect impacts are effects of an action that are removed in time or distance from the action itself. Cumulative impacts are those that result from the incremental impact of a proposed action when added to other past, present, or reasonably foreseeable future actions of the agency (i.e., UConn).

4.3.1 Indirect Impacts

There are two possible types of secondary or indirect effects – encroachment-alteration and induced growth (or growth influencing).

Indirect or secondary effects associated with encroachment-alteration can result in long-term degradation to a resource. The proposed action will result in direct impact to a wetland area in the vicinity of the dam and spillway. Since the project is largely repair and restoration of the existing dam, lake, and stormwater outfalls, there is little potential for impact from encroachment-alteration. Although the Proposed Action is within the Roberts Brook watershed, the improvements to Mirror Lake – in particular, the improvements to stormwater management – are expected to have a net benefit impact to water quality. Therefore, no adverse indirect effects associated with encroachment-alteration are anticipated as a result of the Proposed Action.

Given the nature of the Proposed Action, there are no foreseeable indirect impacts associated with induced growth.

4.3.2 Cumulative Impacts

Potential cumulative impacts can occur to those resources for which direct or indirect impacts from the Proposed Action are anticipated. Based on the analysis in Section 3 of this EIE, the Proposed Action will result in changes to landscape features surrounding Mirror Lake, but the impact analysis in Section 3 does not indicate significant adverse effects to visual or aesthetic resources. Sharing and discussion of final landscaping plans with the State Historic Preservation Office (SHPO) will continue to support the initial SHPO finding of no adverse effect to historic resources.

Typically, cumulative impacts would not be anticipated in the absence of significant adverse effects. However, considering the past, present, and reasonably foreseeable University actions, a discussion of cumulative impacts is provided. In particular, cumulative impacts on wetlands and watercourses within the Roberts Brook watershed are not anticipated because the proposed improvements to Mirror Lake are consistent with

larger stormwater management objectives identified by UConn in consultation with CTDEEP. Maintaining the discharges from Mirror Lake to be consistent with pre-1993 conditions represents a significant effort on the part of UConn to mitigate cumulative impacts to stormwater and water quality from development on campus over the past several decades, as well as reasonably foreseeable development in the South Campus area.

4.4 Summary of Impacts and Mitigation Measures

Mitigation measures have been identified to reduce or offset potential adverse impacts associated with the proposed project. These are summarized in **Table 2** by resource category as described in Section 3 of this EIE. For resource categories for which no mitigation is proposed, the impact evaluation has determined that either the impacts are insignificant, requiring no mitigation, or that there will be no adverse impacts resulting from the proposed project.

Table 2 – Summary of Impacts and Proposed Mitigation Measures

Resource Category	Impacts	Proposed Mitigation
Consistency with Planning	• Will be consistent with Connecticut's State Conservation and Development Policies Plan • Will be consistent with Local Zoning and Planning • Will be consistent with Campus Master Planning	• None
Geology, Topography, and Soils	• No Prime Farmland Soils or Soils of Statewide Importance • Grading is anticipated throughout the project site. The site is already developed, and topography and soils have been previously modified.	• None
Water Resources	• Will improve aquatic health and water quality of Mirror Lake and Roberts Brook within the project site • Capacity of stormwater basin is anticipated to increase due to replacement of the spillway and increasing the dam embankment height. • Treatment of stormwater leaving the site is anticipated to improve over existing conditions due to the proposed vegetated forebays,	• The stormwater features (i.e., vegetated forebays, hydrodynamic separators, and Mirror Lake, a stormwater pond) will be consistent with the guidelines of the CTDEEP *Connecticut Stormwater Quality Manual* (as amended). • Measures for additional water quality improvements (e.g., artificial circulation, etc.) may be considered in the future. • O&M Plan will ensure ongoing operation of stormwater features.

Resource Category	Impacts	Proposed Mitigation
	hydrodynamic separators, and landscaping improvements. • No floodplain-related impacts are expected.	
Wetlands	• Anticipate approximately 5 acres of inland watercourse (i.e., Mirror Lake) to be directly altered by dredging. • Surface area of Mirror Lake will be reduced by 10% (or less) compared to existing conditions. • Approximately 1,750 SF to 2,150 SF of inland watercourse and inland wetlands bordering Roberts Brook will be impacted by the Roberts Brook restoration depending on final design.	• Mitigation measures will be identified through the permitting process. • Dredging of Mirror Lake is designed to result in improvement in water quality.
Natural Communities, Flora, and Fauna	• Two federally threatened/endangered, or candidate species (northern long-eared bat, threatened; monarch butterfly, candidate) are potentially in the region. • NDDB Review indicated no negative impacts to state-listed species. • Select vegetation clearing, including trees. • No known northern long-eared bat hibernacula are mapped within the Town of Mansfield, therefore no impacts to are anticipated. • Aquatic habitat improvements from improved water quality and increased landscape diversity are anticipated.	• Proposed landscaping may provide additional host plants and food sources for the monarch butterfly.
Noise	• Consistent with existing institutional and commercial setting	• None
Air Quality	• No anticipated direct effects to the mobile sources of air pollution at the project site	• None
Solid Waste	• Typical institutional waste stream	• None

Resource Category	Impacts	Proposed Mitigation
Toxic and Hazardous Materials	• No generation of toxic and/or hazardous materials is anticipated	• None
Public Health and Safety	• Improvements to public safety by addressing dam/spillway deficiencies • Long-term public health benefits from water quality improvements reducing likelihood of harmful cyanobacteria blooms	• None
Cultural Resources	• Site is located within a National Register Historic District. • Pending further review of landscape elements with the State Historic Preservation Office (SHPO), SHPO has indicated no anticipated adverse impact to historic resources • Nearby contributing structures to the Historic District will not be impacted.	• UConn will host a follow-up meeting with SHPO and Preservation Connecticut to further discuss the project and provide additional comments on the design. • The final design team for the project will include a landscape architecture firm with experience in cultural landscapes and contributing resources to historic districts.
Visual and Aesthetic Character	• Integration of the site with surrounding landscapes and built environment • Improvements of visual and aesthetic character from the proposed shoreline and littoral zone plantings in curvilinear beds and increased access to the water's edge	• Implementation of visual/aesthetic elements of the Campus Master Plan and District guidelines, incorporation of stormwater infrastructure into the visual landscape, and use of natural materials.
Socioeconomics	• No impacts to Environmental Justice Communities • Generates new construction jobs • Advances the environmental sustainability mission in the Campus Master Plan	• None
Traffic, Parking, and Circulation	• No expected increase in site-generated traffic volumes • No disruption of existing intersections • Supports pedestrian and bicycle access to Mirror Lake • No anticipated impacts to parking	• None
Utilities	• Will support the goals identified in the Drainage Master Plan to	• Stormwater systems will be designed in accordance with the Connecticut

Resource Category	Impacts	Proposed Mitigation
	improve the stormwater management system and increase the resilience of the Roberts Brook system to stormwater runoff under future development and climate conditions • No anticipated impacts to electrical service, water, gas and sewer utilities	Stormwater Quality Manual and any memoranda of agreement between UConn and CTDEEP related to stormwater in effect at the time of construction
Energy Use and Conservation	• Consistent with the sustainability goals outlined in the Campus Master Plan and not anticipated to increase energy demands over existing conditions	• Added site lighting will be LED and will meet the University's standards and guidelines regarding high-efficiency lighting.
Climate and Resilience	• Amplifies the University's commitment to sustainable, resilient landscapes • Proposed dam embankment height will better allow for future increases in precipitation intensity and runoff. • Increased stormwater storage capacity of Mirror Lake due to proposed dredging and increased embankment height	• None
Construction Period		
Public Drinking Water Supply Area / Water Resources	• Exposure of soil increases potential for erosion and sedimentation. • In-water work in Mirror Lake and Roberts Brook increases potential for turbidity.	• Require contractors to adhere to the Connecticut Department of Public Health Construction Best Management Practices (BMPs) for work in Drinking Water Supplies. • Use of appropriate erosion and sediment controls during construction, consistent with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* (as amended) and the *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* • Monthly turbidity monitoring and inspections • Installation of a turbidity curtain during Mirror Lake dredging and a coffer dam during the spillway replacement

Resource Category	Impacts	Proposed Mitigation
Noise	• Heavy construction equipment associated with site development may result in temporary increases in noise levels in the immediate area of construction.	• Contractors will be required to comply with noise control requirements in UConn's *Contractor EHS Manual: Environmental, Health, and Safety (EHS) Requirements for Construction, Service, and Maintenance Contractors,* including reference to such requirements in contract documents. • Ensure proper operation and maintenance of construction equipment. • Construction contractors should make every reasonable effort to limit construction noise impacts.
Traffic, Parking, and Circulation	• Minor, temporary disruptions to traffic in the immediate area of construction • Potential for construction staging in S Lot.	• Use of construction-phase traffic management measures to maintain efficient traffic operations during the construction period including construction phasing to minimize disruptions to traffic, signage, and detours • May temporarily reallocate employee parking permits to other on-campus parking locations during the construction period if S Lot is used for construction staging
Air Quality	• Construction activities may result in short-term impacts to ambient air quality due to direct emissions from construction equipment and fugitive dust emissions.	• Contractors will be required to comply with air pollution control requirements in UConn's *Contractor EHS Manual: Environmental, Health, and Safety (EHS) Requirements for Construction, Service, and Maintenance Contractors,* including reference to such requirements in contract documents. • Ensure proper operation and maintenance of construction equipment. • Limit idling of construction vehicles and equipment to three minutes. • Implement traffic management measures during construction. • Implement appropriate controls to prevent the generation and mobilization of dust.
Solid Waste	• Generation of solid waste including construction and demolition debris	• Contractors will be required to comply with requirements for construction-related hazardous materials and solid

Resource Category	Impacts	Proposed Mitigation
		waste in UConn's *Contractor EHS Manual: Environmental, Health, and Safety (EHS) Requirements for Construction, Service, and Maintenance Contractors,* including reference to such requirements in contract documents. • Construction-related solid waste will be handled and disposed of in a manner that meets current regulations and University standards. Construction and demolition debris will be managed in accordance with applicable state and federal regulations and the University's contractor policies.
Toxic and Hazardous Materials	• Temporary on-site storage and use of fuels and other materials associated with construction vehicles and equipment	• Contractors will be required to comply with requirements for construction-related hazardous materials and solid waste in UConn's *Contractor EHS Manual: Environmental, Health, and Safety (EHS) Requirements for Construction, Service, and Maintenance Contractors,* including reference to such requirements in contract documents. • Hazardous or regulated materials or subsurface contamination encountered during construction will be characterized and disposed of in accordance with applicable state and federal regulations.
Utilities	• Proposed work at Mirror Lake and dewatering at the Great Lawn/Manchester Hall parking lot is within the vicinity of sanitary sewer, electric, potable water, and stormwater utilities.	• Care will be taken to protect existing utilities to avoid damage and/or interruption of service during the construction process.
Visual and Aesthetic	• Impairments to visual and aesthetics of Mirror Lake and the Great Lawn/Manchester Hall lot during construction due to site work, staging, and dewatering.	• Mirror Lake and surrounding area, and the Great Lawn/Manchester Hall parking lot will be restored following the conclusion of construction.

5 Costs and Benefits

The primary costs of the Proposed Action stem from the monetary costs required for the construction of the Mirror Lake improvements and the costs associated with ongoing operations and maintenance. Construction costs are likely to change as the design advances to completion, and operational and maintenance costs cannot accurately be provided at this time. However, it is anticipated that the operational and maintenance costs will be comparable or less than the No Action alternative. The proposed vegetated forebays may require additional maintenance, yet the incorporation of LED lighting, reduction in the number of operational stormwater outfalls, and the construction of sedimentation mitigation measures are expected to yield long-term savings in operational and maintenance costs, as well as reduce the potential for downstream damage to impacts due to flooding compared to the No Action alternative.

Costs associated with environmental impacts are minimal, as described in detail in Section 3 and summarized again here. Landscape improvements associated with the Proposed Action will result in an estimated 10% net loss to the aerial extent of Mirror Lake; however, the proposed dredging will result in a net increase in the volume and water storage capacity of Mirror Lake. Stream restoration activities between the spillway and the crossing beneath Storrs Road (Route 195) are also expected to result in 1,750 ft^2 to 2,150 ft^2 of disturbance to resource areas within Roberts Brook depending on the selection of alternatives included in the final design. However, the proposed stream restoration improvements are designed to increase sinuosity and habitat diversity, reduce outflow velocities, and create turbulence and oxygenation of the water within the Brook. Lastly, it is anticipated that the construction of the riparian planting area downstream of the spillway will result in permanent wetland loss. However, the proposed rain garden and depression area may result in an overall expansion of the wetland in this area. And, it is expected that these improvements will provide valuable ecosystem services including groundwater recharge, sediment, pollutant, and nutrient removal, and flood flow alteration.

Although the monetary cost for the Proposed Action is anticipated to be a multimillion-dollar investment; without the project, UConn would not be able to meet the needs for the project (see Section 1.2). These needs include addressing important dam/spillway safety deficiencies, better managing stormwater and slowing sediment accumulation, and improving the aquatic health and function of Mirror Lake as an iconic landmark on campus.

Weighing the project's construction costs and relatively minor adverse environmental impact against immediate needs and the potential long-term benefits of the Proposed Action, the Mirror Lake Improvements project will be an overall beneficial action that justifies the costs.

6 Potential Certificates, Permits, and Approvals

Table 3 lists the certificates, permits, and approvals that are anticipated to be required for the Proposed Action. Additional certificates, permits, and approvals may be identified following the CEPA process, pending the final design of the Mirror Lake Improvements.

Table 3 – List of Required Certificates, Permits and Approvals

Phase 1 – Hydraulic Dredging

Certificate/Permit/ Approval	Category	Agency	Comments
Natural Diversity Database (NDDB) Review	Threatened and Endangered Species	CTDEEP NDDB	Consultation for presence of listed threatened, endangered, and special concern species as part of the dam safety permitting. Note: Consultation was completed as part of the CEPA process (NDDB Determination No.: 202200194), see Appendix B.
SHPO Review	Cultural/Historic	CT State Historic Preservation Office	Review for effects of project actions on historic resources
Fisheries Consultation	Fisheries	CTDEEP Bureau of Natural Resources – Inland Fisheries Division	Consultation to address fisheries issues associated with the hydraulic dredging permitting.
Inland Wetlands and Watercourses Permit	Wetlands/Water Resources	CTDEEP Bureau of Water Protection and Land Reuse – Land and Water Resources Division	Inland wetlands and watercourses permit due to alteration of inland wetlands and watercourse associated with Mirror Lake and Roberts Brook.
Wastewater Discharges from Manufacturing, Commercial and Other Activities	Wastewater Discharge	CTDEEP Bureau of Materials Management & Compliance Assurance, Water Permitting & Enforcement Divisions	Individual Permit required to dewater and process hydraulic dredging discharge
Non-consumptive Water Diversion Permit	Water Resources	CTDEEP Bureau of Water Protection and Land Reuse	Possibly required for diversion of water during dredging/construction. Should be coordinated with CTDEEP.

Certificate/Permit/ Approval	Category	Agency	Comments
General Permit for Discharge of Stormwater and Dewatering Wastewater Associated with Construction Activities	Stormwater	CTDEEP Bureau of Materials Management and Compliance Assurance	Registration required since total site disturbance exceeds 1 acre

Phase 2 – Mirror Lake and Dam Improvements

Certificate/Permit/ Approval	Category	Agency	Comments
Flood Management Certification	Flood Management	CTDEEP Bureau of Water Protection and Land Reuse – Land and Water Resources Division	Flood Management Certification required for alteration of drainage system.
Dam Safety Individual Permit	Dam Safety	CTDEEP Dam Safety	Individual Permit needed for dam safety projects not falling under one of the dam safety general permits. Note that NBBD and Fisheries Consultation required.
Natural Diversity Database (NDDB) Review	Threatened and Endangered Species	CTDEEP NDDB	Consultation for presence of threatened and endangered species as part of the dam safety permitting. Note: Consultation was completed as part of the CEPA process (NDDB Determination No.: 202200194), see Appendix B.
Fisheries Consultation	Fisheries	CTDEEP Bureau of Natural Resources – Inland Fisheries Division	Consultation to address any fisheries issues associated with the dam safety permitting.
Inland Wetlands and Watercourses Permit	Wetlands/Water Resources	CTDEEP Bureau of Water Protection and Land Reuse – Land and Water Resources Division	Inland wetlands and watercourses permit due to alteration of inland wetlands and watercourse associated with Mirror Lake and Roberts Brook.

Certificate/Permit/ Approval	Category	Agency	Comments
401 Water Quality Certification	Wetlands/Water Resources	CTDEEP Bureau of Water Protection and Land Reuse – Land and Water Resources Division	Required if there is federal permit/approval and proposed activity may result in any discharge into the navigable waters.
Clean Water Act Section 404 – Individual Permit	Wetlands	U.S. Army Corps of Engineers	Individual Permit is assumed to be required.
Non-consumptive Water Diversion Permit	Water Resources	CTDEEP Bureau of Water Protection and Land Reuse	Possibly required for diversion of water during dredging/construction. Should be coordinated with CTDEEP.
General Permit for Discharge of Stormwater and Dewatering Wastewater Associated with Construction Activities	Stormwater	CTDEEP Bureau of Materials Management and Compliance Assurance	Registration required since total site disturbance exceeds 1 acre
Information for Planning and Consultation (IPaC)	Threatened and Endangered Species	US Fish and Wildlife Service	Consultation to obtain an official listed species list and evaluate potential impacts on critical habitat, migratory birds, or other natural resources
National Historic Preservation Act of 1966 (Section 106) Review and Compliance	Cultural/Historic	CT State Historic Preservation Office, Mashantucket Pequot and Mohegan Tribe (federally recognized Tribes)	Federal, State and Tribal Historic Review Process: initiate, identify, assess, and resolve by initiating consultations with SHPO and interested parties, identifying the scope of the project and historic resources, assessing the project impacts on historic properties

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Appendix A: Scoping and Post-Scoping Materials

Connecticut State
Council on Environmental Quality

(/CEQ)

Search Council on Environmental Quality

November 16, 2021

Scoping Notice

1. Notice of Scoping for Southbury Training School Farm Building Demolition, Southbury.
2. Notice of Scoping for Wellington at Madison, Multifamily Housing, Madison.
3. Notice of Scoping for Enfield Manor – Elderly/Disabled Housing Development, Enfield.
4. **NEW!** Notice of Scoping for Mirror Lake Improvements at the University of Connecticut, Mansfield.
5. **NEW!** Notice of Scoping for South Campus Residence Hall at the University of Connecticut, Mansfield

Scoping Notice - Post-Scoping Notice (Need More Time)

No notice for additional time has been submitted for publication in this edition.

