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CAPE COD
COMMISSION

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MINOR MODIFICATION TYPE #1

Date: October 2, 2015

To: Woods Hole Oceanographic Institution
c/o Joel Kubick, PE PLS
Holmes and McGrath, Inc.
205 Worcester Court, Unit A4
Falmouth, MA 02540

Re: Modification to Development of Regional Impact/ Hardship Exemption Decision

Project Applicant/
Property Owner: Woods Hole Oceanographic Institution (WHOI)

Project: Laboratory for Ocean Sensors and Observing Systems (WHOI LOSOS)
(CCC No. TR/HDEX11001)

Project Location/
Site: 360 Woods Hole Road, Quisset Campus, Woods Hole, Falmouth, MA

Title Reference: Lot 6, Plan 5348-I on Certificate of Title Number 94908 and 44053

Assessors ID: 50-004-F

Background

The above referenced Project, the Laboratory for Ocean Sensors and Observing Systems (LOSOS) was approved, with conditions, as a Limited DRI Hardship Exemption, by a vote of the Cape Cod Commission (Commission) on March 17, 2011. The Commission's Limited DRI Hardship Exemption decision (Decision) has previously been amended by Minor Modification Type #1 decisions dated May 11, 2011 and October 19, 2011 (collectively, "Decision").

Modification Request

By letter dated August 18, 2015, the Applicant requested site changes to the Project to authorize expansion to the paved area north of the LOSOS laboratory, within the ring road area of the Site. This pavement expansion is proposed to allow for the additional storage of buoys and testing equipment. No new parking spaces are proposed. Previously approved, existing lighting fixtures are proposed to be re-located and re-used in the re-configured, expanded pavement

area. WHOI submitted a letter from NHESP, dated 8/6/15, that the proposed work would not result in a prohibited 'take' of state-listed rare species.

The approximate 7,100 sq ft pavement expansion requires modification of the site's stormwater management system, as the proposed pavement expansion will increase stormwater runoff and cover over existing stormwater devices such as catch basins, bernms, and stone splash.

Commission Staff Analysis

The Project is not located within a Wellhead Protection Area, a Marine Water Recharge Area, a Water Quality Impaired area, or a Freshwater Recharge Area, as depicted in the Water Resources Classification Maps in the RPP.

Nitrogen loading calculations incorporating the proposed pavement expansion at the Site, dated 8/11/2015, indicate that the Project will still meet the 5ppm nitrogen loading standard. The calculations are consistent with the Cape Cod Commission's Nitrogen Loading Technical Bulletin 91-001 and indicate an existing load of 3.36ppm to 3.37ppm.

Changes to the stormwater management system involve modifications within Contributing Area A. Specifically, Depression Area A will be re-designed and Bioretention Area A will be created to accommodate sheet flow from the paved surface expansion. During extreme rain events, when water levels in Depression Area A and Bioretention Basin A reach 45.90 feet and 49.50 feet, respectively, water will be conveyed to subsurface drainage structures located under the expanded pavement area. This existing subsurface leaching system will be expanded to mitigate stormwater runoff generated from the expanded paved storage area.

WR7.2 requires that all stormwater to be infiltrated on-site. Additionally, water quality treatment must be provided for the first inch of stormwater, ensuring 80% TSS removal, with 44% TSS removal being achieved prior to discharge in to structured infiltration systems. WR7.4 further specifies that the system is designed to treat the first inch of stormwater with bioinfiltration practices.

According to the Stormwater Report, revised October 2, 2015, the stormwater management system is designed to contain the 24-hour 100 year storm and meets the on-site infiltration requirements of WR7.2. Sizing calculations provided for Bioretention Area A show that it can accommodate a 1-inch "first flush" water quality volume, meeting the bioinfiltration requirements of WR7.4. The line of vegetation separating the paved expansion from the western side of Bioretention Area A is essential in providing pretreatment preceding the bioretention area and slowing parking lot sheet flow that could otherwise result in scouring if left uninhibited. Considering the border vegetation and the filtering components of Bioretention Area A (crushed stone, sand, planting soil, mulch layers, and planting material) 80% TSS removal will be achieved, as required by WR7.2.

