SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF NASSAU

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In the Matter of the Application of

SIERRA CLUB-Long Island Group, The Concerned Citizens of the Mill River Flood Plain and Joseph P. Forgione,

Petitioners,

Index No.

for a Judgment Pursuant to Article 78 of the New York Civil Practice Law and Rules,

AFFIDAVIT

-against-

Governor's Office of Storm Recovery; New York State Office of Parks, Recreation and Historic Preservation; New York State Division of Housing and Community Renewal; New York State Department of Environmental Conservation; and Matt Accardi, Assistant General Counsel and Certifying Corporate Officer for the Governor's Office of Storm Recovery,

Respondents.

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STATE OF NEW YORK)
) ss.:
COUNTY OF NASSAU)

I, David A. Stern, Ph.D., being duly sworn, deposes and says:

1. I am Co-Chair of the Living with the Bay Citizens Advisory Committee ("CAC") appointed by The Governor's Office of Storm Recovery ("GOSR"). Hempstead Lake State Park ("HLSP") is a segment of one of seven projects, together known as Living with the Bay ("LWTB").

2. I hold a Ph.D. in Civil Engineering from the CUNY Graduate Center, a Master's degree in Environmental Science from Rutgers University, and a B.S. degree in Environmental and Forest Biology from SUNY College of Environmental Science and Forestry. My doctoral dissertation presented a new mathematical description on modeling the hydraulics of water flows

through wetlands. During my career, I have held supervisory roles directing governmental programs on monitoring and regulating water resources. I am a member of the New York State Floodplain and Stormwater Managers Association and the New York State Geographic Information System Association. A copy of my Curriculum Vitae is attached as Exhibit 1 hereto.

3. I have attended and/or completed dozens of seminars, courses and workshops on issues in Hydrogeology, Water Resources, Environmental Management and Hydrologic Monitoring and Modeling.

4. I have reviewed the Negative Declaration dated December 18, 2019, the entire Hempstead Lake State Park Project Environmental Assessment ("EA" or "FEA") dated January 21, 2020, the associated permit applications and the related papers and reports on environmental evaluations.

5. I have visited the HLSP site many times and am very familiar with the site generally, and the dam structures and northern wetland areas in particular. My last visit to the site was on July 27, 2020.

6. On May 19, 2017, GOSR publicly announced that it would be the lead agency for SEQRA review purposes for the HLSP Project. The public was provided from June 15, 2017 to July 17, 2017, in which to submit written comments on the Information Document. However, public hearings were held during the week of the July 4th holiday and had the effect of limiting public participation in the process. The CAC provided comments during the July 6, 2017 hearing for the Environmental Review of the HLSP project. On January 7, 2020 the CAC provided comments on the Final Environmental Assessment. A copy of this submission is annexed to this Affidavit as Exhibit 2. On February 6, 2020 the CAC commented on the Request to Release of Funds ("RROF") asking that the federal agency funding the project, the United States Department

of Housing and Urban Development ("HUD") deny any funding until adequate information is provided including the extent of the impacts resulting from the permits, alternatives to eliminate these impacts and mitigation measures to minimize the impacts. A copy of this submission is annexed to this Affidavit as Exhibit 3. Similar comments were provided to the New York State Department of Environmental Conservation ("NYSDEC") on January 31 and March 24, 2020 asking the NYSDEC to deny permits for the tree removal and dam repairs and North Ponds Wetlands respectively. Copies of these submissions are annexed to this Affidavit as Exhibits 4 and 5. These comments noted the current permit applications are a segmentation of the full HLSP proposal which itself has been segmented from the LWTB program. Segmentation prevents those agencies reviewing permit applications from considering the larger and cumulative impacts. We therefore requested NYSDEC consider these larger impacts in its review. Moreover, GOSR's plans for wetland alterations are illustrative of the agency's segmentation by means of delay in committing to a definitive set of actions. Because GOSR's original plan called for the alteration of freshwater wetlands critical to the survival of numerous bird species, it engendered a large public outcry as well as objections from federal agencies resulting in GOSR's withdrawal of its original plan for the Park's wetlands, replacing it with a plan which only marginally reduced the impacts.

7. Our comments also made clear that the FEA for the HLSP portion of the LWTB project does not meet the requirements for the issuance of a Finding of No Significant Impact ("FONSI"). The substantial and extraordinary breadth of information which is not included in the FEA comprises the body of my affidavit as it follows.