Post-Scoping Notice

No Post-Scoping Notice has been submitted for publication in this edition.

Environmental Impact Evaluation (EIE)

1. Notice of an Environmental Impact Evaluation (EIE) for Naugatuck Valley Regional Wastewater Study, Ansonia, Derby, and Seymour.

Agency Record of Decision

No Record of Decision Notice has been submitted for publication in this edition.

OPM Determination of Adequacy

No Determination of Adequacy Notice has been submitted for publication in this edition.

State Land Transfer

1. **NEW!** Notice of Proposed Land Transfer in Trumbull.

The next edition of the Environmental Monitor will be published on **December 7, 2021**.

Subscribe (https://confirmsubscription.com/h/j/ED852A9EE7823EDF) **to e-alerts** to receive an e-

mail when the Environmental Monitor is published.

Notices in the Environmental Monitor are written and formatted by the sponsoring agencies and are published unedited. Questions about the content of any notice should be directed to the sponsoring agency. Inquiries and requests to view or copy documents, pursuant to the Freedom of Information Act, must be submitted to the sponsoring state agency.

Scoping Notice

"Scoping" is for projects in the earliest stages of planning. At the scoping stage, detailed information on a project's design, alternatives, and environmental impacts does not yet exist. Sponsoring agencies are asking for comments from other agencies and from the public as to the scope of alternatives and environmental impacts that should be considered for further study. Send your comments to the contact person listed for the project by the date indicated. **Read More (https://portal.ct.gov/CEQ/Environmental-Monitor/CEPA-Regulations#22a-1a-6)**

The following Scoping Notices have been submitted for publication in this edition.

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1. Notice of Scoping for Southbury Training School Farm Building Demolition

Project Title: Department of Agriculture – Southbury Training School Farm Building Demolition

Location: Corner of Spruce Brook Rd., Purchase Brook Rd. and Cassidy Rd. in Southbury

Municipality where proposed action might be located: Southbury

Project Description: This project would involve demolition of certain buildings within property under the custody and control of the Department of Agriculture, in the town of Southbury. While the Department has undertaken an **Adaptive Re-Use Study** in hopes of restoring some or all of the buildings, demolition has become necessary due to safety and vandalism concerns, prohibitive restoration costs, and the fact that none of the farmers leasing land from the Department of Agriculture at the property have an agricultural use for the subject buildings and structures. The buildings identified for demolition are as follows:

1. Farm Cottage #1 and #2 (building #'s 4 and 1 on the attached diagram);
2. Foreman's house and the associated garage (building #'s 2 and 3 on the attached diagram);
3. Triplex farmhouse (building #18);

4. Transformer house (building #6);
5. Milk house and smokestack (building #7);
6. Bunker silo (building #11); and
7. Abattoir (identified by name, located along Cassidy Road).

Project Map and Photos: **Click here** to view a map of the project area. **Click here** to view photos of the buildings targeted for demolition.

Other Materials: **Click here** for a letter from State Historic Preservation Office, relevant to this project. **Click here** to see the nomination to the National Register of Historic Places, which includes these buildings.

Written comments: Written comments from the public are welcomed and will be accepted until the **close of business on December 3, 2021.**

Public Scoping Meeting: Any person may ask to hold a Public Scoping Meeting by sending such a request to the address below. If a meeting is requested by 25 or more individuals, or by an association that represents 25 or more members, the Department of Agriculture, as the sponsoring agency, must schedule a Public Scoping Meeting. **Such requests must be made by November 12, 2021.**

Written comments and/or requests for a public scoping meeting should be sent by fax or e-mail to:

Name: Stephen Anderson
Agency: Department of Agriculture
Address: 450 Columbus Boulevard, Suite 703, Hartford, CT 06103
Fax: (860) 920-3134
E-Mail: stephen.anderson@ct.gov

Inquiries and requests to view and or copy documents: Pursuant to the Freedom of Information Act, requests can be submitted to the Department of Agriculture, using the process outlined on the Department of Agriculture website. **Click here (https://portal.ct.gov/DOAG/Commissioner/Commissioner/FOIA#:~:text=Freedom%20of%20Informat** go to the website.

What Happens Next: The sponsoring agency will make a determination whether to proceed with preparation of an Environmental Impact Evaluation (EIE) or that the project does not require the

preparation of an EIE under the Connecticut Environmental Policy Act (CEPA). A Post-Scoping Notice of its decision will appear in a future edition of the Environmental Monitor.

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2. Notice of Scoping for Wellington at Madison, Multifamily Housing

Address: 131 Cottage Road

Municipality: Madison, CT

Project Description:
The proposed project is multifamily residential for 31 housing units in six structures on a 2.86 acre site at 131 Cottage Road in Madison. Providing high quality rental housing to families with a range of incomes (80% affordable, 20% market rate) is the goal of the non-profit developer. The site design aims to create a neighborhood feel by incorporating the renovation of a historic home and barn and newly constructed condominium-style buildings centered around a village green area.

The property is in a transitional zoned district and a high opportunity area within walking distance to neighborhood amenities including retail and commercial facilities and public transportation. The site plan includes a community center, parking, landscaping, and stone walkways and sidewalks. The project includes the renovation of the historic Henry Josiah Meigs House c1808-1810 which is listed on the State Registry of historic places. The State Historic Preservation Office has reviewed the work and has determined that there will be no adverse effects to historic resources. A property easement has been entered at the north edge of the site. The project will include on-site septic systems engineered to meet all local and state public health requirements. All other services will be provided by public utilities. The development has received local planning and zoning approvals from the town of Madison.

Although a portion of the site is currently in the 500 year flood plain, the actual ground elevations are above the 500 year flood elevation of 11.5 feet. Because of this discrepancy, an application has been filed for a FEMA Letter of Map Amendment. Obtaining a flood management certification from CT Department of Energy & Environmental Protection will be a secondary measure of flood safety if required. The ground floor finished floor elevations will be more than two feet above the 500 year flood plain and all new housing units will have dry and safe egress from the flood plain limits.

Project Maps:

Click here to view a **Vicinity Map** for the project area.
Click here to view a **Site Plan** of the project.

Written comments from the public are welcomed and will be accepted until the close of business on: **Thursday, December 2, 2021.**

Any person may ask the sponsoring agency to hold a Public Scoping Meeting by sending such a request to the address below. If a meeting is requested by 25 or more individuals, or by an association that represents 25 or more members, the sponsoring agency shall schedule a Public Scoping Meeting. Such requests must be made by **Friday, November 12, 2021.**

Written comments and/or requests for a public scoping meeting should be sent to:

Name: JaCinta Frazier
Agency: Department of Housing
Address: 505 Hudson Street, Hartford, CT 06106
E-Mail: DOH.CEPA@ct.gov (mailto:DOH.CEPA@ct.gov)

If you have questions about the public meeting, or other questions about the scoping for this project, contact:

Name: JaCinta Frazier
Agency: Department of Housing
Address: 505 Hudson Street, Hartford, CT 06106
E-Mail: DOH.CEPA@ct.gov (mailto:DOH.CEPA@ct.gov)

Inquiries and requests to view and or copy documents, pursuant to the Freedom of Information Act, must be submitted to the sponsoring state agency:

Name: Randi Pincus, Staff Attorney
Agency: Department of Housing
Address: 505 Hudson Street, Hartford, CT 06106
E-Mail: Randi.Pincus@ct.gov (mailto:Randi.Pincus@ct.gov)

What Happens Next: The sponsoring agency will make a determination whether to proceed with preparation of an Environmental Impact Evaluation (EIE) or that the project does not require the preparation of an EIE under the Connecticut Environmental Policy Act (CEPA). A Post-Scoping Notice of its decision will appear in a future edition of the Environmental Monitor.

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3. Notice of Scoping for Enfield Manor – Elderly/Disabled Housing Development

Address: Enfield Terrace

Municipality: Enfield, CT

Project Description:

The proposed project is a redevelopment of a facility for elderly and disabled individuals for the Enfield Housing Authority as a State Sponsored Housing Portfolio property. The affordability mix will include 56 units for households less than 50% Area Median Income (AMI) and 43 units less than 60% AMI. The plans include demolition of the existing buildings and new construction of 2 three-story buildings containing 99 rental units totaling 109,000 gross square feet on an 11.82 acre site. The relocation plan includes a phased approach as new units are constructed. The new construction will meet all state and federal guidelines for accessibility and energy efficiency. The site is in a Priority Funding area and is serviced by local bus service to shopping, medical offices, and commuter bus lines. The new site plan will include a community center, laundry, parking, greenspace, emergency access roads, and a walking path.
Environmental site assessments do not identify any recognized environmental concerns or areas of concern. The existing buildings will be fully abated of all hazardous materials prior to demolition. The State Historic Preservation Office has reviewed project and has determined that no historic properties will be affected. The Enfield local Historic Commission has also approved the project.

The proposed site plan includes the preservation and protection of the existing state wetlands on the eastern portion of the site. The plans have been reviewed and approved by the Town of Enfield Inland Wetlands Commission and the project will meet all required measures and conditions of approval. The location does not include critical habitat or listed species according to state and federal maps and it is not inside of any mapped aquifer protection, watershed, or flood zone areas. There are no farmland activities at this site and the state's farmland soils map indicates that the site does not contain over 5 acres of farmland soils. The proposed project has received the review and approval of the Enfield Planning and Zoning Commission on February 28, 2019.

Project Maps:

Click here to view a **Vicinity Map** for the project area.

Click here to view a **Demolition Plan** of the project.

Click here to view the **Proposed Site Plan** for the project.

Written comments from the public are welcomed and will be accepted until the close of business on **Thursday, December 2, 2021.**

Any person may ask the sponsoring agency to hold a Public Scoping Meeting by sending such a request to the address below. If a meeting is requested by 25 or more individuals, or by an association that represents 25 or more members, the sponsoring agency shall schedule a Public Scoping Meeting. Such requests must be made by **Friday, November 12, 2021.**

Written comments and/or requests for a public scoping meeting should be sent to:

Name: JaCinta Frazier
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If you have questions about the public meeting, or other questions about the scoping for this project, contact:

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Inquiries and requests to view and or copy documents, pursuant to the Freedom of Information Act, must be submitted to the sponsoring state agency:

Name: Randi Pincus, Staff Attorney
Agency: Department of Housing
Address: 505 Hudson Street, Hartford, CT 06106
E-Mail: Randi.Pincus@ct.gov (mailto:Randi.Pincus@ct.gov)

What Happens Next: The sponsoring agency will make a determination whether to proceed with preparation of an Environmental Impact Evaluation (EIE) or that the project does not require the preparation of an EIE under the Connecticut Environmental Policy Act (CEPA). A Post-Scoping Notice of its decision will appear in a future edition of the Environmental Monitor.

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4. Notice of Scoping for Mirror Lake Improvements at the University of Connecticut

Project Title: Mirror Lake Improvements

Addresses of Possible Locations: Mansfield Road at the University of Connecticut, Storrs

Municipality Where Proposed Action Might be Located: Mansfield

Project Description:

The University of Connecticut (UConn) is planning to design and reconstruct Mirror Lake – a large stormwater basin on the Storrs Campus, in the area of the South Campus roughly bounded by Storrs Road to the east, Mansfield Road to the south and west, and Harry Grant Manchester Hall to the north. Known as the “Mirror Lake Improvements Project,” the Proposed Action to be assessed under the Connecticut Environmental Policy Act (CEPA) process consists of the following elements:

- Utility and infrastructure improvements, including tie-in to existing utilities available in the project area
- Mirror Lake restoration, dam and spillway modifications, and green infrastructure improvements for stormwater management

The Proposed Action is located within the Roberts Brook subwatershed, within the Fenton River watershed, and within the University of Connecticut Historic District. Elements of the Proposed Action were identified in the University's Campus Master Plan, including improvements to Mirror Lake and its immediate surroundings. An updated campus drainage master plan and a recently-completed feasibility study for Mirror Lake identified needed modifications to the stormwater basin, spillway and dam to improve storage, quality, and safety. UConn will incorporate comments from a public scoping meeting and evaluate the Proposed Action with taking no action or other feasible alternatives. Direct, indirect, and cumulative impacts associated with the Proposed Action will also be assessed.

Project Maps and Photos:

Click the following link for a general location of the project area:

https://portal.ct.gov/-/media/UConn/Mirror-Lake-Improvements/Site_Map_Mirror_Lake.pdf

Written Comments:

Written comments from the public are welcomed and will be accepted until the **close of business on December 16, 2021**.

Public Scoping Meeting:

There will be a Public Scoping Meeting for this proposed action.

Date: Wednesday, December 8th

Time: 6:30 PM (EST)

Place: Virtual

Notes: Participants MUST REGISTER IN ADVANCE through the following link:

https://attendee.gotowebinar.com/register/6080155684541563918 (https://attendee.gotowebinar.com/register/6080155684541563918)

After registering, you will receive a confirmation email containing information about joining the meeting (including an option to join by phone).

Additional information regarding the meeting, as well as a link to a recording of the meeting, will be posted at: (https://updc.uconn.edu/)https://updc.uconn.edu/ (https://updc.uconn.edu/).

Written Comments and/or Requests for Public Scoping Meeting Materials Should Be Sent by Fax or E-mail to:

Name: James Libby, AIA, LEED AP, NCARB

Agency: University of Connecticut, University Planning, Design and Construction

Address: 31 LeDoyt Rd, Unit 3038, Storrs, Connecticut 06269-3038

Fax: (860) 486-3117

E-mail: james.libby@uconn.edu (mailto:james.libby@uconn.edu)

Inquiries and requests to view and or copy documents, pursuant to the Freedom of Information Act, must be submitted to the sponsoring State Agency:

Name: Public Records Administration

Agency: c/o University Communications

Address: 34 North Eagleville Road, U-3144

E-Mail: https://publicrecords.uconn.edu/make-a-request/ (https://publicrecords.uconn.edu/make-a-request/)

Phone: (860) 486-5337

What Happens Next: The sponsoring agency will make a determination whether to proceed with preparation of an Environmental Impact Evaluation (EIE) or that the project does not require the preparation of an EIE under the Connecticut Environmental Policy Act (CEPA). A Post-Scoping Notice of its decision will appear in a future edition of the *Environmental Monitor*.

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5. Notice of Scoping for South Campus Residence Hall at the University of Connecticut

Project Title: South Campus Residence Hall

Address of Possible Location: Gilbert Road at the University of Connecticut, Storrs

Municipality Where Proposed Action Might be Located: Mansfield

Project Description:

The University of Connecticut (UConn) is planning a design-build project on the Storrs Campus in the area of the South Campus roughly bounded by Mansfield Road to the east, Maple Lane to the south, the Anna M. Snow Residence Hall to the west, and Gilbert Road to the north. Known as the "South Campus Residence Hall Project," the Proposed Action to be assessed under the Connecticut Environmental Policy Act (CEPA) process consists of the following elements:

- Residence hall and dining facility comprised of approximately 200,000 gross square feet with 600-650 beds and 600-700 dining seats
- Utility and infrastructure improvements, and tie-ins to existing utilities

The Proposed Action is located within the Roberts Brook subwatershed, within the Fenton River watershed, and within the University of Connecticut National Register Historic District. Elements of the Proposed Action were identified in the University's Campus Master Plan, including a residence hall in the proposed location. While projected enrollment at UConn is expected to remain generally flat for the foreseeable future, much of the existing on-campus housing stock is in need of renewal. The Proposed Action will create capacity to take other housing facilities offline for renovation and modernization. UConn will incorporate comments from a public scoping meeting, and evaluate the Proposed Action with taking no action or other feasible alternatives. Direct, indirect, and cumulative impacts associated with the Proposed Action – including those related to historic resources and other impacts identified in the 2016 CEPA process for the South Campus Development – will also be assessed.

Project Maps and Photos:

Click the following link for a general location of the project area:

https://portal.ct.gov/-/media/UConn/South-Campus-Residence-Hall/Site_Map_Res_Hall.pdf

Written Comments:

Written comments from the public are welcomed and will be accepted until the **close of business on December 16, 2021**.

Public Scoping Meeting:

There will be a Public Scoping Meeting for this proposed action.

Date: Wednesday, December 8th

Time: 6:30 PM (EST)

Place: Virtual

Notes: Participants MUST REGISTER IN ADVANCE through the following link:

https://attendee.gotowebinar.com/register/6080155684541563918 (https://attendee.gotowebinar.com/register/6080155684541563918)

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Name: James Libby, AIA, LEED AP, NCARB

Agency: University of Connecticut, University Planning, Design and Construction

Address: 31 LeDoyt Rd, Unit 3038, Storrs, Connecticut 06269-3038

Fax: (860) 486-3117

E-mail: james.libby@uconn.edu (mailto:james.libby@uconn.edu)

Inquiries and requests to view and or copy documents, pursuant to the Freedom of Information Act, must be submitted to the sponsoring State Agency:

Name: Public Records Administration

Agency: c/o University Communications

Address: 34 North Eagleville Road, U-3144

E-Mail: https://publicrecords.uconn.edu/make-a-request/ (https://publicrecords.uconn.edu/make-a-request/)

Phone: (860) 486-5337

What Happens Next: The sponsoring agency will make a determination whether to proceed with preparation of an Environmental Impact Evaluation (EIE) or that the project does not require the preparation of an EIE under the Connecticut Environmental Policy Act (CEPA). A Post-Scoping Notice of its decision will appear in a future edition of the *Environmental Monitor*.

