

# University Environment Committee

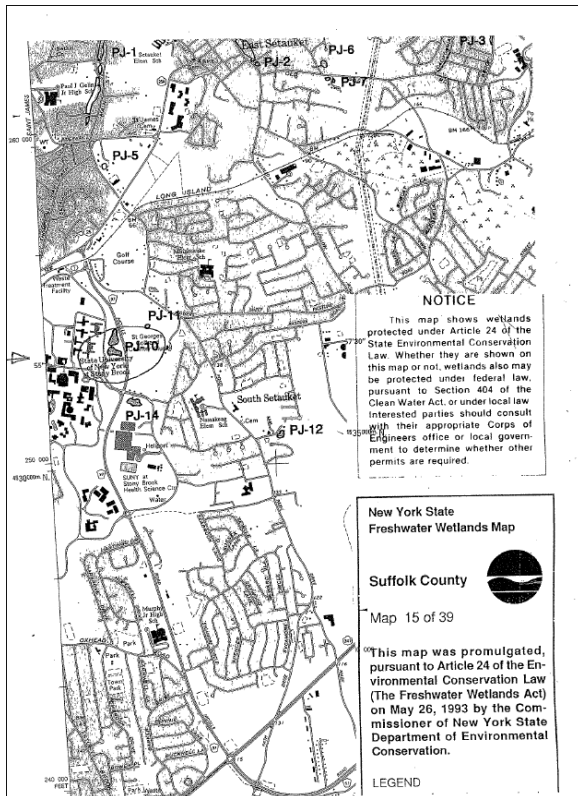
## Draft Proposal

### Evaluate Seasonal and Storm-driven Fluctuations in Water Level at East Recharge Basin / Lake Briana / DEC Freshwater Wetland PJ-10

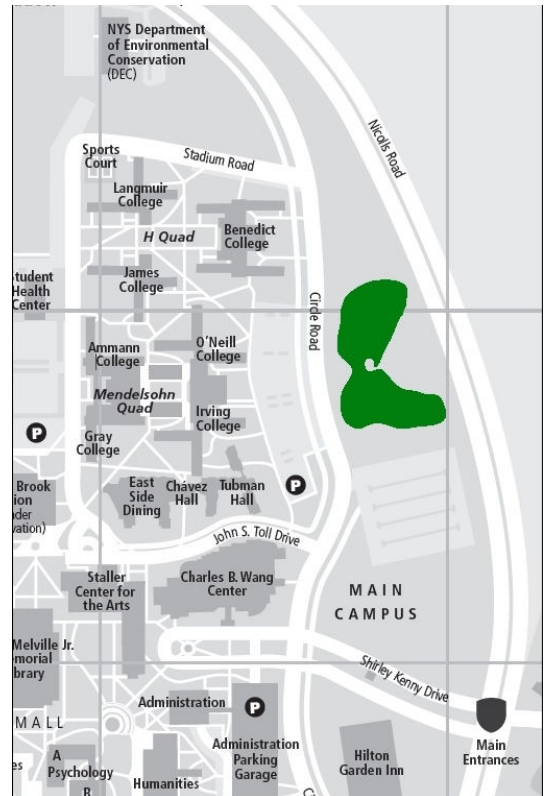
March 20, 2018

#### 1. Introduction

The Stony Brook University (SBU) precipitation runoff East Recharge Basin, located between Nicholls Rd and O'Neill College, informally known as Lake Briana, is designated by the New York State Department of Environmental Conservation (DEC) as Freshwater Wetland PJ-10 (Figs. 1 and 2).