8. Only the preparation of a full Environmental Impact Statement ("EIS") would comply with the State Environmental Quality Review Act ("SEQRA") requirement to provide the

necessary information to determine the extent of significant impacts and examine alternatives and mitigation measures for these impacts.

9. The FEA is missing a cumulative impact analysis of the HLSP Project within the LWTB Program and within the Mill River Watershed. HLSP is at the center of a huge watershed which, which according to GOSR's delineation as depicted on Figure 1, stretches north to Roslyn Heights on the north shore and south to the Hewlett Bay islands. (Page 18 of EA, Figure 1: Regional Project Location). The EA fails to consider how the Park itself is impacted by the quantity of water emitted from this immense drainage area to the north and how all the components planned for may impact the overall objectives of the LWTB program. In particular, the EA fails to evaluate how the proposed changes in HLSP (including dismissed alternatives) will affect flooding downstream, especially within the tidally influenced stretches of the river. The LWTB Program is an award-winning US HUD grant as part of the Rebuild by Design ("RBD") competition. Its objectives are for coastal resiliency and climate change adaptation as summarized in the Program's documents: "*RBD resiliency projects strive to implement innovative, flexible, and scalable interventions that could be replicated in other parts of the State, nation, and globally.*" http://www.rebuildbydesign.org/data/files/504.pdf. *LWTB provides a comprehensive suite of potential interventions intended to provide long-term resilience and climate change adaption for Nassau County communities within the Mill River Watershed.*" (Living with the Bay and the Resiliency Strategy https://stormrecovery.ny.gov/sites/default/files/documents/lwtb/Resiliency%20Strategy.pdf) The LWTB Vision Statement "To improve community resiliency in the program area by mitigating local flood risk from stormwater and storm surge as well as implementing ecological marshland restoration and enhancing public access to the waterfront." (Page 2 Living with the Bay and the Resiliency Strategy.)

10. One of the prominent concepts of LWTB's Rebuild by Design ("RBD") program is that of "slow streams" which promotes making room for the river. Contrary to this resiliency goal, the GOSR proposed activities will result in placing fill or reducing the volume of the Mill River, which, in fact, causes the river flow, instead, to speed up. Filling activity would occur as proposed by GOSR in a number of places, including the construction of berms to create settling basins and floatable catchers in the Hempstead Lake State Park Northern Ponds; flood wall construction at Smith Pond, which will result in additional confinement of the River at this point and will funnel flood flows to the tidal portion of the river faster, causing more severe flooding downstream; and adding berms at Lister Park and raising bulkheads at East Rockaway High School with the intent to reduce flooding of these open spaces. The latter, bulkheads, will result in additional flooding in the residential areas on the opposite, east, side of the river by making less room for floodwaters to back into. Raising bulkheads at East Rockaway High School will also allow the High School to add two more feet of fill onto its fields. GOSR, even though asked at CAC meetings and in the comments on the FEA, did not consider alternatives that an EIS would have required. For example, alternatives to the proposal to create berms in the northern wetlands to catch floatables, the CAC advised that the purchase of a vacuum truck to maintain existing catch basins and the use of catch basin filters would provide much more water quality improvements at substantial lower costs than the proposed disturbance of the Northern Ponds.

11. The FEA which focuses on HLSP addresses only a segment of the overall LWTB Project. Potentially disastrous downstream impacts, both (such as the possible breaching of the Hempstead Dam) and small (such as back-up of stormwater drains, sewage, and other resiliency issues), are never considered.

12. The most serious example of this is the failure of GOSR's EA to adequately address the current deficiency of Hempstead Lake Dam in meeting safety standards during severe storms, a failure so great that it caused HUD's own environmental officer to warn GOSR of its "abdication" of its "responsibilities." (See ¶ 24 below.) EA Appendix G, and Exhibit A to the Petition.) Indeed, the Hydrologic and Hydraulic Assessment ("HHA," the Assessment done by GOSR consultant LKB, appearing in Appendix G) states on page 45, "The difficulty with trying to make the dam meet current standards is that both the *upstream and downstream* ends of the watershed are flooded prior to the dam overtopping." On the same page, the HHA also notes that, unlike GOSR, "NYS Parks has jurisdiction over the area within Hempstead Lake State Park but not over the downstream part of the watershed. Potential improvements to the watershed, were limited to work in South Pond, Hempstead Lake and the North Ponds." Yet, as the project sponsor GOSR has jurisdiction over the entire Mill River basin. Relinquishing its jurisdictional responsibility does not offer a holistic and cumulative watershed assessment, as would have been required in an EIS, which is not only out of compliance with SEQRA but has closed agency eyes to future possible severe flooding along the LWTB project area. Performing a proper dam break study using appropriate data and models generally accepted by the Army Corps of Engineers ("USACE") and the Federal Emergency Management Agency ("FEMA") is a requirement unfulfilled by GOSR's EA.