Scoping Notice - Post-Scoping Notice (Need More Time)

FUSS & O'NEILL

Public Scoping Meeting

University of Connecticut
South Campus Residence Hall
and
Mirror Lake Improvements

Presented by:

UConn University Planning, Design and Construction
Fuss & O'Neill, Inc.

December 8, 2021

UCONN
UNIVERSITY OF CONNECTICUT

Presentation/CEPA Team

- **Fuss & O'Neill, Inc.**

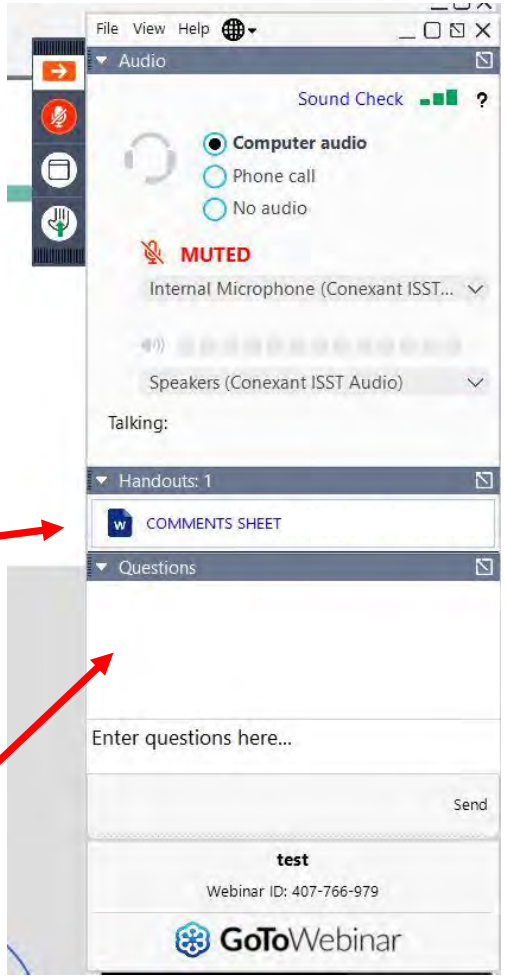
Diane Mas, PhD, REHS/RS – CEPA Specialist

Alex Maxwell, PhD, Resilience Planner

FUSS & O'NEILL

Webinar "Tech Check"

Dashboard



Handouts

Comments

Presentation Agenda

- Public Scoping Process
- Connecticut Environmental Policy Act (CEPA)
- Project Overview & Schedule
  - South Campus Residence Hall
  - Mirror Lake Improvements
- Public Comments

FUSS & O'NEILL

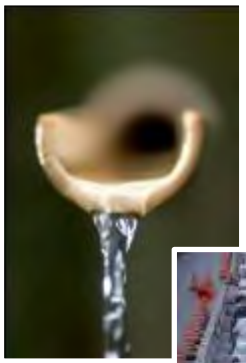
Public Scoping Process

- Provide basic information on the projects (Proposed Actions)
- Occurs at the early stage of project
- Provide a forum for agency and public input
  - Range of alternatives
  - Environmental impacts that should be considered for study
- Solicit verbal and written comments to be addressed in the CEPA process

What is CEPA?

- Connecticut Environmental Policy Act (CEPA)
- Identify and evaluate the impacts of proposed state actions that may significantly affect the environment
- Allow for public input

Proposed Action



FUSS & O'NEILL

CEPA Resource Considerations

Direct, indirect, & cumulative effects:

Natural

- Water quality (incl. surface water and groundwater)
- Flooding, in-stream flows, erosion or sedimentation
- Natural communities, critical plant and animal species
- Resident or migratory fish or wildlife species
- Air quality
- Ambient noise levels
- Existing land resources and landscapes (incl. coastal and inland wetlands)
- Greenhouse gas emissions
- Changing climate (incl. resilience)

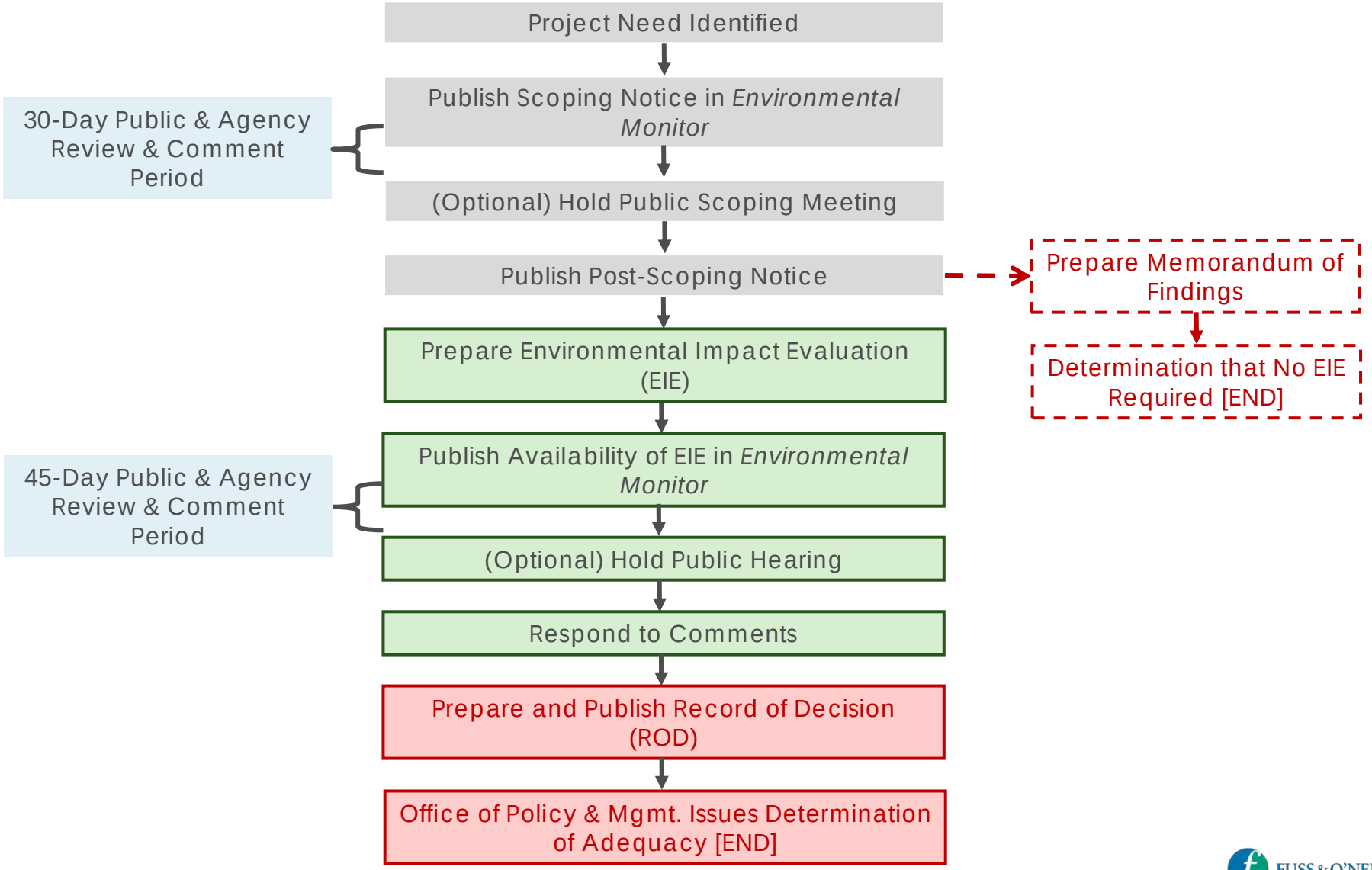
Socioeconomic

- Historic, archeological, cultural, or recreational building or site
- Aesthetic or visual effects
- State, regional, and municipal plans
- Existing housing, communities
- Population
- Human health and safety
- Other natural, cultural, recreational, or scenic resources

Physical

- Public water supply system
- Pesticides, toxic or hazardous materials
- Congestion (traffic, recreational, other)
- Energy use
- Agricultural resources
- Existing/proposed utilities/infrastructure

CEPA Process Map & Proposed Timeline



FUSS & O'NEILL

South Campus Residence Hall

Purpose and Need

- Purpose: Create capacity to take other housing facilities offline for renovation and modernization (over the next decade or longer).

- Need: While projected enrollment at UConn is expected to remain generally flat for the foreseeable future, much of the existing on-campus housing stock is in need of renewal.

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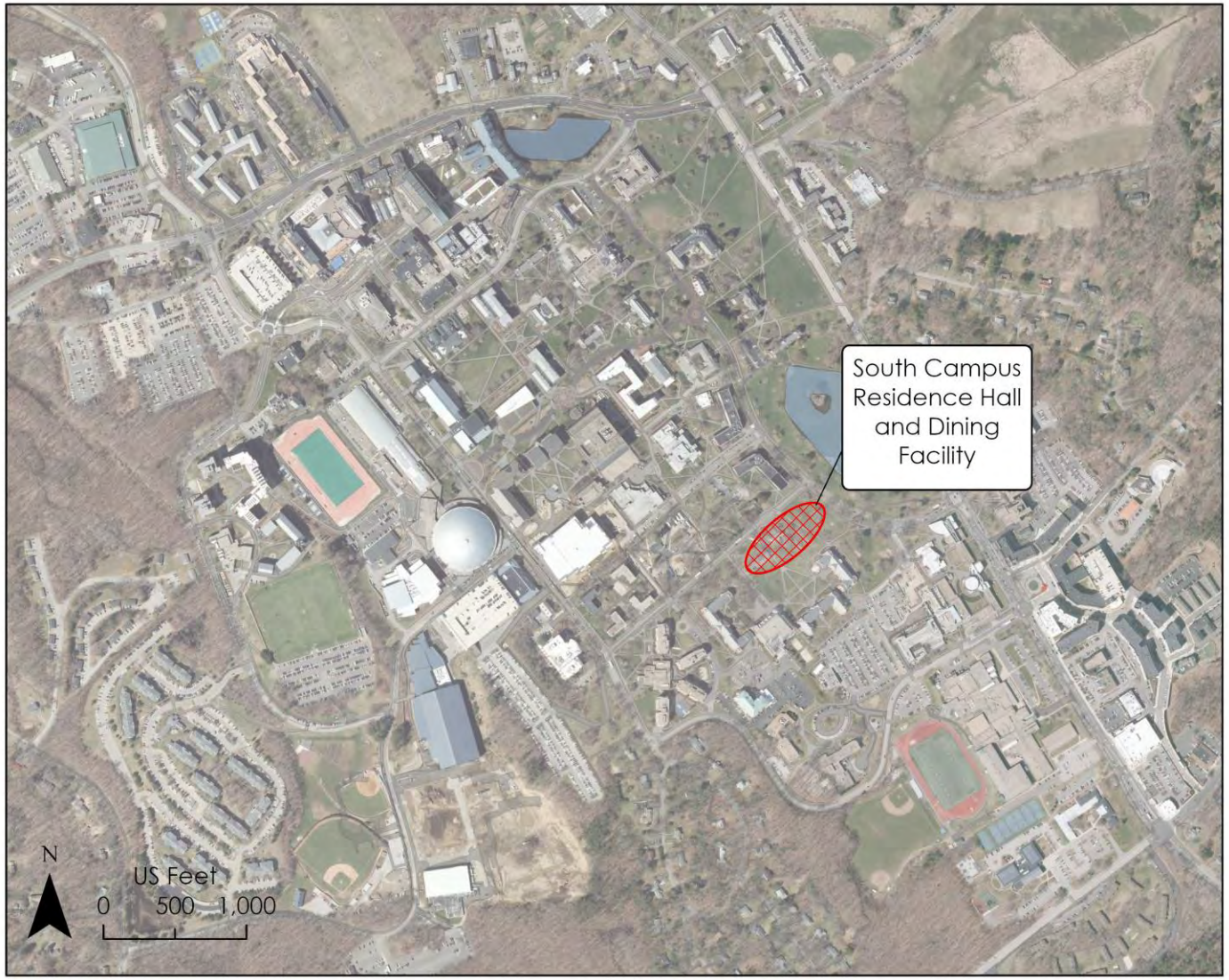
Project Location on Campus



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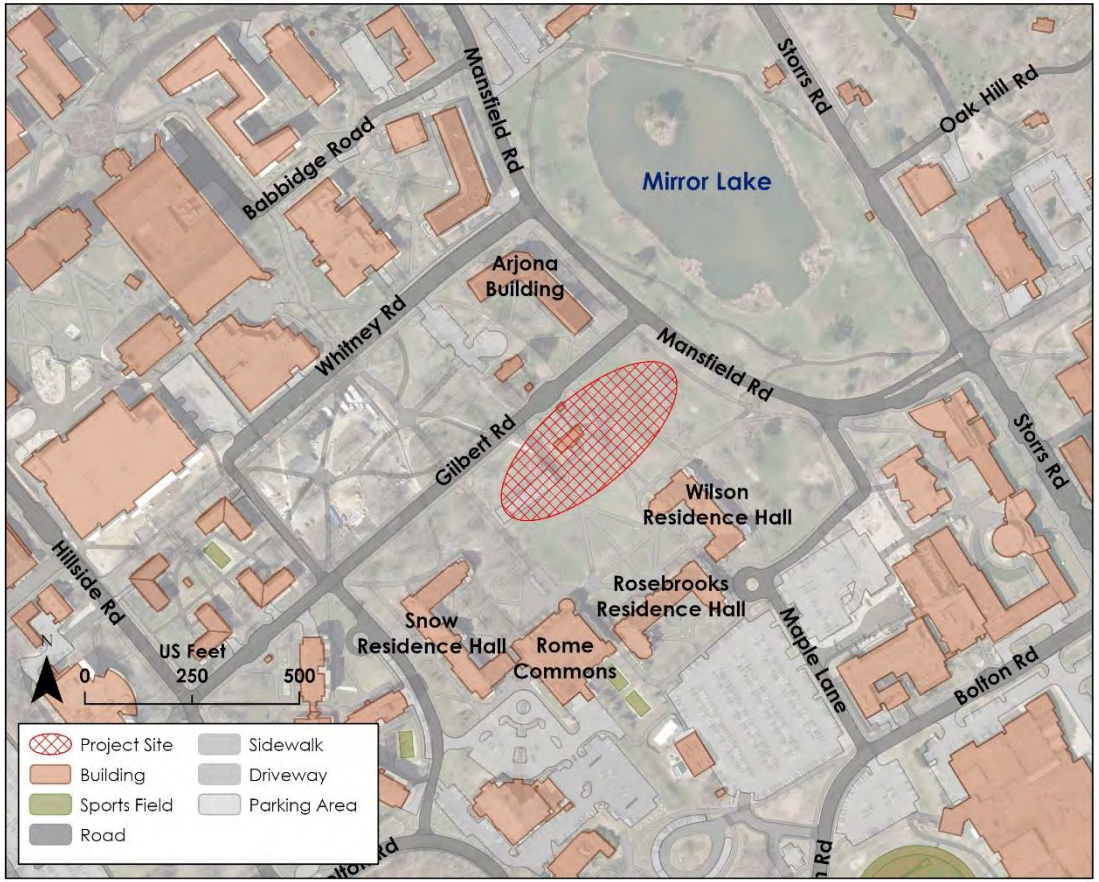
Project Overview

- Design-build project
- On the Storrs Campus in the area of the South Campus roughly bounded by:
  - Mansfield Road to the east
  - Maple Lane to the south
  - Anna M. Snow Residence Hall to the west
  - Gilbert Road to the north



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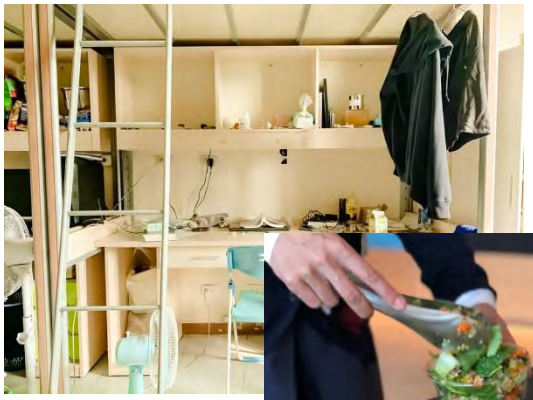
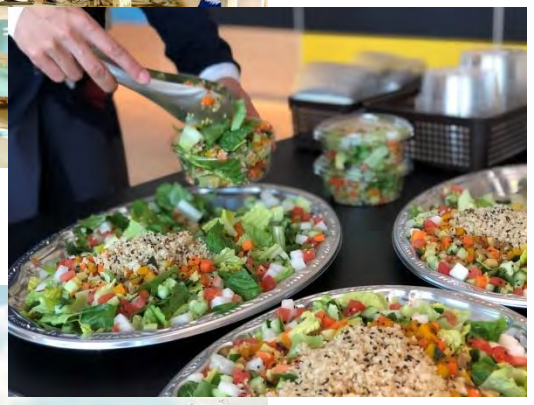
Proposed Project Elements

- Proposed project to be assessed under the CEPA process consists of the following elements:
  - Residence hall and dining facility comprised of approximately 200,000 gross square feet with 600-650 beds and 600-700 dining seats
  - Utility and infrastructure improvements, and tie-ins to existing utilities





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Alternatives

- No Action
- South of McMahon Hall
- S Lot
- South Campus Residence Hall Complex (Gilbert Road)

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Alternatives Overview

- South of McMahon Hall
  - Sloping site
  - Need for removal of roadway connecting Hillside Road to Y-Lot, (Commuter Student Lot)
  - Shallow depth to ledge
- S Lot
  - Loss of 300 parking spaces
  - Potentially in conflict with long-term development of woodland corridor
- South Campus Residence Hall Complex (Gilbert Road)
  - Preferred alternative