**Fig. 1.** Excerpt from New York State Freshwater Wetlands Map 15, dated May 26, 1993, identifying Freshwater Wetland PJ-10. Promulgated pursuant to Article 24 of the Environmental Conservation Law (The Freshwater Wetlands Act) on May 26, 1993 by the Commissioner of New York State Department of Environmental Conservation,



**Fig 2.** Excerpt from Stony Brook University campus map, with Freshwater Wetland PJ-10 highlighted in green.

Over the years the basin has stabilized with standing water, presumably the expression of the local water table. It has become populated with a variety of migratory birds, waterfowl, fish and flora. The basin is surrounded by dense undisturbed deciduous forest. The basin is secured by a high chain link fence with one overgrown access path located on the western side (Fig. 3).



**Fig. 3:** Aerial photograph of NYS DEC Freshwater Wetland PJ-10 on west campus.

## 2. History.

The SBU Senate Environment Committee (UEC) has long been interested in working with SBU and DEC to develop the basin as a student ecological research site, by making modest additions to the existing access in the way of unpaved trails on the western perimeter, leading to a bird viewing blind. The intention would be to allow access only during daylight hours and not allow access at all on the eastern side adjacent to Nicholls Rd.

Preliminary discussions were held in the Fall of 2008 with DEC officials and Vice President for Facilities and Services Barbara Chernow. Present were Professors Robert Aller (SoMAS), Gilbert Hanson (Geosciences), Malcolm Bowman (SoMAS), John Robinson (Psychology), and university counsel. Oral agreement was reached to proceed with opening up the preserve (as is)

for one year as a trial and to establish its value as a biological field site and to create an ecological inventory (bioblitz).

In the past year, renewed and productive discussions have been held with Vice President for Finance and Administration Robert Megna, Director of Environmental Health and Safety Gary Kazmarczyk, Malcolm Bowman, past UEC Chair John Robinson (Psychology), and current UEC Chair Thomas Wilson (SoMAS) to reinvigorate the 2008 proposal.

One key issue critical to any long term management plan is the ability of the current basin to absorb discharge from precipitation and runoff events. That is, if maintained in its natural state can the basin effectively handle both routine and extreme stormwater discharge from its catchment area? This document proposes a scientific and engineering study that will provide objective data to definitively answer that question.

### **3. Proposal**

The UEC proposes a one-year study of water level fluctuations in the basin due to natural causes and discharge during precipitation events over the basin's catchment area, as well as an inventory of flora and fauna in and around the basin.

**Personnel:** Distinguished Service Professor Malcolm Bowman of SoMAS will supervise the study. The SoMAS Instrument Laboratory already maintains the weather stations and will install and maintain the water level recorder. Stony Brook University students will collect and analyze the data as part of related courses. All field work will be appropriately supervised and take place during daylight hours.

**Water level:** A donated Ott Ecolog 500 water level gauge will be installed on the basin shoreline using a small locked diagonal pipe mount with minimal visual and environmental footprint. The telemetry unit on the particular instrument being donated has malfunctioned but internally recorded data can be downloaded during site visits. Time stamped water level data for the basin will be recorded every 15 minutes.

**Rainfall:** SoMAS already operates two Davis Instruments Vantage Vue weather stations: one at South P lot and the other on top of the Health Sciences Center Tower. These stations record precipitation every 5 minutes.

**Basin response:** Rain and water level data will be analyzed to show the relationship between precipitation events, the immediate rise in water level, recovery time of the basin after an event, and seasonal variation. Correlation of precipitation event size and basin response can be used to predict the ability of the current system to handle extreme events (20, 50, or 100 year rainstorms)

**Budget:** Operation of the weather stations is covered in the SoMAS base budget. Cost of the instrument mount and one year of batteries for the water level meter is approximately \$1,000.00. Approval of the proposal by the Senate Executive does not constitute a commitment to funding, UEC will seek funding from a variety of sources after the study is authorized.



**Permitting and access:** All necessary permits for the study will be sought from the NYS DEC office on Stony Brook Campus. After permitting is in place, access will be obtained from University Administration, who has verbally agreed to allow the study.

**Deliverables:** Final reports will be prepared and provided to the University Senate and the University Administration including methods, data, and results of the study.

