Subject: Bigelow Laboratory for Ocean Sciences, Education and Innovation Wing
2023 Congressionally Identified Construction Grant

Agency: National Institute of Standards and Technology (NIST)

Action: Finding of No Significant Impact

INTRODUCTION

An Environmental Assessment was prepared to evaluate the potential impacts of the construction and operation of an Education and Innovation Wing onto the Bigelow Laboratory for Ocean Sciences. A congressionally identified construction grant has been specified for this project.

This proposed project expands Bigelow's main laboratory building by adding a 4th wing consisting of approximately 26,000 square feet of administrative, scientific lab, conference, and educational space onto its existing state-of-the- art ocean lab facility. Figure 1 below shows the proposed location of the new Innovation and Education Wing.

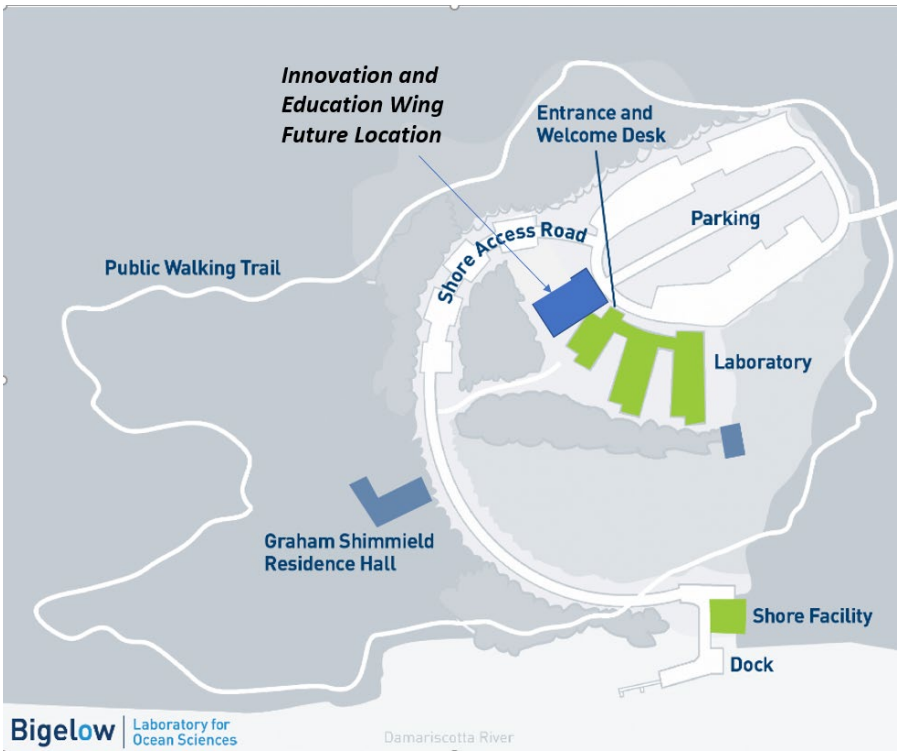

Figure 1. Location of the Education and Innovation Wing on the BLOS Campus

The Innovation and Education (I &E) Wing will connect to Bigelow Laboratory's existing, LEED Platinum, 65,500-square-foot main facility in East Boothbay, ME

Purpose and Need

The I&E Wing will expand the main laboratory building to meet increased demand for the organization's transformative ocean science education initiatives, and to continue growth in its innovative work addressing global climate change issues and supporting the regional aquaculture and biotech economy. The new wing will contain classrooms; artificial intelligence collaboration space; the campus' first teaching labs; and a 300-person forum that will be a resource for the Lab and the broader community in the region.

The new wing will help Maine to play a greater role in meeting current and future research needs of the nation. The new scientific staff that Bigelow will be able to employ because of the increased space will promote U.S. innovation and industrial competitiveness in several key areas including climate research, bioscience, and the bioeconomy.

Alternatives Considered

This EA considered two alternatives: The Proposed Action and the No-Action Alternative.

ANALYSIS

Land Use Impacts

This project is a planned phase of a Master Planned campus that has received local land use approval through a Contract Zoning Agreement and Site Plan Approval.

The Boothbay, ME Planning Board found in its review of the Site Plan that the project met the requirements of the Town of Boothbay Zoning Ordinance and the Contract Zoning Agreement. The Contract Zoning Agreement stipulates that the Lab will "concentrate development into only certain areas of the site plus roadways totaling 14 acres, thereby preserving 50 acres of the 64-acre site in its natural state, which provide a unique amount and quality of vegetative buffering". This 50-acre set-aside is intended to protect the high-quality Deer Wintering Area.

Stormwater treatment is to be provided primarily through the use of Forested Buffer Areas. These areas have been deed restricted.

The impacts from this project include some limited tree clearing and land development. The project will create 2.1 acres of new developed area, of which 1.7 acres will be impervious.

Visual Impacts

The State Site Location of Development (SLOD) permit finds that "The applicant has made adequate provision for fitting the development harmoniously into the existing natural environment and the development will not adversely affect existing uses, scenic character, air quality, water quality or other natural resources in the municipality or in neighboring municipalities."

Air Quality Impacts

Temporary air quality impacts will result from the operation of construction equipment during construction. The duration of construction is estimated at 18 months. The following heavy equipment is expected to be used in the construction: trucks, backhoes, excavators, hoe rams, cranes, rollers, paving equipment, and concrete mixers.

Air quality impacts resulting from construction operations are temporary in nature and will be minimized to the extent possible and practicable. The Lab will take all necessary actions to ensure that its activities or those of its agents do not result in noticeable erosion of soils or fugitive dust emissions on the site during the construction and operation of the project.