Preferred Alternative – Gilbert Road Site

- Residential area, compatible land use, historically used for student housing
- Allows for integration with larger campus community
- Space to accommodate dining
- Allows for outdoor spaces to support the building
- Limited impact on parking
- Available utilities
- Site previously evaluated for environmental impacts
- Consistent with Campus Master Plan

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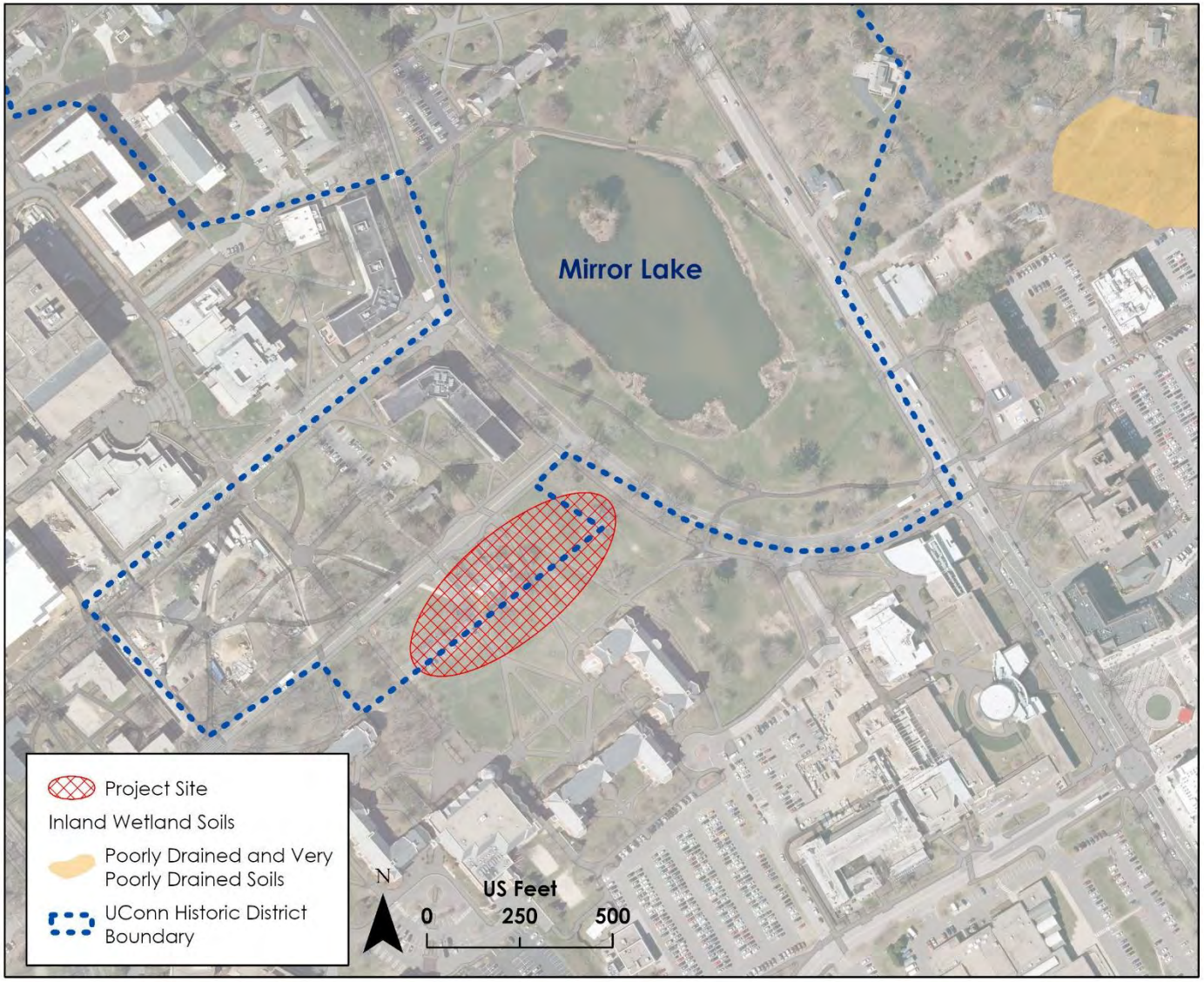
Resources Not Present at the Project Area

- No FEMA flood zones
- No farmland soils
- No aquifer protection areas
- No tidal wetlands/coastal areas

Existing Environment



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Mirror Lake Improvements

Purpose and Need

- Purpose: Address dam/spillway safety deficiencies, mange stormwater and slow sediment accumulation, improve aquatic health/water quality & function of the lake as a landscape element on campus

- Need: Recently-completed feasibility study for Mirror Lake identified needed modifications to the stormwater basin, spillway and dam to improve storage, quality, and safety

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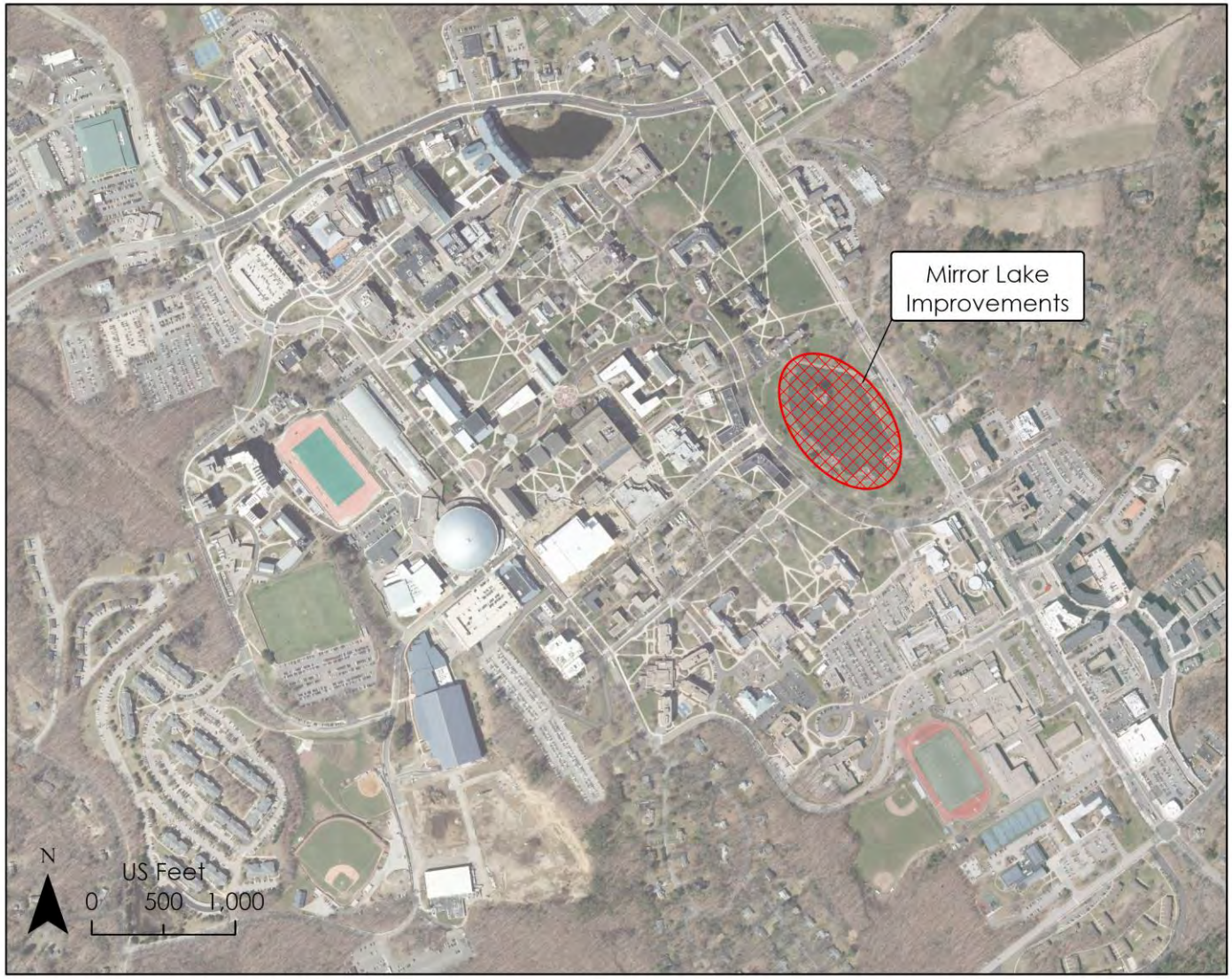
Project Location on Campus



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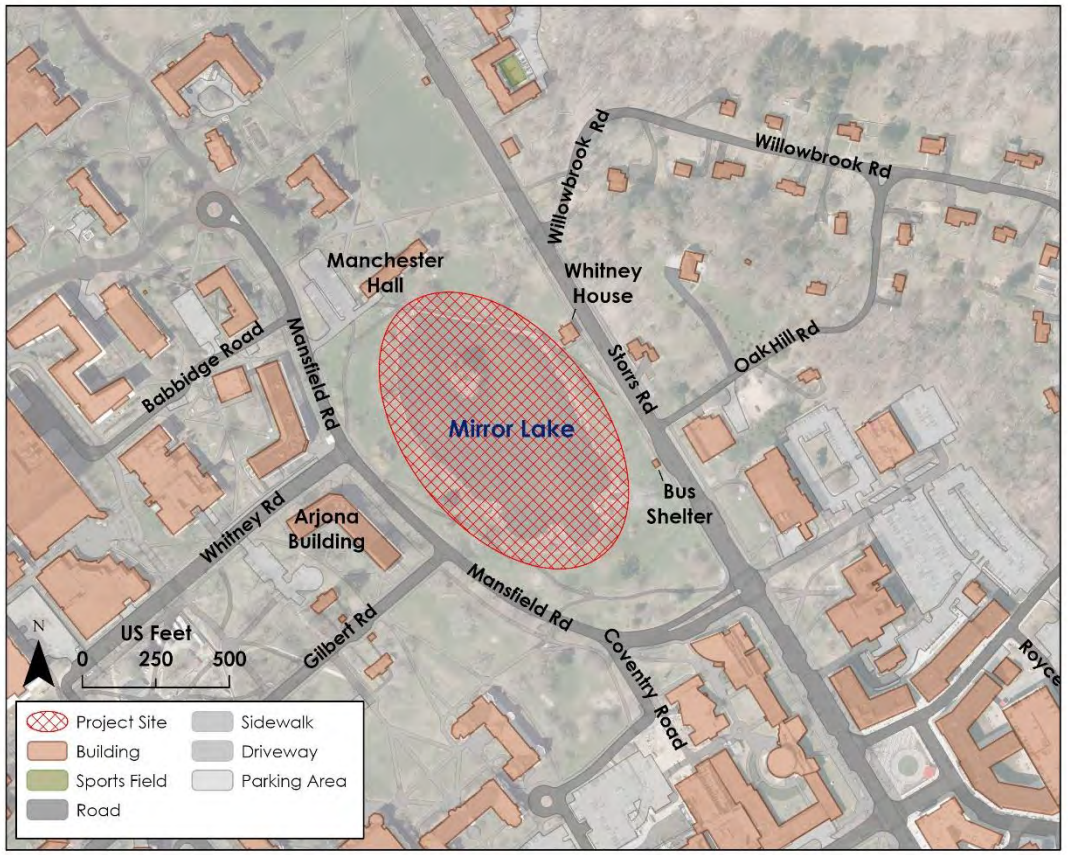
Project Overview

- Design and reconstruct Mirror Lake – a large stormwater management basin
- On the Storrs Campus in the area of the South Campus roughly bounded by:
  - Storrs Road to the east
  - Mansfield Road to the south and west
  - Harry Grant Manchester Hall to the north
  - *Note: Dredged material may be placed in Lot S or other location for dewatering



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Proposed Project Elements

- Proposed project to be assessed under the CEPA process consists of the following elements:
  - Utility and infrastructure improvements
  - Mirror Lake restoration, dam and spillway modifications, and green infrastructure improvements for stormwater management

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Proposed Improvements

- Hydraulic dredging (soft sediment) and mechanical dredging (hard bottom) – remove sediment and deepen lake
- Construction of forebays – sediment trapping/stormwater management
- Dam & spillway reconstruction/redesign – address safety by allowing for increased freeboard (i.e., the distance between the waterline and the top of the dam/spillway) and better stormwater flow control with the construction of a new dam and spillway
- Landscape walls/elements – stormwater management (buffers), aesthetic elements

Alternatives

- No Action
- Enlarge footprint and raise berm
- Dredge only (no forebays)
- Landscape design

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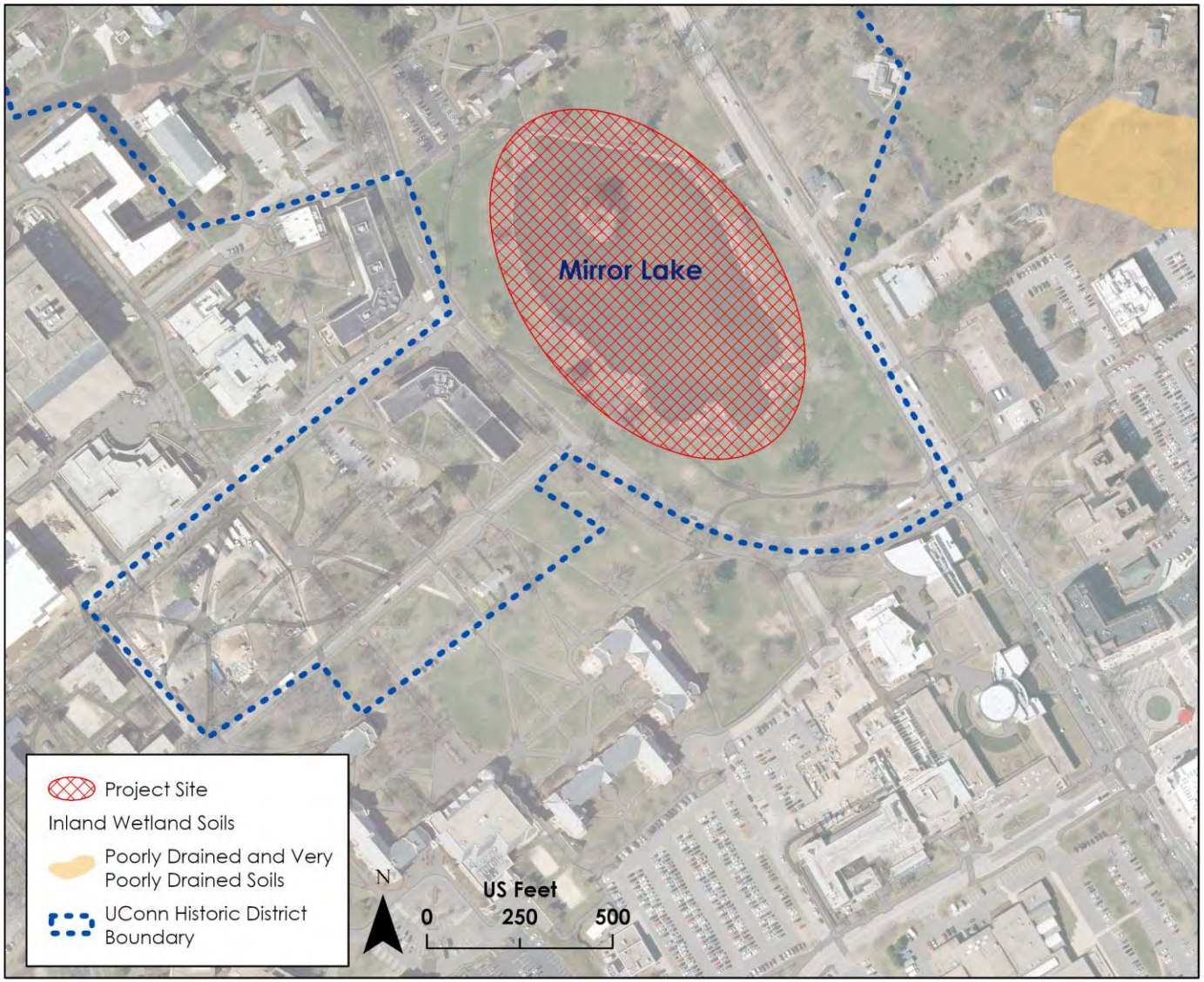
Alternatives Overview

- No Action
  - Existing dam safety, water quality, stormwater concerns
- Enlarge footprint and raise berm
  - Only addresses stormwater, not aquatic health/water quality or dam safety
  - Spillway not altered
- Dredge only (no forebays)
  - Addresses accumulated sediment but not stormwater control
  - Depth and type of dredging: hydraulic/mechanical, 6-12'
- Landscape design elements
  - Includes forebays and feature amenities (e.g., boat launch, pedestrian bridge, pavilion, etc.)