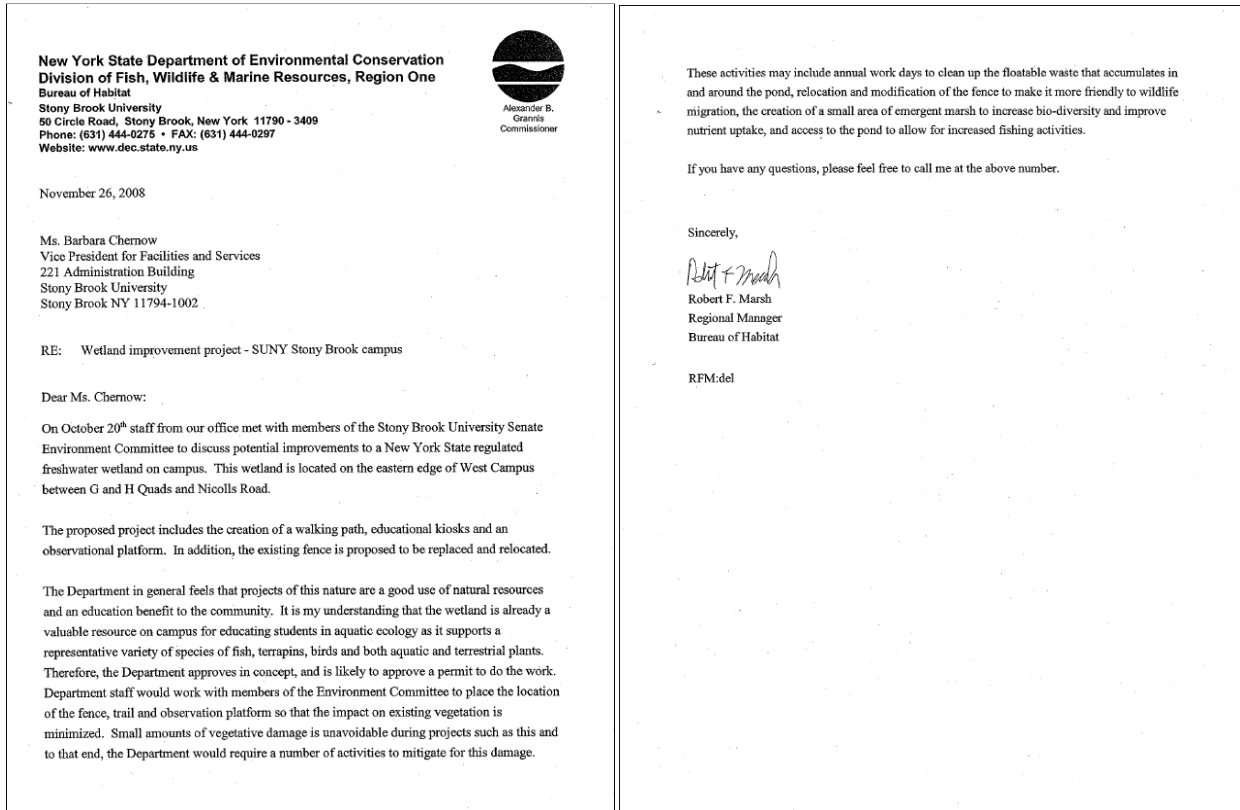
The study should accurately establish how much the water level in the basin fluctuates, how quickly it recovers after a precipitation event, how well the system would handle extreme events, and whether additional discharge could safely be accommodated from, for example, additional construction of buildings, parking lots and other hard surfaces.

#### 4. Appendices

**Appendix 4.1:** Sketch map from 2008 of proposed improvements for biological field site.



**Appendix 4.2.** Letter of support from Robert F. Marsh, Regional Manager, Bureau of Habitat to VP Barbara Chernow, dated November 26, 2008.



**Appendix 4.3.** [NYS DEC Freshwater Wetlands Program.](#)

**Appendix 4.4.** [Freshwater Wetland Act \(Article 24\).](#)