This project will utilize a combination of existing systems (e.g. boilers), and new equipment (e.g. a chiller addition). Where new equipment has been specified, the design has been structured to require energy efficient equipment meeting the latest standards with "smart" controls that allow for strategies such as night setback, space sensing, coordination of thermal gain/loss through shade management, etc. That coupled with a tighter building envelope and targeted building commissioning will ensure that the energy use per square foot in this building is consistent with Maine energy goals. This effort will help reduce greenhouse gas emissions from those expected from conventional construction.

Water Resources Impacts

The proposed project includes approximately 2.1 acres of new developed area, of which 1.7 acres is new impervious area. Taken together with the previous development, the total amount of developed area associated with the overall facility is 11.8 acres of developed area, of which 5.82 acres are impervious area. The site of the proposed project lies within the watershed of the Damariscotta River.

The project has received approval for its stormwater management plan based on the Basic, General, and Flooding Standards contained in the Maine DEP's Chapter 500 Stormwater Management Rules (06-096 C.M.R. Ch. 500, effective August 12, 2015), pursuant to 38 M.R.S. § 420-D. Stormwater runoff from the proposed project will be treated by utilizing a forested stormwater buffer. The project will include erosion and sedimentation controls according to the Maine DEP's Best Management Practices manual.

When completed, the proposed project is anticipated to use 1,200 gallons of water per day. Water will be supplied by the Boothbay Region Water District. The Boothbay Water District has provided a letter, dated June 19, 2023, indicating that it can service this project.

Wastewater from the proposed project will be disposed of by a new individual subsurface wastewater disposal system, with a pre-treatment system and leach field designed to handle flows of 1,200 gallons per day. The on-site wastewater treatment includes nitrogen reduction with an innovative wastewater treatment technology. The wastewater treatment system has been approved by the Maine Department of Environmental Protection.

The Maine DEP has found that the project has made adequate provision for securing and maintaining a sufficient and healthy water supply, and that it meets the requirements of Chapter 500 Stormwater Standards. The applicant has made adequate provision of utilities, including water supplies, sewerage facilities and solid waste disposal required for the development and the development will not have an unreasonable adverse effect on the existing or proposed utilities in the municipality or area served by those services.

Flooding Potential and Flood Resilience

This proposed project is not located within a Special Flood Hazard Area as determined by FEMA Flood Mapping. The Base Flood Elevation (BFE) for the Damariscotta River to the east is 11 feet. The building will be very resilient to flooding, with the lowest level of the proposed building has a floor elevation of 85.63. nearly 75 feet above BFE.

Biological Resources Impacts

The Maine Natural Areas Program does not contain any records documenting the existence of rare or unique botanical features on the site, nor are there any documented threatened or endangered species.

This project will result in the clearing of approximately ½ acre of trees. No wetlands will be disturbed.

Noise Level Impacts

There will be temporary increase in noise levels during construction. This will be a result of truck traffic, grading and earthwork, blasting (for ledge removal), and construction of the building and site work. It is important to note that the Laboratory will still be in operation during the entire construction period, and the construction manager is working with facility manager to limit and mitigate noise to the extent possible so that the working environment is still conducive to the important lab work that is occurring. The most impactful noise periods will be during blasting and rock removal with a hydraulic hammer. A blasting plan is required of the selected blasting contractor. This plan must be prepared per the requirements (including acceptable sound levels) of Section 38 of the Maine Revised Statutes, and must be approved by the DEP. All construction operations will be performed during hours of the day allowed by local ordinance.

Post construction noise impacts will include the operation of HVAC equipment. To mitigate potential noise impacts, the project has maintained a minimum 100-foot of woodland between air-cooled chillers and the closest property line. In addition, exhaust silencers have been applied to the emergency generators. The amount of noise expected to be generated by the development is similar to the noise impacts of the current development, and comparable to the commercial uses in the vicinity of the site. The Maine DEP has found that the development has made adequate provision for the control of environmental noise from the project.

Historic and Cultural Resources Impacts

The Maine Historic Preservation Commission has reviewed the proposed project and determined that it will have no adverse effect upon any structure or site of historic, architectural, or archaeological significance as determined by the National Historic Preservation Act of 1966.

Socioeconomic Impacts

This project is anticipated to add up to 25 staff that equates to $3MM in salaries and benefits. Using an economic multiplier consistent with the Margaret Chase Smith Policy Center at the University of Maine, this project is anticipated to add $11MM in economic benefit to the State and support the creation of an additional 38 jobs.

Health and Safety Impacts

In accordance with its mission, Bigelow is committed to stewardship of the environment, its community, and the health and safety of its workforce. Safety is part of the Bigelow culture. Bigelow employs a full time Environmental Health and Safety Officer that is committed to the education and enforcement of the Laboratory's safety policies, procedures, and protocols. A Health and Safety Plan specific to construction will be prepared, implemented, and overseen by a licensed and qualified Construction Management Company.

DETERMINATION

In view of the analysis contained in the EA, and proposed mitigation measures, it is determined that the proposed project will not significantly impact the quality of the human environment. Accordingly, preparation of an Environmental Impact Statement for this action is not necessary.

Mike Blackmon Digitally signed by Mike Blackmon Date: 2023.09.29 14:55:06 -04'00'

James Michael Blackmon — Date
NEPA Coordinator
National Institute of Standards and Technology

ROBERT VAUGHN Digitally signed by ROBERT VAUGHN Date: 2023.10.05 08:27:27 -04'00'

Robert C. Vaughn — Date
Chief Facilities Management Officer