Resources Not Present at the Project Area

- No FEMA flood zones
- No aquifer protection areas
- No tidal wetlands/coastal areas

Existing Environment



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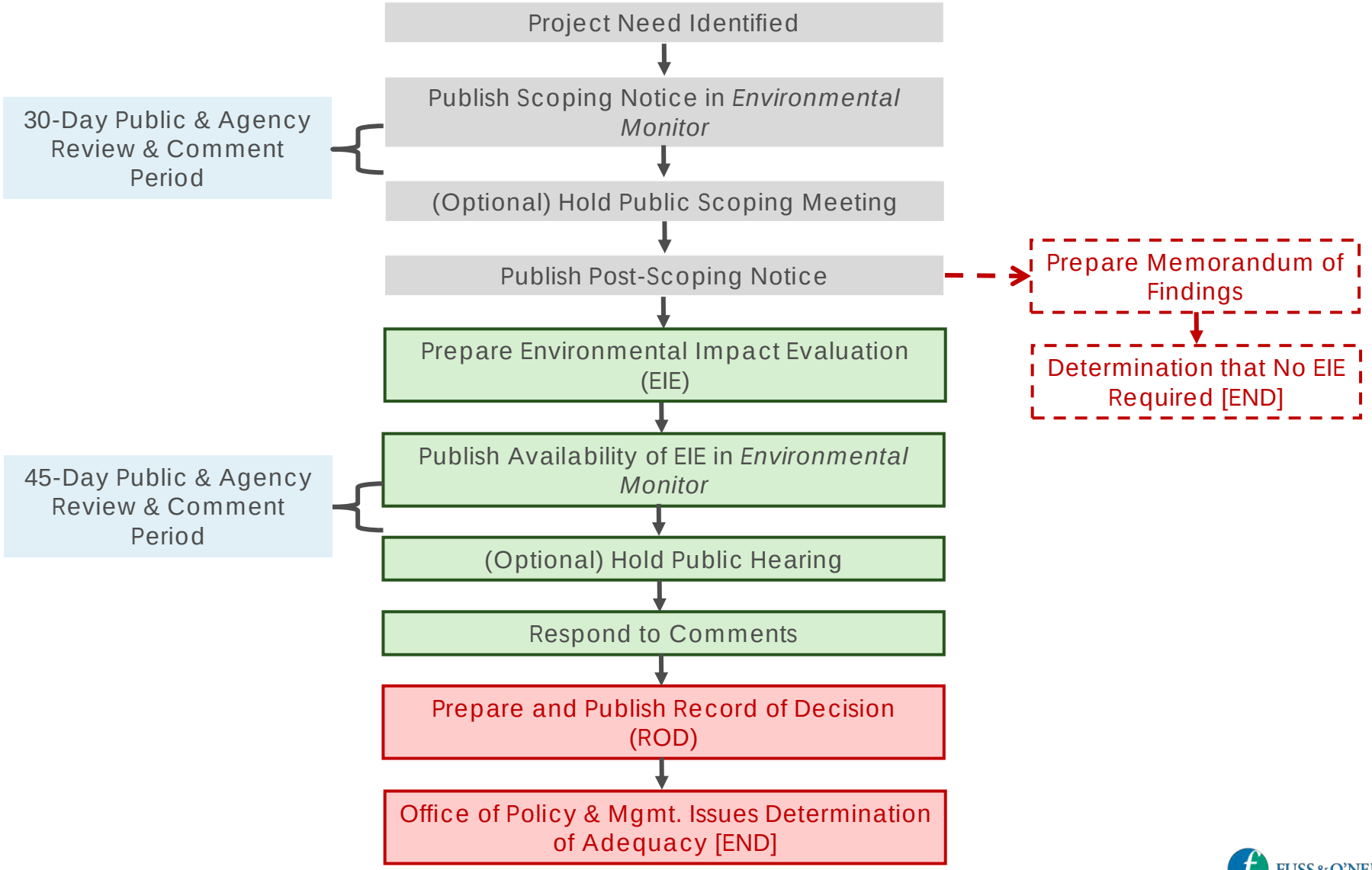
Next Steps

CEPA Process Map & Proposed Timeline



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Schedule Milestones

Milestone	Tentative Date
Public Scoping Period	Ends December 16, 2021
Assessment of Existing Conditions & Analysis of Environmental Impacts/EIE Determination	Winter 2021
Post Scoping Notice OR EIE Document Public Review & Comment	Late Winter to Early Spring 2022
Public Hearing	Spring 2022
CEPA Record of Decision (ROD)	Late Spring/Early Summer 2022
Planned Start of Construction	Fall 2022 (South Campus Residence Hall) Winter 2022 to Spring 2023 (Mirror Lake Improvements – *depending on permitting*)

Comments

- Comments accepted tonight (via comment sheet or by raising hand)
  - State name, address, project(s) on which you would like to comment, and your comment(s)
- Submit comments (email preferred) to:
  - Name: James Libby, AIA, LEED AP, NCARB
  - Address: 31 LeDoyt Rd, Unit 3038, Storrs, Connecticut 06269-3038
  - Fax: (860) 486-3117
  - E-mail: james.libby@uconn.edu
- End of Comment Period: December 16, 2021
- Additional information regarding the meeting, as well as a link to a recording of the meeting, will be posted at: https://updc.uconn.edu/.
- Recording will be posted after December 9, 2021

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

To: James Libby, University Planning, Design, and Construction
University of Connecticut, 31 LeDoyt Rd, Unit 3038, Storrs, CT 06269-3038

From: Linda Brunza- Environmental Analyst **Telephone:** 860-424-3739

Email: Linda.Brunza@ct.gov

Date: 12/16/2021

Subject: Mirror Lake Improvement Project

Staff at the Department of Energy and Environmental Protection (DEEP) have reviewed the scoping notice for the proposed improvements to Mirror Lake, a large drainage basin on the Storrs Campus. Improvements include modifications to the existing dam and spillway structure, green infrastructure improvements, and utility tie-in. A virtual public meeting was held on December 8 which discussed some of the project details.

Mirror Lake is a man-made stormwater basin on what was formally a wet meadow. The existing dam was replaced in 1946 and the basin was last dredged in the 1970s. Since then, sediments from stormwater runoff have settled at the lake bottom, which is shallow in some areas and approximately 3.5 feet at the deepest point. The dam fails to hold water back during heavy rain events. The lake is also a focal point for the campus and enjoyed by students and visitors.

The following comments are submitted for your consideration.

Water Quality and Flood Management

The University of Connecticut has been in contact with the Department of Energy and Environmental Protection's Land and Water Resources Division (LWRD) regarding the project. The comments provided are based on the information in the scoping notice and discussions with the University.

- Planned activities would require a new Flood Management Certification since the current Flood Management Memorandum of Understanding (FM MOU) does not cover the Roberts Brook watershed. Alternatively, a new masterplan FM MOU for the Roberts Brook watershed could be established.
- The project as proposed may require an Individual 401 Water Quality Certification, Water Diversion, and Inland Wetlands permits from the Land and Water Resources Division. Other permit requirements have been identified in section 1.10 of the Mirror Lake Improvements Feasibility Study June 2021 report. The project team should confirm that the activities are eligible for a USACE GP (PCN) as stated in the report.

- The Mirror Lake improvement design shall be incorporated into the UConn Drainage Master Plan and should have capacity to treat and attenuate current and any future/expected increases in stormwater draining to it as a result of future UConn development.
- Overall, it is important that the improvements can adequately treat existing and any expected / future stormwater runoff in accordance with the CT Stormwater Quality Manual. It is noted that hydrodynamic separators (HDS) are proposed upstream of all inlets to the lake and that three (3) forebays will be incorporated to supplement sediment / pollutant capture.
- The type of HDS specified must be one that is included on the Department of Transportation's list of approved separators and must be sized to treat the Water Quality Flow draining to each unit. It will be critical to keep these units well maintained and in good operating condition. LWRD would be interested in having UConn conducting performance monitoring of these units as part of the overall treatment performance of the lake.
- The Lake itself should be designed as a Primary Stormwater Treatment Practice, specifically a *Stormwater Pond* as defined by the Stormwater Quality Manual and should incorporate all the design features / criteria specified in the manual, including appropriate sizing of forebays. Again, long term maintenance of these forebays will important and details as to how these will be maintained and provision for adequate access shall be assessed as part of any permit review.
- A Performance Monitoring Plan for all plantings proposed as part of the lake (specifically those plantings that are expected to provide some Water Quality benefit), should be provided as part of any permit application to LWRD.
- A full operations and maintenance plan for the lake and all stormwater features shall be included as part of any permit review, and UConn must include budget provisions for this long-term maintenance.
- Alternatives for the dewatering area required during the hydraulic dredging should be provided for review. Ideally this area should be adjacent to the lake side on the opposite side of the lake from the outlet and permit gravity feed of dewatering waters back to the lake. Alternatives that require laying these areas adjacent to wetlands are less appealing and will require other protective measures. Other alternatives that require additional pumping of return waters will also present additional risk.
- A thorough water handling plan to be implemented during the mechanical dredge phase will be required as part of any permit application submitted to LWRD.

Information on the certification process can be found on DEEP's website at Flood Management Certification, An Environmental Permitting Fact Sheet. Information on 401 Water Quality Certification can be found online at Water Quality Certification, An Environmental Fact Sheet. Please contact Colin Clark at Colin.Clark@ct.gov, or Danielle Missel at Danielle.Missell@ct.gov with any questions.

Dam Safety

- The project manager is strongly encouraged to contact the Department's Dam Safety Program to arrange for a pre-application meeting to discuss regulatory requirements. Please contact Ivonne Hall at Ivonne.Hall@ct.gov.

Watershed Management

- The Mirror Lake rehabilitation project design and associated engineering planning should address documented surface water quality impairments in downstream Roberts Brook, the 1.7-mile-long tributary to the Fenton River. This should be detailed for both the construction and the post-construction periods. Roberts Brook (CT3207-12_01) has been assessed by this Department as Not Supporting for the designated use of Habitat for Fish, Other Aquatic Life and Wildlife Use support. The assessment does not have a listed cause for this use impairment.

- There is no watershed-based plan developed for the Roberts Brook watershed, or for the University's urban core campus contributing watershed to Mirror Lake. The University had developed a watershed response plan to the 2007 Eagleville Brook Impervious Cover Total Maximum Daily Load (TMDL) Analysis, followed by numerous structural and non-structural best management practices, along with green stormwater infrastructure and landscape design elements across the core campus watershed for the westerly flowing Eagleville Brook. The University has learned a great amount of practical and effective measures to address increased flooding and stormwater quality management impacts to Eagleville Brook over the last decade. The current and forecasted University core campus development patterns indicate greater urbanizing pressures on the Roberts Brook sub-watershed area. The University should fully utilize the lessons learned from the Eagleville Brook management plan, University sustainable design policies and implementation actions, and apply relevant elements to this Mirror Lake rehabilitation project. A project objective should provide for supportive actions towards restoring water quality standards to Roberts Brook.

- The University should identify the percentage of the contributing watershed to Mirror Lake not under University ownership, and further address whether these other properties and potential increases in their impervious surface areas could be accommodated with the proposed stormwater retrofit practices and storage capacity of the rehabilitated Mirror Lake impoundment area.

- The preliminary project plans provide for greater community access to, and experiences with a rehabilitated Mirror Lake. The University should consider leveraging the highly visible aspects of this project with interpretive signage indicating the lake's location and linkages to the regional watershed.

  Please contact Eric Thomas in the Water Planning and Management Division with any questions at Eric.Thomas@ct.gov.

Wildlife Division

- Natural Diversity Database (NDDB) maps represent the approximate locations of species listed by the State, pursuant to section 26-306 of the Connecticut General Statutes (CGS), as endangered, threatened or of special concern. The maps are a pre-screening tool to identify potential impacts to state listed species. The database shows that the project falls within one of the NDDB areas. The applicant is required to submit a *Request for Natural Diversity Data Base (NDDB) State Listed Species Review Form* (DEEP-APP-007) and all

required attachments, including maps, to the NDDB for further review. Additional information concerning NDDB reviews, and the request form, may be found on-line at: NDDB Requests.

Fisheries Division

- The Fisheries Division is supportive of the Mirror Lake Project and views it as an opportunity to enhance recreational fishing opportunities for students and members of the public. The deepening of the lake would provide additional habitat diversity and offer overwintering habitat for fish residing in the lake. The improvements to water quality and sediment management would also enhance the angling experience. It is recommended that CT DEEP fisheries and the UCONN fisheries program be contacted about recreational fishing opportunities in the lake, and the establishment of a fish community post construction.
- Project designs should include access areas for recreational angling that would be ADA compliant and allow all members of the angling community to enjoy the lake.
- The feasibility study references the need for CT DEEP Determination of Need for Fishway; a fishway would not be required at this location based on the species present and its location.
- The pedestrian promenade feature depicted in the feasibility study, entails vertical concrete embankments along a long section of the shoreline. This type of vertical hard structure is of limited habitat value to fish and aquatic life. It is suggested that structured habitat features be included in the lake design to provide additional habitat for fish and angling opportunities. Examples of these types of structures can be found at this link https://www.fishandboat.com/Resource/Habitat/Documents/lake_fish_hab.pdf, or provided by Fisheries staff.
- The feasibility study also depicts the expansion of the central island using dredged materials; this study also details the exceedance of Remediation Standard Regulations (RSRs) in sediments within the pond. The expansion of the island should be performed with materials and processes that comply with relevant regulations. The expansion of the island also provides the opportunity to include additional habitat features such as Coarse Woody Debris, that would provide habitat to fish and basking turtles.
- Additionally, there is mention of placement of rip rap in Roberts Brook as scour protection, if placed beyond the period that the temporary construction spillway is utilized, the use of natural streambed materials in lieu of rip rap would be recommended.

Please contact Joe.Cassone@ct.gov with any questions regarding these comments.

Stormwater General Permit

The General Permit for Stormwater and Dewatering Wastewaters from Construction Activities may be applicable depending on the size of the disturbance regardless of phasing. This general permit applies to discharges of stormwater and dewatering wastewater from construction activities where the activity disturbs more than an acre. The requirements of the current general permit include registration to obtain permit coverage and development and implementation of a Stormwater Pollution Control Plan (SWPCP). The SWPCP contains requirements for the permittee to describe and manage their construction activity, including implementing erosion and

sediment control measures as well as other control measures to reduce or eliminate the potential for the discharge of stormwater runoff pollutants (suspended solids and floatables such as oil and grease, trash, etc.) both during and after construction. A goal of 80 percent removal of the annual sediment load from the stormwater discharge shall be used in designing and installing post-construction stormwater management measures. Stormwater treatment systems must be designed to comply with the post-construction stormwater management performance requirements of the permit. These include post-construction performance standards requiring retention and/or infiltration of the runoff from the first inch of rain (the water quality volume or WQV) and incorporating control measures for runoff reduction and low impact development practices.

The construction stormwater general permit dictates separate compliance procedures for Locally Exempt projects (projects primarily conducted by government authorities) and Locally Approvable projects (projects primarily by private developers).

Projects that are exempt from local permitting that disturb over one acre must submit a registration form and Stormwater Pollution Control Plan (SWPCP) to the Department at least 60 or 90 days, as identified in the permit, prior to the initiation of construction. Locally Approvable construction projects with a total disturbed area of one to five acres are not required to register with the Department provided the development plan has been approved by a municipal land use agency and adheres to local erosion and sediment control land use regulations and the CT Guidelines for Soil Erosion and Sediment Control. Locally Approvable construction projects with a total disturbed area of five or more acres must submit a registration form and SWPCP to the Department at least 60 days prior to the initiation of construction. Registrations shall include a certification by the Qualified Professional who designed the project and a certification by a Qualified Professional or regional Conservation District who reviewed the SWPCP and deemed it consistent with the requirements of the general permit. In addition to measures such as erosion and sediment controls and post-construction stormwater management, the SWPCP must include a schedule for plan implementation and routine inspections. For further information, contact the division at 860-424-3025 or DEEP.StormwaterStaff@ct.gov. The construction stormwater general permit registrations must be filed electronically through DEEP's e-Filing system known as ezFile. Additional information can be found on-line at: Construction Stormwater GP.

Air Management

DEEP Bureau of Air Management typically recommends the use of newer off-road construction equipment that meets the latest EPA or California Air Resources Board (CARB) standards. If newer equipment cannot be used, equipment with the best available controls on diesel emissions including retrofitting with diesel oxidation catalysts or particulate filters in addition to the use of ultra-low sulfur fuel would be the second choice that can be effective in reducing exhaust emissions. The use of newer equipment that meets EPA standards would obviate the need for retrofits.

DEEP also recommends the use of newer on-road vehicles that meet either the latest EPA or California Air Resources Board (CARB) standards for construction projects. These on-road vehicles include dump trucks, fuel delivery trucks and other vehicles typically found at construction sites. On-road vehicles older than the 2007-model year typically should be retrofitted with diesel oxidation catalysts or diesel particulate filters for projects. Again, the use of newer vehicles that meet EPA standards would eliminate the need for retrofits.

Additionally, Section 22a-174-18(b)(3)(C) of the Regulations of Connecticut State Agencies (RCSA) limits the idling of mobile sources to 3 minutes. This regulation applies to most vehicles such as trucks and other diesel engine-powered vehicles commonly used on construction sites. Adhering to the regulation will reduce unnecessary idling at truck staging zones, delivery or truck dumping areas and further reduce on-road and construction equipment emissions. Use of posted signs indicating the three-minute idling limit is recommended. It should be noted that only DEEP can enforce Section 22a-174-18(b)(3)(C) of the RCSA. Therefore, it is recommended that the project sponsor include language similar to the anti-idling regulations in the contract specifications for construction in order to allow them to enforce idling restrictions at the project site without the involvement of DEEP.

Thank you for the opportunity to review this project. These comments are based on the reviews provided by relevant staff and offices within DEEP during the designated comment period and may not represent all applicable programs within DEEP. Feel free to contact me if you have any questions concerning these comments.

cc: Nicole Lugli/ DEEP
Natalie Braswell/ DEEP

December 15, 2021

Mr. James Libby
University of Connecticut
Planning, Architectural & Engineering Services
31 LeDoyt Road, Unit 3038
Storrs, CT 06269-3038
(sent only via email to james.libby@uconn.edu)

Subject: Mirror Lake Improvements Project
Mansfield Road and State Highway 195
Mansfield (Storrs), CT

Dear Mr. Libby:

The State Historic Preservation Office (SHPO) has reviewed the referenced project in response to a Scoping Notice posted on the Environmental Monitor. SHPO understands that the University of Connecticut (UCONN) plans to design and reconstruct Mirror Lake to reduce flooding hazards and meet current standards, as described during a meeting on December 8, 2021 between representatives of our respective officers. The project area is roughly bounded by Storrs Road to the east, Mansfield Road to the south and west, and Harry Grant Manchester Hall to the north. The proposed improvements were selected as the result of a feasibility study and will include dam and spillway modifications, as well as green infrastructure improvements for storm water management. Specifically, several feet of sedimentation will be removed from the lake, the dam height will be increased, and the spillway widened. In addition to these quantitative improvements, UCONN is proposing four additional qualitative projects: a concrete promenade with railing, a footbridge to an island in Mirror Lake, a rain garden with sitting area downstream of the spillway, and a pavilion that could be used for educational purposes.