The Erosion and Sedimentation Control Plan and the Stormwater Operations & Maintenance Plan in the Stormwater Report provide adequate protections consistent with MPSs WR7.9 and WR7.10.

Though the proposed pavement expansion falls within the vernal pool buffer area, stormwater from catchment area A is unlikely to reach the vernal pool. The stormwater system is designed to capture the 100 year 24-hour storm, with excess stormwater directed to the subsurface drainage system. Additionally, the vernal pool is perched and thus hydrologically disconnected from groundwater flow beneath catchment area A, whose flow proceeds in the opposite direction of the vernal pool.

The planting plan (including planting schedule and planting details) submitted is consistent with the previously approved planting plan, and with RPP water resources and community character design standards. Native and drought-resistant plants are proposed in the bioretention area basins.

Modification to the Decision

The Executive Director of the Commission has determined that the requested changes to the Project constitute *de minimus* changes according to Section 13(c)(i) of the Commission's *Enabling Regulations* (Revised May 2011) and are hereby approved as a Type 1 Minor Modification to the Decision.

The following plans and documents so entitled shall be incorporated into and amend or substitute those plans, as the case may be, referenced in General Finding 12 (GF12) and General Condition 5 (GC5) of the Decision:

- *Existing Layout Conditions- Roadway & Sidewalk Area and Lawn Area, Rev. 8/11/2015*
- *Proposed Layout Conditions- Roadway & Sidewalk Area and Lawn Area, Rev. 8/11/2015*
- *Sheet 1 of 4-Revisions-Overall Site Plan of Proposed Pavement Expansion prepared for Woods Hole Oceanographic Institution in Woods Hole, Falmouth, MA by Holmes and McGrath, Inc., Date: June 29, 2015*
- *Sheet 2 of 4-Revisions-Overall Site Plan of Proposed Pavement Expansion prepared for Woods Hole Oceanographic Institution in Woods Hole, Falmouth, MA by Holmes and McGrath, Inc., Date: June 29, 2015 (revision dated 9/29/15)*
- *Sheet 3 of 4-Revisions-Construction Details for Proposed Pavement Expansion prepared for Woods Hole Oceanographic Institution in Woods Hole, Falmouth, MA by Holmes and McGrath, Inc., Date: June 29, 2015 (revision dated 8/11/15 & 9/29/15)*
- *Sheet 4 of 4-Revisions-Planting Plan of Proposed Pavement Expansion prepared for Woods Hole Oceanographic Institution in Woods Hole, Falmouth, MA by Holmes and McGrath, Inc., Date: June 29, 2015 (revision dated 9/29/15)*
- *Stormwater Management Report, LOSOS Building, Woods Hole Oceanographic Institution, Quissett Campus, prepared by Holes and McGrath, Inc. for the Woods Hole Oceanographic Institution, dated 8/11/15, revised 10/02/15*
- *Plan showing LOSOS Laboratory Stormwater System prepared for Woods Hole Oceanographic Institution, Woods Hole, Falmouth, MA by Holes and McGrath, Inc., dated 8/11/2015*
- *Nitrogen Loading Calculations, existing and proposed conditions, dated 8/11/15*

Signature(s)

Executed this 2 day of October 2015.


Signature

Paul Niedzwiecki, Executive Director
Print Name and Title

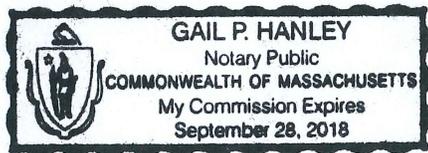
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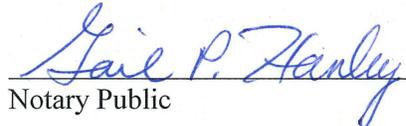
Barnstable, ss

October 2, 2015

Before me, the undersigned notary public, personally appeared Paul Niedzwiecki

in his/her capacity as Executive Director of the Cape Cod Commission, whose name is signed on the preceding document, and such person acknowledged to me that he/she signed such document voluntarily for its stated purpose. The identity of such person was proved to me through satisfactory evidence of identification, which was [] photographic identification with signature issued by a federal or state governmental agency, [] oath or affirmation of a credible witness, or [] personal knowledge of the undersigned.




Notary Public

My Commission Expires: 9-28-18

SEAL