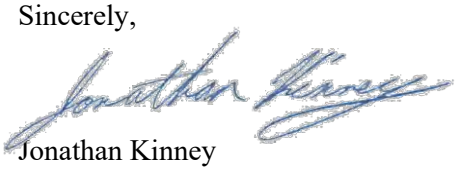
The central part of the UCONN Storrs Campus is included in the University of Connecticut Historic District - Connecticut Agricultural School, a property listed on the National Register of Historic Places (NRHP). Charles Lowrie, a prominent New York City Landscape Architect, designed the first master plan for UCONN. The effectiveness of that plan is evident in its endurance with very few intrusions on the Lowrie designed core. This core consists of several prominent buildings, mostly in the Colonial Revival and Collegiate Gothic styles, extending from Swan Lake in the north to Mirror Lake in the south. Despite Lowrie's reputation as a landscape architect, the only major landscape feature of his UCONN plan was Mirror Lake. As stated in earlier correspondence with UCONN, the humble faculty row and Mirror Lake are unusual in Lowrie's plan and are a direct influence of Frederick Law Olmsted's aesthetic. As stated in the NRHP nomination form, "It is realized in the Lowrie plan by the incorporation of such features as the man-made lake, which contributes to the park-like setting, and by the surrounding of his formal quadrangle with an informal pattern of roads and paths with broad sweeping lawns, both ideas espoused by Olmsted." The design of Mirror Lake represents the work of nationally honored Landscape Architects.

SHPO understands the need for improvements to Mirror Lake and has no objections to the proposed quantitative projects. It is the opinion of our office that the dam and spillway modifications, as well as green infrastructure improvements for storm water management, will not impact the character defining features of this historic property. Based on prepared renderings presented at our referenced meeting, the proposed qualitative improvements will detract from the intended naturalistic design and rolling

landscape. SHPO understands that these are project alternatives and strongly urges that, with the exception of the rain garden, they are not included as construction add-ons or alternatives. While the concrete promenade, pedestrian bridge, and pavilion all would detract from the deliberate design of Mirror Lake, it is possible that the proposed rain garden could be sympathetic to the historic intent. If the rain garden is pursued, our office requests the opportunity to comment on its design. With these recommendations taken into consideration, it is SHPO's opinion that there will be no adverse effect by the proposed Mirror Lake Improvement Project.

We look forward to continuing to work with you on this and the many other important development projects being undertaken by UCONN. These comments are provided in accordance with the Connecticut Environmental Policy Act. For further information please contact Catherine Labadia, Environmental Reviewer, at (860) 500-2329 or catherine.labadia@ct.gov.

Sincerely,



Jonathan Kinney
State Historic Preservation Officer

PRESERVATION CONNECTICUT

14 December 2021

James Libby
University of Connecticut
University Planning, Design and Construction
31 LeDoyt Road, Unit 3038
Storrs, Connecticut 06269
via email: james.libby@uconn.edu

Subject: Scoping comments, improvements to Mirror Lake, University of Connecticut

Dear Mr Libby:

I present the following comments on behalf of the Trustees, staff, and members of Preservation Connecticut (originally called the Connecticut Trust for Historic Preservation), a nonprofit organization chartered by Special Act of the Connecticut General Assembly as a statutory partner for the State Historic Preservation Office.

Mirror Lake lies within the boundaries of the University of Connecticut historic district of the National Register of Historic Places, listed in 1989 for its significance in the areas of education, architecture, and landscape architecture. Under landscape architecture, the designation recognizes campus planning for the university, beginning with a conceptual plan created by Charles N. Lowrie in 1910, and the construction of the campus over the ensuing decades, which adhered to the spirit and general outlines of Lowrie's plan if not every detail.

While Mirror Lake is not identified as a contributing resource in the National Register nomination, the nomination does recognize its significance to the campus plan. The document outlines the influence of Frederick Law Olmsted on Lowrie and notes that Olmsted's naturalistic and democratic concept of campus plans "...is realized in the Lowrie plan by the incorporation of such features as the man-make lake, which contributes to the park-like setting..."

It is the opinion of Preservation Connecticut that Mirror Lake could qualify as a contributing resource in the University of Connecticut historic district. Based on that, evaluation of this project should thoroughly consider the lake's historical development and features and carefully review the proposed actions for their potential effects on its historic character.

Preservation Connecticut commends the University for the steps it has taken to preserve and enhance its historic heritage. We look forward to continuing to participate in the planning

process for this project, to ensure the best possible result for the university community and the people of Connecticut, who support the University.

Very truly yours,

Jane Montanaro
Executive Director
jmontanaro@preservationct.org

cc: Jonathan Kinney, State Historic Preservation Officer, Jonathan.Kinney@ct.gov

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February 22, 2022

Scoping Notice

1. **NEW!** Notice of Scoping for Mansfield Apartments Redevelopment at the University of Connecticut, Mansfield.
2. **NEW!** Notice of Scoping for Route 85 Improvements - South of Route 82, Montville and Salem.

Scoping Notice - Post-Scoping Notice (Need More Time)

No notice for additional time has been submitted for publication in this edition.

Post-Scoping Notice

1. **NEW!** Post-Scoping Notice for Suffield Wildlife Management Area Prescribed Burn, Suffield.
2. **NEW!** Post-Scoping Notice for Mirror Lake Improvements at the University of Connecticut, Mansfield.

Environmental Impact Evaluation (EIE)

1. **NEW!** Notice of an Environmental Impact Evaluation (EIE) for Ox Brook Flood Control Master Plan, Bridgeport.

Agency Record of Decision

No Record of Decision Notice has been submitted for publication in this edition.

OPM Determination of Adequacy

No Determination of Adequacy Notice has been submitted for publication in this edition.

State Land Transfer

No State Land Transfer Notice has been submitted for publication in this edition.

The next edition of the Environmental Monitor will be published on **March 8, 2022**.

Subscribe (https://confirmsubscription.com/h/j/ED852A9EE7823EDF) to e-alerts to receive an e-mail when the Environmental Monitor is published.

Notices in the Environmental Monitor are written and formatted by the sponsoring agencies and are published unedited. Questions about the content of any notice should be directed to the sponsoring agency. Inquiries and requests to view or copy documents, pursuant to the Freedom of Information Act, must be submitted to the sponsoring state agency.

Scoping Notice

"Scoping" is for projects in the earliest stages of planning. At the scoping stage, detailed information on a project's design, alternatives, and environmental impacts does not yet exist. Sponsoring agencies are asking for comments from other agencies and from the public as to the scope of alternatives and environmental impacts that should be considered for further study. Send your comments to the contact person listed for the project by the date indicated. **Read More (https://portal.ct.gov/CEQ/Environmental-Monitor/CEPA-Regulations#22a-1a-6)**

The following Scoping Notices have been submitted for publication in this edition.

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1. Notice of Scoping for Mansfield Apartments Redevelopment at the University of Connecticut

Project Title: Mansfield Apartments Redevelopment

Address of Possible Location: 1 South Eagleville Road

Municipality Where Proposed Action Might be Located: Mansfield

Project Description:

The University of Connecticut (UConn) is planning a design-build project to redevelop the Mansfield Apartments complex at 1 South Eagleville Road. The property is roughly bounded by South Eagleville Road (SR-275) to the north, Storrs Road (SR-195) to the east, and Town open space known as the Albert E. Moss Sanctuary to the south and west. The existing 240-bed apartment complex includes

townhouse style apartments originally constructed during the 1940's and 1950's. The facilities have reached the end of their useful life and the 16-acre property is proposed for redevelopment with two to four apartment buildings, site improvements and parking.

Known as the "Mansfield Apartments Redevelopment Project," the Proposed Action to be assessed under the Connecticut Environmental Policy Act (CEPA) process consists of the following elements:

- Redevelopment of existing apartment-style student housing comprised of approximately 300,000 gross square feet with up to 900 beds
- Site improvements and surface parking of up to 450 spaces
- Potential utility and infrastructure improvements

The Proposed Action is located in the Bundy Brook local watershed within the Fenton River sub-regional watershed. The Proposed Action was identified in the University's **Campus Master Plan 2015-2035 (https://masterplan.uconn.edu/)**. UConn will incorporate comments from a public scoping meeting and evaluate the Proposed Action with taking no action or other feasible alternatives. Direct, indirect, and cumulative impacts associated with the Proposed Action will also be assessed.

Project Maps and Photos:

Click the following link for a general location of the project area: **https://updc.uconn.edu/?p=2674 (https://updc.uconn.edu/?p=2674)**

Written Comments:

Written comments from the public are welcomed and will be accepted until the **close of business on March 24, 2022**.

Public Scoping Meeting:

There will be a Public Scoping Meeting for this proposed action.

Date: Thursday, March 10, 2022

Time: 6:30 PM (EST)

Place: Virtual

Notes: Participants MUST REGISTER IN ADVANCE through the following link:

https://us02web.zoom.us/webinar/register/WN_hK5sGUXKRhCdJvzQ8No9uQ (https://us02web.zoom.us/webinar/register/WN_hK5sGUXKRhCdJvzQ8No9uQ)

After registering, you will receive a confirmation email containing information about joining the meeting (including an option to join by phone).

Additional information regarding the meeting, as well as a link to a recording of the meeting, will be posted at: https://updc.uconn.edu/mansfield-apts (https://updc.uconn.edu/mansfield-apts)

Written Comments and/or Requests for Public Scoping Meeting Materials Should Be Sent by Fax or E-mail to:

Name: John Robitaille, AIA, CSI

Agency: University of Connecticut, University Planning, Design and Construction

Address: 31 LeDoyt Rd, Unit 3038, Storrs, Connecticut 06269-3038

Fax: (860) 486-3117

E-mail: john.robitaille@uconn.edu (mailto:john.robitaille@uconn.edu)

Inquiries and requests to view and or copy documents, pursuant to the Freedom of Information Act, must be submitted to the sponsoring State Agency:

Name: Public Records Administration

Agency: c/o University Communications

Address: 34 North Eagleville Road, U-3144

E-Mail: https://publicrecords.uconn.edu/make-a-request/ (https://publicrecords.uconn.edu/make-a-request/)

Phone: (860) 486-5337

What Happens Next: UConn will determine whether or not to proceed with preparation of an Environmental Impact Evaluation (EIE) under the Connecticut Environmental Policy Act (CEPA). A Post-Scoping Notice of its decision will appear in a future edition of the *Environmental Monitor*.

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2. Notice of Scoping for Route 85 Improvements - South of Route 82

Addresses of possible locations: The project includes four separate segments along Route 85 south of Route 82. The limits begin just south of the intersection of Route 85 and Route 82 (Salem Four Corners Roundabout) and extends southerly to a point 800 feet south of the intersection with Lakewood Drive. This 5+ mile section of

Route 85 is classified as a Principal Arterial and National Highway System Route, and functions as a major north-south route linking the New London and Hartford areas.

Municipalities where proposed action might be located: Towns of Montville and Salem

Project Description: The proposed improvements include widening shoulders, upgrading guiderail, addressing vertical geometry deficiencies, addressing isolated drainage, accommodating bypass and bicycles, and constructing new climbing lanes where appropriate. The proposed work also includes the relocation of approximately 2000 feet of Route 161 from its present location to be realigned opposite with a local road named Deer Run. The new intersection of Route 85, Route 161, and Deer Run is proposed to be a single lane roundabout. The existing intersection of Route 85 at Grassy Hill Road and Chesterfield Road will be expanded to incorporate improved turning radii, auxiliary turning lanes, and a new traffic signal. Two bridges are proposed to be replaced, Route 85 over Fraser Brook (Bridge No. 02538) and Route 85 over Latimer Brook (Bridge No. 01248), to meet the latest design standards and upgraded Route 85 geometry. The project is anticipated to be undertaken with 80 percent Federal funds and 20 percent State funds.

Project Map: Click here to view a map of the project area.

Written comments from the public are welcomed and will be accepted until the close of business on: **Wednesday March 30, 2022.**

There will be a virtual public scoping meeting for this proposed action:

DATE: **Tuesday March 15, 2022**

TIME: **7:00 p.m.**

PLACE: **Virtual Meeting**

NOTES: The meeting will be live streamed via Microsoft Teams Live Event and YouTube Live. A Question and Answer session will immediately follow the presentation. Instructions on how to access the meeting and how to provide comments/ ask questions during the Q&A portion of the meeting will be available prior to the meeting on the project webpage: **https://portal.ct.gov/DOTSalemMontville85-146 (https://portal.ct.gov/DOTSalemMontville85-146)**.

Individuals with limited internet access may request that project information be mailed to them by contacting Mr. Jason A. Vincent by email at Jason.Vincent@ct.gov or by phone at (860) 594-2752. Allow one week for processing and delivery.

Individuals with limited internet access can listen to the meeting by calling (888) 566-5916 and entering the Participant Code when prompted: 9977843. Persons with hearing and/or speech disabilities may dial 711 for Telecommunications Relay Services (TRS). Language assistance may be requested by contacting the CTDOT's Language Assistance Call Line (860) 594-2109. Requests should be made at least 5 business days prior to the meeting. Language assistance is provided at no cost to the public and efforts will be made to respond to timely requests for assistance.

The MS Teams Live Event offers closed-captioning for the hearing impaired and non-English translation options. A recording of the formal presentation will be posted to YouTube following the event and closed-captioning (including non-English translation options) will be available at that time. The recording will

also be available in the list of CTDOT virtual public meetings here: **https://portal.ct.gov/dot/general/CTDOT-VPIM-Library (https://portal.ct.gov/dot/general/CTDOT-VPIM-Library)**

Written comments, questions about the public meeting, or questions about the project should be sent to (email preferred):

Name: Mr. Jason Vincent, Project Engineer

Agency: Connecticut Department of Transportation, Bureau of Engineering and Construction

Address: 2800 Berlin Turnpike, Newington, CT 06131

E-Mail: DOTProject85-146@ct.gov

Inquiries and requests to view and or copy documents, pursuant to the Freedom of Information Act, must be submitted to the sponsoring state agency:

Name: Ms. Alice M. Sexton

Agency: Connecticut Department of Transportation, Office of Legal Services

Address: 2800 Berlin Turnpike, Newington, CT 06131

E-Mail: Alice.Sexton@ct.gov

What Happens Next: The sponsoring agency will make a determination whether to proceed with preparation of an Environmental Impact Evaluation (EIE) or that the project does not require the preparation of an EIE under the Connecticut Environmental Policy Act (CEPA). A Post-Scoping Notice of its decision will appear in a future edition of the *Environmental Monitor*.

Scoping Notice - Post-Scoping Notice (Need More Time)

If an agency is unable to publish a Post-Scoping Notice within six months after the comment period for scoping, the agency will publish an update with an action status and an estimate as to when a Post-Scoping Notice will be published. Such an update will be published by the agency at six-month intervals until the Post-Scoping Notice is published. **Read More (https://portal.ct.gov/CEQ/Environmental-Monitor/CEPA-Regulations#22a-1a-7) (http:)**

No notice for additional time has been submitted for publication in this edition.

Post-Scoping Notice

A Post-Scoping Notice is the determination by a sponsoring agency, after publication of a Scoping Notice and consideration of comments received, whether an **Environmental Impact Evaluation (EIE) (https://www.cga.ct.gov/current/pub/chap_439.htm#sec_22a-1b)** needs to be prepared for a

proposed State action. (https://portal.ct.gov/CEQ/Environmental-Monitor/CEPA-Regulations)Read More (https://portal.ct.gov/CEQ/Environmental-Monitor/CEPA-Regulations#22a-1a-7)

The following Post-Scoping Notices have been submitted for publication in this edition.

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1. Post-Scoping Notice for Suffield Wildlife Management Area Prescribed Burn

Address of Possible Project Location: 510 Babbs Road, West Suffield

Municipality where it would be located: Suffield

CEPA Determination: On December 21, 2022, the Department of Energy and Environmental Protection (DEEP) published a **Notice of Scoping (https://portal.ct.gov/CEQ/Environmental-Monitor/Environmental-Monitor-Archives/2021/December-21-2021)** to solicit public comments for this proposed action in the *Environmental Monitor*.

A public scoping meeting was held on January 24, 2022.

One written comment was received during the public comment period. The comment and response are **here** . One verbal comment to support the project was received during the Public Scoping Meeting.

After consideration of the comments received, DEEP has determined that the project does not require the preparation of an Environmental Impact Evaluation (EIE) under the Connecticut Environmental Policy Act (CEPA). The agency's conclusion is documented in a **Memo of Findings and Determination** and an **Environmental Review Checklist** .

Agency contact:

Name: Tanner Steeves

Agency: Department of Energy and Environmental Protection, Wildlife Division

Address: 209 Hebron Road, Marlborough CT 06447

Phone: 860-424-4164

E-Mail: tanner.steeves@ct.gov

Inquiries and requests to view and or copy documents, pursuant to the Freedom of Information Act, must be submitted to the sponsoring State Agency.

What Happens Next:
The Department of Energy and Environmental Protection expects the proposed action to go forward. No future notices will be posted in the Environmental Monitor.

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2. Post-Scoping Notice for Mirror Lake Improvements at the University of Connecticut

Project Title: Mirror Lake Improvements

Address of Possible Project Location: Mansfield Road at the University of Connecticut, Storrs

Municipality where it would be located: Mansfield

CEPA Determination: The Mirror Lake Improvements project recently completed a preliminary design phase. Beginning on November 16, 2021, the University of Connecticut published the first of three **Notices of Scoping (https://portal.ct.gov/CEQ/Environmental-Monitor/Environmental-Monitor-Archives/2021/November-16-2021)** to solicit public comments for this proposed action in the *Environmental Monitor*.A **public scoping meeting (https://tinyurl.com/336ak3d7)** was held virtually on December 8, 2021 and the 30-day comment period closed on December 16, 2021.

Comments were received from the Connecticut Department of Energy and Environmental Protection, the State Historic Preservation Office, and Preservation Connecticut during the public comment period. A summary of comments and responses may be found at **updc.uconn.edu/mirror-lake (https://updc.uconn.edu/mirror-lake)**.

Upon consideration of the comments received, the University of Connecticut has determined **to proceed with the preparation of an Environmental Impact Evaluation (EIE).**

Agency contact:

Name: James Libby, AIA, LEED AP, NCARB

Agency: University of Connecticut, University Planning, Design and Construction

Address:31 LeDoyt Rd, Unit 3038, Storrs, Connecticut 06269-3038

Phone:(860) 486-3117

E-Mail:james.libby@uconn.edu

Inquiries and requests to view and or copy documents, pursuant to the Freedom of Information Act, must be submitted at **publicrecords.uconn.edu/make-a-request (https://publicrecords.uconn.edu/make-a-request/)**.

What Happens Next: The Mirror Lake Improvements project has just completed Schematic Design and is scheduled to conclude two subsequent design phases by Fall 2022. The University anticipates construction to begin in Spring 2023 and complete in Fall 2024.

The University of Connecticut is preparing an EIE and is continuing engineering design of the proposed Mirror Lake Improvements project. When the EIE is completed, it will be published in a future edition of the *Environmental Monitor* and presented for public comment.

EIE Notice

Summary of Scoping Comments & Responses

Preservation Connecticut provided written scoping comments from Jane Montanaro, Executive Director, dated December 14, 2021.		
Comment Number	**Comment**	**Response**
PCT ML #1	While Mirror Lake is not identified as a contributing resource in the National Register nomination, the nomination does recognize its significance to the campus plan. The document outlines the influence of Frederick Law Olmsted on Lowrie and notes that Olmsted's naturalistic and democratic concept of campus plans "...is realized in the Lowrie plan by the incorporation of such features as the man-make lake, which contributes to the park-like setting..." It is the opinion of Preservation Connecticut that Mirror Lake could qualify as a contributing resource in the University of Connecticut historic district. Based on that, evaluation of this project should thoroughly consider the lake's historical development and features and carefully review the proposed actions for their potential effects on its historic character.	The University fully appreciates the history of Mirror Lake and its significance as an important campus landmark and man-made stormwater detention facility. A landscape architectural firm with experience in cultural landscapes and contributing resources to historic districts has been retained to assist the engineer-led design team to balance program, aesthetics and function with qualitative and quantitative requirements for stormwater management. See Response to SHPO ML #1.

The State of Connecticut Department of Economic and Community Development, State Historic Preservation Office provided written scoping comments from Jonathan Kinney, State Historic Preservation Officer, dated December 15, 2021.		
Comment Number	**Comment**	**Response**
SHPO ML #1	SHPO understands the need for improvements to Mirror Lake and has no objections to the proposed quantitative projects. It is the opinion of our office that the dam and spillway modifications, as well as green infrastructure improvements for storm water management, will not impact the character defining features of this historic property. Based on prepared renderings presented at our referenced meeting, the proposed qualitative improvements will detract from the intended naturalistic design and rolling landscape. SHPO understands that these are project alternatives and strongly urges that, with the exception of the rain garden, they are not included as construction add-ons or alternatives. While the concrete promenade, pedestrian bridge, and pavilion all would detract from the deliberate design of Mirror Lake, it is possible that the proposed rain garden could be sympathetic to the historic intent. If the rain garden is pursued, our office requests the opportunity to comment on its design. With these recommendations taken into consideration, it is SHPO's opinion that there will be no adverse effect by the proposed Mirror Lake Improvement Project.	See Response to PCT ML #1. Conceptual design material from the referenced meeting is available at updc.uconn.edu/mirror-lake. As planned, the University will host a follow-up meeting with SHPO (and Preservation Connecticut) to further discuss the project and provide an opportunity to comment on design.

The State of Connecticut Department of Energy and Environmental Protection provided written scoping comments from Linda Brunza, Environmental Analyst, dated December 16, 2021.		
Comment Number	**Comment**	**Response**
CT DEEP ML #1	Planned activities would require a new Flood Management Certification since the current Flood Management Memorandum of Understanding (FM MOU) does not cover the Roberts Brook watershed. Alternatively, a new masterplan FM MOU for the Roberts Brook watershed could be established.	Noted for EIE and design development.
CT DEEP ML #2	The project as proposed may require an Individual 401 Water Quality Certification, Water Diversion, and Inland Wetlands permits from the Land and Water Resources Division. Other permit requirements have been identified in section 1.10 of the Mirror Lake Improvements Feasibility Study June 2021 report. The project team should confirm that the activities are eligible for a USACE GP (PCN) as stated in the report.	Noted for EIE and design development.
CT DEEP ML #3	The Mirror Lake improvement design shall be incorporated into the UConn Drainage Master Plan and should have capacity to treat and attenuate current and any future/expected increases in stormwater draining to it as a result of future UConn development. Overall, it is important that the improvements can adequately treat existing and any expected / future stormwater runoff in accordance with the CT Stormwater Quality Manual. It is noted that hydrodynamic separators (HDS) are proposed upstream of all inlets to the lake and that three (3) forebays will be incorporated to supplement sediment / pollutant capture. The type of HDS specified must be one that is included on the Department of Transportation's list of approved separators and must be sized to treat the Water Quality Flow draining to each unit. It will be critical to keep these units well maintained and in good operating condition. LWRD would be interested in having UConn conducting performance monitoring of these units as part of the overall treatment performance of the lake. The Lake itself should be designed as a Primary Stormwater Treatment Practice, specifically a Stormwater Pond as defined by the Stormwater Quality Manual and should incorporate all the design features / criteria specified in the manual, including appropriate sizing of forebays. Again, long term maintenance of these forebays will important and details as to how these will be maintained and provision for adequate access shall be assessed as part of any permit review.	Noted for additional review with DEEP during design development.
CT DEEP ML #4	A Performance Monitoring Plan for all plantings proposed as part of the lake (specifically those plantings that are expected to provide some Water Quality benefit), should be provided as part of any permit application to LWRD.	Noted for EIE and design development.

The State of Connecticut Department of Energy and Environmental Protection provided written scoping comments from Linda Brunza, Environmental Analyst, dated December 16, 2021.		
Comment Number	**Comment**	**Response**
	A full operations and maintenance plan for the lake and all stormwater features shall be included as part of any permit review, and UConn must include budget provisions for this long-term maintenance.	
CT DEEP ML #5	Alternatives for the dewatering area required during the hydraulic dredging should be provided for review. Ideally this area should be adjacent to the lake side on the opposite side of the lake from the outlet and permit gravity feed of dewatering waters back to the lake. Alternatives that require laying these areas adjacent to wetlands are less appealing and will require other protective measures. Other alternatives that require additional pumping of return waters will also present additional risk. A thorough water handling plan to be implemented during the mechanical dredge phase will be required as part of any permit application submitted to LWRD.	Multiple potential dewatering sites will be evaluated for overall feasibility including impacts to campus operations. A site visit will be scheduled with DEEP to review a preferred location.
CT DEEP ML #6	The project manager is strongly encouraged to contact the Department's Dam Safety Program to arrange for a pre-application meeting to discuss regulatory requirements. Please contact Ivonne Hall at Ivonne.Hall@ct.gov.	Noted as an action item for the Project Manager as well as the University's office of Environmental Health & Safety.
CT DEEP ML #7	The Mirror Lake rehabilitation project design and associated engineering planning should address documented surface water quality impairments in downstream Roberts Brook, the 1.7-mile-long tributary to the Fenton River. This should be detailed for both the construction and the post-construction periods. Roberts Brook (CT3207-12_01) has been assessed by this Department as Not Supporting for the designated use of Habitat for Fish, Other Aquatic Life and Wildlife Use support. The assessment does not have a listed cause for this use impairment.	Noted for EIE and design development.
CT DEEP ML #8	There is no watershed-based plan developed for the Roberts Brook watershed, or for the University's urban core campus contributing watershed to Mirror Lake. The University had developed a watershed response plan to the 2007 Eagleville Brook Impervious Cover Total Maximum Daily Load (TMDL) Analysis, followed by numerous structural and nonstructural best management practices, along with green stormwater infrastructure and landscape design elements across the core campus watershed for the westerly flowing Eagleville Brook. The University has learned a great amount of practical and effective measures to address increased flooding and stormwater quality management impacts to Eagleville Brook over the last decade. The current and forecasted University core campus development patterns indicate greater urbanizing pressures on the Roberts Brook subwatershed area. The University should fully utilize the lessons learned from the Eagleville Brook management plan, University sustainable design policies and implementation actions, and apply relevant elements to this	The University completed a Campus Drainage Master Plan in 2018 for the Roberts Brook and Eagleville Brook watersheds. A technical review was completed by DEEP in 2019.

The State of Connecticut Department of Energy and Environmental Protection provided written scoping comments from Linda Brunza, Environmental Analyst, dated December 16, 2021.		
Comment Number	**Comment**	**Response**
	Mirror Lake rehabilitation project. A project objective should provide for supportive actions towards restoring water quality standards to Roberts Brook.	
CT DEEP ML #9	The University should identify the percentage of the contributing watershed to Mirror Lake not under University ownership, and further address whether these other properties and potential increases in their impervious surface areas could be accommodated with the proposed stormwater retrofit practices and storage capacity of the rehabilitated Mirror Lake impoundment area. (Note this is also the same comment given by Eric Thomas at the public scoping meeting on December 8, 2021)	Noted for EIE and design development. An exhibit is available at updc.uconn.edu/mirror-lake.
CT DEEP ML #10	The preliminary project plans provide for greater community access to, and experiences with a rehabilitated Mirror Lake. The University should consider leveraging the highly visible aspects of this project with interpretive signage indicating the lake's location and linkages to the regional watershed.	Noted for EIE and design development.
CT DEEP ML #11	Natural Diversity Database (NDDB) maps represent the approximate locations of species listed by the State, pursuant to section 26-306 of the Connecticut General Statutes (CGS), as endangered, threatened or of special concern. The maps are a pre-screening tool to identify potential impacts to state listed species. The database shows that the project falls within one of the NDDB areas. The applicant is required to submit a Request for Natural Diversity Data Base (NDDB) State Listed Species Review Form (DEEP-APP-007) and all required attachments, including maps, to the NDDB for further review. Additional information concerning NDDB reviews, and the request form, may be found on-line at: NDDB Requests.	The NDDB review process has been completed. Correspondence from CT DEEP NDDB (01/07/2022) indicates that no negative impacts to State-listed species are anticipated.
CT DEEP ML #12	The Fisheries Division is supportive of the Mirror Lake Project and views it as an opportunity to enhance recreational fishing opportunities for students and members of the public. The deepening of the lake would provide additional habitat diversity and offer overwintering habitat for fish residing in the lake. The improvements to water quality and sediment management would also enhance the angling experience. It is recommended that CT DEEP fisheries and the UCONN fisheries program be contacted about recreational fishing opportunities in the lake, and the establishment of a fish community post construction. Project designs should include access areas for recreational angling that would be ADA compliant and allow all members of the angling community to enjoy the lake. The feasibility study references the need for CT DEEP Determination of Need for Fishway; a fishway would not be required at this location based on the species present and its location. The pedestrian promenade feature depicted in the feasibility study, entails vertical concrete embankments along a long section of the shoreline. This type of vertical hard structure is of limited habitat value to	While Mirror Lake is not designated for recreational fishing, quantitative and qualitative improvements will be incorporated to support potential habitat.

The State of Connecticut Department of Energy and Environmental Protection provided written scoping comments from Linda Brunza, Environmental Analyst, dated December 16, 2021.		
Comment Number	**Comment**	**Response**
	fish and aquatic life. It is suggested that structured habitat features be included in the lake design to provide additional habitat for fish and angling opportunities. Examples of these types of structures can be found at this link https://www.fishandboat.com/Resource/Habitat/Documents/lake_fish_hab.pdf, or provided by Fisheries staff.	
CT DEEP ML #13	The feasibility study also depicts the expansion of the central island using dredged materials; this study also details the exceedance of Remediation Standard Regulations (RSRs) in sediments within the pond. The expansion of the island should be performed with materials and processes that comply with relevant regulations. The expansion of the island also provides the opportunity to include additional habitat features such as Coarse Woody Debris, that would provide habitat to fish and basking turtles.	Noted for EIE and design development.
CT DEEP ML #14	Additionally, there is mention of placement of rip rap in Roberts Brook as scour protection, if placed beyond the period that the temporary construction spillway is utilized, the use of natural streambed materials in lieu of rip rap would be recommended.	Noted for EIE and design development. Rip rap is currently in place as a temporary spillway and apron repair measure.
CT DEEP ML #15	The General Permit for Stormwater and Dewatering Wastewaters from Construction Activities may be applicable depending on the size of the disturbance regardless of phasing. This general permit applies to discharges of stormwater and dewatering wastewater from construction activities where the activity disturbs more than an acre. The requirements of the current general permit include registration to obtain permit coverage and development and implementation of a Stormwater Pollution Control Plan (SWPCP). The SWPCP contains requirements for the permittee to describe and manage their construction activity, including implementing erosion and sediment control measures as well as other control measures to reduce or eliminate the potential for the discharge of stormwater runoff pollutants (suspended solids and floatables such as oil and grease, trash, etc.) both during and after construction. A goal of 80 percent removal of the annual sediment load from the stormwater discharge shall be used in designing and installing postconstruction stormwater management measures. Stormwater treatment systems must be designed to comply with the post-construction stormwater management performance requirements of the permit. These include post-construction performance standards requiring retention and/or infiltration of the runoff from the first inch of rain (the water quality volume or WQV) and incorporating control measures for runoff reduction and low impact development practices. The construction stormwater general permit dictates separate compliance procedures for Locally	Noted for EIE and design development.

The State of Connecticut Department of Energy and Environmental Protection provided written scoping comments from Linda Brunza, Environmental Analyst, dated December 16, 2021.		
Comment Number	**Comment**	**Response**
	Exempt projects (projects primarily conducted by government authorities) and Locally Approvable projects (projects primarily by private developers). Projects that are exempt from local permitting that disturb over one acre must submit a registration form and Stormwater Pollution Control Plan (SWPCP) to the Department at least 60 or 90 days, as identified in the permit, prior to the initiation of construction. Locally Approvable construction projects with a total disturbed area of one to five acres are not required to register with the Department provided the development plan has been approved by a municipal land use agency and adheres to local erosion and sediment control land use regulations and the CT Guidelines for Soil Erosion and Sediment Control. Locally Approvable construction projects with a total disturbed area of five or more acres must submit a registration form and SWPCP to the Department at least 60 days prior to the initiation of construction. Registrations shall include a certification by the Qualified Professional who designed the project and a certification by a Qualified Professional or regional Conservation District who reviewed the SWPCP and deemed it consistent with the requirements of the general permit. In addition to measures such as erosion and sediment controls and post-construction stormwater management, the SWPCP must include a schedule for plan implementation and routine inspections. For further information, contact the division at 860-424-3025 or DEEP.StormwaterStaff@ct.gov. The construction stormwater general permit registrations must be filed electronically through DEEP's e-Filing system known as ezFile. Additional information can be found on-line at: Construction Stormwater GP.	
CT DEEP ML #16	DEEP Bureau of Air Management typically recommends the use of newer off-road construction equipment that meets the latest EPA or California Air Resources Board (CARB) standards. If newer equipment cannot be used, equipment with the best available controls on diesel emissions including retrofitting with diesel oxidation catalysts or particulate filters in addition to the use of ultra-low sulfur fuel would be the second choice that can be effective in reducing exhaust emissions. The use of newer equipment that meets EPA standards would obviate the need for retrofits. Additionally, Section 22a-174-18(b)(3)(C) of the Regulations of Connecticut State Agencies (RCSA) limits the idling of mobile sources to 3 minutes. This regulation applies to most vehicles such as trucks and other diesel engine-powered vehicles commonly used on construction sites. Adhering to the regulation will reduce unnecessary idling at truck staging zones, delivery or truck dumping areas and further reduce on-road and construction equipment emissions. Use of posted	Noted for EIE and design development.

The State of Connecticut Department of Energy and Environmental Protection provided written scoping comments from Linda Brunza, Environmental Analyst, dated December 16, 2021.		
Comment Number	**Comment**	**Response**
	signs indicating the three-minute idling limit is recommended. It should be noted that only DEEP can enforce Section 22a-174-18(b)(3)(C) of the RCSA. Therefore, it is recommended that the project sponsor include language similar to the anti-idling regulations in the contract specifications for construction in order to allow them to enforce idling restrictions at the project site without the involvement of DEEP.	

Comment Number	**Comment**	**Response**
PCM #1	Comment from Joseph Cassone, CT DEEP - Is there a copy of the feasibility study for Mirror Lake that can be made available or provided?	The feasibility study was reviewed with DEEP in Fall 2020. A copy is available at updc.uconn.edu/mirror-lake.
PCM #2	Comment from Eric Thomas, CT DEEP - Can you provide an image or map of the contributing watershed to Mirror Lake? Alternatively, can you approximate what percentage of the lake watershed is outside of the UConn campus/property?	See Response to CT DEEP ML #9.

Appendix B: CT DEEP NDDB Determination

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

January 7, 2022

April Doroski
Fuss & O'Neill
1550 Main St, Suite 400
Springfield MA 01103
adoroski@fando.com

Project: Mirror Lake Improvements, Mansfield Rd, University of Connecticut, Storrs, CT
NDDB Determination No.: 202200194

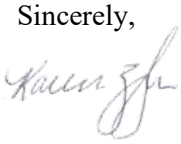
Dear April Doroski,

I have reviewed Natural Diversity Database (NDDB) maps and files regarding the area of work provided for the proposed Mirror Lake improvements including hydraulic and mechanical sediment dredging, construction of forebays for sediment trapping and stormwater management, dam and spillway reconstruction, with potential dewatering on the Great Lawn and parking Lot S at University of Connecticut, Mansfield Road, Storrs, Connecticut. I do not anticipate negative impacts to State-listed species (RCSA Sec. 26-306) resulting from your proposed activity at the site based upon the information contained within the NDDB. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits. Contact NDDB to report the presence of any listed species and for more detailed guidance. This determination is good for two years. Please re-submit a new NDDB Request for Review if the scope of work changes or if work has not begun on this project by January 7, 2024.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey, cooperating units of DEEP, landowners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDB should not be substitutes for on-site surveys necessary for a thorough environmental impact assessment. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the database as it becomes available.

Please contact me if you have further questions at (860) 424-3378, or karen.zyko@ct.gov . Thank you for consulting the Natural Diversity Database.

Sincerely,



Karen Zyko
Environmental Analyst

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

In Reply Refer To: March 09, 2022
Project Code: 2022-0017676
Project Name: Mirror Lake Improvements

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the "**New England Field Office Endangered Species Project Review and Consultation**" website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

https://www.fws.gov/newengland/endangeredspecies/project-review/index.html

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Additional Info About Section 7 of the Act
Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

https://www.fws.gov/birds/policies-and-regulations.php

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Project Code: 2022-0017676
Event Code: None
Project Name: Mirror Lake Improvements
Project Type: Dam - Maintenance/Modification
Project Description: UConn Storrs Campus
Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.807784049999995,-72.24763738841034,14z

Counties: Tolland County, Connecticut

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency: Fuss & O'Neill
Name: April Doroski
Address: 1550 Main Street
City: Springfield
State: MA
Zip: 01103
Email adoroski@fando.com
Phone: 4134520445

Appendix C: Summary of Scoping Comments and Responses (with EIE Section References)

Summary of Scoping Comments and Responses (with EIE Section References)

Preservation Connecticut provided written scoping comments from Jane Montanaro, Executive Director, dated December 14, 2021.			
Comment Number	**Comment**	**Response**	**Related EIE Section Reference**
PCT ML #1	While Mirror Lake is not identified as a contributing resource in the National Register nomination, the nomination does recognize its significance to the campus plan. The document outlines the influence of Frederick Law Olmsted on Lowrie and notes that Olmsted's naturalistic and democratic concept of campus plans "...is realized in the Lowrie plan by the incorporation of such features as the man-make lake, which contributes to the park-like setting..." It is the opinion of Preservation Connecticut that Mirror Lake could qualify as a contributing resource in the University of Connecticut historic district. Based on that, evaluation of this project should thoroughly consider the lake's historical development and features and carefully review the proposed actions for their potential effects on its historic character.	The University fully appreciates the history of Mirror Lake and its significance as an important campus landmark and man-made stormwater detention facility. A landscape architectural firm with experience in cultural landscapes and contributing resources to historic districts has been retained to assist the engineer-led design team to balance program, aesthetics and function with qualitative and quantitative requirements for stormwater management. See Response to SHPO ML #1.	3.12

The State of Connecticut Department of Economic and Community Development, State Historic Preservation Office provided written scoping comments from Jonathan Kinney, State Historic Preservation Officer, dated December 15, 2021.			
Comment Number	**Comment**	**Response**	**Related EIE Section Reference**
SHPO ML #1	SHPO understands the need for improvements to Mirror Lake and has no objections to the proposed quantitative projects. It is the opinion of our office that the dam and spillway modifications, as well as green infrastructure improvements for storm water management, will not impact the character defining features of this historic property. Based on prepared renderings presented at our referenced meeting, the proposed qualitative improvements will detract from the intended naturalistic design and rolling landscape. SHPO understands that these are project alternatives and strongly urges that, with the exception of the rain garden, they are not included as construction add-ons or alternatives. While the concrete promenade, pedestrian bridge, and pavilion all would detract from the deliberate design of Mirror Lake, it is possible that the proposed rain garden could be sympathetic to the historic intent. If the rain garden is pursued, our office requests the opportunity to	See Response to PCT ML #1. Conceptual design material from the referenced meeting is available at updc.uconn.edu/mirror-lake. As planned, the University will host a follow-up meeting with SHPO (and Preservation Connecticut) to further discuss the project and provide an opportunity to comment on design.	3.12

The State of Connecticut Department of Economic and Community Development, State Historic Preservation Office provided written scoping comments from Jonathan Kinney, State Historic Preservation Officer, dated December 15, 2021.			
Comment Number	**Comment**	**Response**	**Related EIE Section Reference**
	comment on its design. With these recommendations taken into consideration, it is SHPO's opinion that there will be no adverse effect by the proposed Mirror Lake Improvement Project.		

The State of Connecticut Department of Energy and Environmental Protection provided written scoping comments from Linda Brunza, Environmental Analyst, dated December 16, 2021.			
Comment Number	**Comment**	**Response**	**Related EIE Section Reference**
CT DEEP ML #1	Planned activities would require a new Flood Management Certification since the current Flood Management Memorandum of Understanding (FM MOU) does not cover the Roberts Brook watershed. Alternatively, a new masterplan FM MOU for the Roberts Brook watershed could be established.	Noted for EIE and design development.	6
CT DEEP ML #2	The project as proposed may require an Individual 401 Water Quality Certification, Water Diversion, and Inland Wetlands permits from the Land and Water Resources Division. Other permit requirements have been identified in section 1.10 of the Mirror Lake Improvements Feasibility Study June 2021 report. The project team should confirm that the activities are eligible for a USACE GP (PCN) as stated in the report.	Noted for EIE and design development.	6
CT DEEP ML #3	The Mirror Lake improvement design shall be incorporated into the UConn Drainage Master Plan and should have capacity to treat and attenuate current and any future/expected increases in stormwater draining to it as a result of future UConn development. Overall, it is important that the improvements can adequately treat existing and any expected / future stormwater runoff in accordance with the CT Stormwater Quality Manual. It is noted that hydrodynamic separators (HDS) are proposed upstream of all inlets to the lake and that three (3) forebays will be incorporated to supplement sediment / pollutant capture. The type of HDS specified must be one that is included on the Department of Transportation's list of approved separators and must be sized to treat the Water Quality Flow draining to each unit. It will be critical to keep these units well maintained and in good operating condition. LWRD would be interested in having UConn conducting performance monitoring of these units as part of the overall treatment performance of the lake. The Lake itself should be designed as a Primary Stormwater Treatment Practice, specifically a Stormwater Pond as defined by the Stormwater Quality Manual and should incorporate all the design features / criteria specified in the manual, including appropriate sizing of forebays. Again, long term maintenance of these forebays will important and details as to how these will be maintained and provision for adequate access shall be assessed as part of any permit review.	Noted for additional review with DEEP during design development.	3.4 & 3.16

The State of Connecticut Department of Energy and Environmental Protection provided written scoping comments from Linda Brunza, Environmental Analyst, dated December 16, 2021.			
Comment Number	**Comment**	**Response**	**Related EIE Section Reference**
CT DEEP ML #4	A Performance Monitoring Plan for all plantings proposed as part of the lake (specifically those plantings that are expected to provide some Water Quality benefit), should be provided as part of any permit application to LWRD. A full operations and maintenance plan for the lake and all stormwater features shall be included as part of any permit review, and UConn must include budget provisions for this long-term maintenance.	Noted for EIE and design development.	3.16 & 6
CT DEEP ML #5	Alternatives for the dewatering area required during the hydraulic dredging should be provided for review. Ideally this area should be adjacent to the lake side on the opposite side of the lake from the outlet and permit gravity feed of dewatering waters back to the lake. Alternatives that require laying these areas adjacent to wetlands are less appealing and will require other protective measures. Other alternatives that require additional pumping of return waters will also present additional risk. A thorough water handling plan to be implemented during the mechanical dredge phase will be required as part of any permit application submitted to LWRD.	Multiple potential dewatering sites will be evaluated for overall feasibility including impacts to campus operations. A site visit will be scheduled with DEEP to review a preferred location.	3.5 & 3.9
CT DEEP ML #6	The project manager is strongly encouraged to contact the Department's Dam Safety Program to arrange for a pre-application meeting to discuss regulatory requirements. Please contact Ivonne Hall at Ivonne.Hall@ct.gov.	Noted as an action item for the Project Manager as well as the University's office of Environmental Health & Safety.	6
CT DEEP ML #7	The Mirror Lake rehabilitation project design and associated engineering planning should address documented surface water quality impairments in downstream Roberts Brook, the 1.7-mile-long tributary to the Fenton River. This should be detailed for both the construction and the post-construction periods. Roberts Brook (CT3207-12_01) has been assessed by this Department as Not Supporting for the designated use of Habitat for Fish, Other Aquatic Life and Wildlife Use support. The assessment does not have a listed cause for this use impairment.	Noted for EIE and design development.	3.4, 3.5, 3.6, 3.16, & 3.19
CT DEEP ML #8	There is no watershed-based plan developed for the Roberts Brook watershed, or for the University's urban core campus contributing watershed to Mirror Lake. The University had developed a watershed response plan to the 2007 Eagleville Brook Impervious Cover Total Maximum Daily Load (TMDL) Analysis, followed by numerous structural and nonstructural best management practices, along with green stormwater infrastructure and landscape design elements across the core campus watershed for the westerly flowing Eagleville Brook. The University has learned a great amount of practical and effective measures to address increased flooding and stormwater quality management impacts to Eagleville Brook over the last decade. The current and forecasted University core campus development patterns indicate greater urbanizing pressures on the Roberts Brook subwatershed area. The University should fully utilize the lessons learned from the Eagleville Brook management plan, University sustainable design policies and implementation actions, and apply relevant elements to this Mirror Lake rehabilitation project. A project objective should provide for supportive actions towards restoring water quality standards to Roberts Brook.	The University completed a Campus Drainage Master Plan in 2018 for the Roberts Brook and Eagleville Brook watersheds. A technical review was completed by DEEP in 2019.	3.4 & 3.16

The State of Connecticut Department of Energy and Environmental Protection provided written scoping comments from Linda Brunza, Environmental Analyst, dated December 16, 2021.			
Comment Number	**Comment**	**Response**	**Related EIE Section Reference**
CT DEEP ML #9	The University should identify the percentage of the contributing watershed to Mirror Lake not under University ownership, and further address whether these other properties and potential increases in their impervious surface areas could be accommodated with the proposed stormwater retrofit practices and storage capacity of the rehabilitated Mirror Lake impoundment area. (Note this is also the same comment given by Eric Thomas at the public scoping meeting on December 8, 2021)	Noted for EIE and design development. An exhibit is available at updc.uconn.edu/mirror-lake.	3.16
CT DEEP ML #10	The preliminary project plans provide for greater community access to, and experiences with a rehabilitated Mirror Lake. The University should consider leveraging the highly visible aspects of this project with interpretive signage indicating the lake's location and linkages to the regional watershed.	Noted for EIE and design development.	3.13
CT DEEP ML #11	Natural Diversity Database (NDDB) maps represent the approximate locations of species listed by the State, pursuant to section 26-306 of the Connecticut General Statutes (CGS), as endangered, threatened or of special concern. The maps are a pre-screening tool to identify potential impacts to state listed species. The database shows that the project falls within one of the NDDB areas. The applicant is required to submit a Request for Natural Diversity Data Base (NDDB) State Listed Species Review Form (DEEP-APP-007) and all required attachments, including maps, to the NDDB for further review. Additional information concerning NDDB reviews, and the request form, may be found on-line at: NDDB Requests.	The NDDB review process has been completed. Correspondence from CT DEEP NDDB (01/07/2022) indicates that no negative impacts to State-listed species are anticipated.	3.6
CT DEEP ML #12	The Fisheries Division is supportive of the Mirror Lake Project and views it as an opportunity to enhance recreational fishing opportunities for students and members of the public. The deepening of the lake would provide additional habitat diversity and offer overwintering habitat for fish residing in the lake. The improvements to water quality and sediment management would also enhance the angling experience. It is recommended that CT DEEP fisheries and the UCONN fisheries program be contacted about recreational fishing opportunities in the lake, and the establishment of a fish community post construction. Project designs should include access areas for recreational angling that would be ADA compliant and allow all members of the angling community to enjoy the lake. The feasibility study references the need for CT DEEP Determination of Need for Fishway; a fishway would not be required at this location based on the species present and its location. The pedestrian promenade feature depicted in the feasibility study, entails vertical concrete embankments along a long section of the shoreline. This type of vertical hard structure is of limited habitat value to fish and aquatic life. It is suggested that structured habitat features be included in the lake design to provide additional habitat for fish and angling opportunities. Examples of these types of structures can be found at this link https://www.fishandboat.com/Resource/Habitat/Documents/lake_fish_hab.pdf, or provided by Fisheries staff.	While Mirror Lake is not designated for recreational fishing, quantitative and qualitative improvements will be incorporated to support potential habitat.	3.4 & 3.6
CT DEEP ML #13	The feasibility study also depicts the expansion of the central island using dredged materials; this study also details the exceedance of Remediation Standard Regulations (RSRs) in sediments within the pond. The expansion of the island should be performed with materials and processes that comply with relevant regulations. The expansion of the island also provides the opportunity to include additional habitat features such as Coarse Woody Debris, that would provide habitat to fish and basking turtles.	Noted for EIE and design development.	3.3, 3.5, & 3.19

The State of Connecticut Department of Energy and Environmental Protection provided written scoping comments from Linda Brunza, Environmental Analyst, dated December 16, 2021.			
Comment Number	**Comment**	**Response**	**Related EIE Section Reference**
CT DEEP ML #14	Additionally, there is mention of placement of rip rap in Roberts Brook as scour protection, if placed beyond the period that the temporary construction spillway is utilized, the use of natural streambed materials in lieu of rip rap would be recommended.	Noted for EIE and design development. Rip rap is currently in place as a temporary spillway and apron repair measure.	1.3 & 3.5
CT DEEP ML #15	The General Permit for Stormwater and Dewatering Wastewaters from Construction Activities may be applicable depending on the size of the disturbance regardless of phasing. This general permit applies to discharges of stormwater and dewatering wastewater from construction activities where the activity disturbs more than an acre. The requirements of the current general permit include registration to obtain permit coverage and development and implementation of a Stormwater Pollution Control Plan (SWPCP). The SWPCP contains requirements for the permittee to describe and manage their construction activity, including implementing erosion and sediment control measures as well as other control measures to reduce or eliminate the potential for the discharge of stormwater runoff pollutants (suspended solids and floatables such as oil and grease, trash, etc.) both during and after construction. A goal of 80 percent removal of the annual sediment load from the stormwater discharge shall be used in designing and installing postconstruction stormwater management measures. Stormwater treatment systems must be designed to comply with the post-construction stormwater management performance requirements of the permit. These include post-construction performance standards requiring retention and/or infiltration of the runoff from the first inch of rain (the water quality volume or WQV) and incorporating control measures for runoff reduction and low impact development practices. The construction stormwater general permit dictates separate compliance procedures for Locally Exempt projects (projects primarily conducted by government authorities) and Locally Approvable projects (projects primarily by private developers). Projects that are exempt from local permitting that disturb over one acre must submit a registration form and Stormwater Pollution Control Plan (SWPCP) to the Department at least 60 or 90 days, as identified in the permit, prior to the initiation of construction. Locally Approvable construction projects with a total disturbed area of one to five acres are not required to register with the Department provided the development plan has been approved by a municipal land use agency and adheres to local erosion and sediment control land use regulations and the CT Guidelines for Soil Erosion and Sediment Control. Locally Approvable construction projects with a total disturbed area of five or more acres must submit a registration form and SWPCP to the Department at least 60 days prior to the initiation of construction. Registrations shall include a certification by the Qualified Professional who designed the project and a certification by a Qualified Professional or regional Conservation District who reviewed the SWPCP and deemed it consistent with the requirements of the general permit. In addition to measures such as erosion and sediment controls and post-construction stormwater management, the SWPCP must include a schedule for plan implementation and routine inspections. For further information, contact the division at 860-424-3025 or DEEP.StormwaterStaff@ct.gov. The construction stormwater general permit	Noted for EIE and design development.	6

The State of Connecticut Department of Energy and Environmental Protection provided written scoping comments from Linda Brunza, Environmental Analyst, dated December 16, 2021.			
Comment Number	**Comment**	**Response**	**Related EIE Section Reference**
	registrations must be filed electronically through DEEP's e-Filing system known as ezFile. Additional information can be found on-line at: Construction Stormwater GP.		
CT DEEP ML #16	DEEP Bureau of Air Management typically recommends the use of newer off-road construction equipment that meets the latest EPA or California Air Resources Board (CARB) standards. If newer equipment cannot be used, equipment with the best available controls on diesel emissions including retrofitting with diesel oxidation catalysts or particulate filters in addition to the use of ultra-low sulfur fuel would be the second choice that can be effective in reducing exhaust emissions. The use of newer equipment that meets EPA standards would obviate the need for retrofits. Additionally, Section 22a-174-18(b)(3)(C) of the Regulations of Connecticut State Agencies (RCSA) limits the idling of mobile sources to 3 minutes. This regulation applies to most vehicles such as trucks and other diesel engine-powered vehicles commonly used on construction sites. Adhering to the regulation will reduce unnecessary idling at truck staging zones, delivery or truck dumping areas and further reduce on-road and construction equipment emissions. Use of posted signs indicating the three-minute idling limit is recommended. It should be noted that only DEEP can enforce Section 22a-174-18(b)(3)(C) of the RCSA. Therefore, it is recommended that the project sponsor include language similar to the anti-idling regulations in the contract specifications for construction in order to allow them to enforce idling restrictions at the project site without the involvement of DEEP.	Noted for EIE and design development.	3.8 & 3.19

Comment Number	**Comment**	**Response**	**Related EIE Section Reference**
PCM #1	Comment from Joseph Cassone, CT DEEP - Is there a copy of the feasibility study for Mirror Lake that can be made available or provided?	The feasibility study was reviewed with DEEP in Fall 2020. A copy is available at updc.uconn.edu/mirror-lake.	7
PCM #2	Comment from Eric Thomas, CT DEEP - Can you provide an image or map of the contributing watershed to Mirror Lake? Alternatively, can you approximate what percentage of the lake watershed is outside of the UConn campus/property?	See Response to CT DEEP ML #9.	3.16

FUSS & O'NEILL