13. Not included with the EA material is the 2003 Hydrologic and Hydraulic study of Hempstead Lake Dam by Civic Dynamics Inc. A FOIL request was required to obtain this study. The report was commissioned by NYSOPRHP in an effort to reclassify the dam and presents hydrologic and hydraulic studies to determine the hazard classification of the dam and the appropriate Spillway Design Flood. Unlike the inadequate hydrologic and hydraulic modeling

provided in the FEA by LKM, the modeling in the 2003 report uses empirical data to calibrate the models from a more extensive gauge station at Valley Stream. The key findings of the report are stated on pages 4-6:

> "As per Evaluation Procedures for Hydrologic Safety of Dams from ASCE (1988), a "loss of life" is envisioned when the product of the flood depth in feet and the velocity in feet per second exceeds 7 or the water depth exceeds 3 feet. At Lakeview A venue, the product is 17 [See Appendix D]. Given that this is a densely populated area and a park area, by this standard, there a danger to people should the dam fail during the 50% PMF event. The danger to passing passenger vehicles was also assessed, at Lakeview A venue, using the methodology outlined in ACER Technical Memorandum No. 11: Downstream Hazard Classification Guidelines (USDOI, 1988). Per Figure 4 on page 29, the 50% PMF failure results in a high level of danger to the occupants of passing vehicles [See Appendix D]. In summary, based on the significant depth of overtopping of Lakeview A venue, Hempstead Lake Dam is a Class C, High Hazard structure with an associated design storm equal to the 50% PMF event for Nassau County."

14. Further, the FEA's failure to consider impacts cumulatively for the LWTB program has resulted in one of the most startling and contradictory actions to GOSR's mission — eliminating the coastal marsh restoration component of LWTB, ranked as LWTB's number one priority project for Resiliency Strategy. (https://stormrecovery.ny.gov/sites/default/files/documents/lwtb/Resiliency%20Strategy.pdf).

15. The FEA also fails to assess how the proposed changes will impact the Mill River in the tidal portion of the Mill River south of Smith's Pond. The HHA included only the fresh water portion of the Mill River and states on page 41," The study terminated at the weir outlet of Smith Pond as it is beyond the scope of this project to determine the influence tides would have on the system during a large storm." Flooding in the tidal portion of the Mill River will be much more severe if the flood wave upstream reaches the tidal portion of the river during high tide or, even worse, if it reached the tidal portion at the time of a storm surge.

16. The impacts caused by the potential collapse of the Hempstead Lake Dam are not addressed in the FEA. Although the FEA includes dam inspection reports (Dam Safety Inspections and Letters, Appendix F), it fails to address the content of the inspections that request action concerning the greatest flood risk for the Mill River watershed. This greatest flood risk is the lack of an emergency spillway for the Hempstead Lake Dam. The primary objective of the LWTB project is to develop plans to reduce the risk of flooding with consideration to hydrologic changes resulting from climate change. (FEA p. 13) However, GOSR has consistently refused to acknowledge the greatest risk of catastrophic flooding identified in decades of dam safety inspections. The Hempstead Lake Dam was constructed almost 150 years ago and accordingly does not include structures developed later to avoid overtopping, which is the uncontrolled flow over a dam, and possible failure due to erosion during overtopping.

17. The inspection reports by USACE and DEC (Appendix F of the EA) have consistently ranked the Hempstead Lake Dam as deficient. This deficiency is of such serious concern that DEC has required an N2 status. This deficiency results in "the creation of a hazard to human health" as defined by the "N2" status DEC required for the Compliance Status Forms resulting from the inspection reports (Appendix F pages 106/112).

18. NYSDEC's inspection report states: "As you are aware, the structure's spillway does not have adequate capacity to pass the design flood for a high hazard dam. Such an event will result in the overtopping of the dam and its embankments. Since overtopping of dam embankment may result in its failure, it is important that the inadequate spillway capacity be addressed. This is a high hazard dam which means failure of this dam can result in loss of life and serious economic damage." (Ex. "A" to Petition, EA Appendix F.) I note here that this is not just in theory, but has a real-life cautionary tale in the disastrous crumbling of the Edenville Dam in

Midland, Michigan, which did result in serious economic damage, as recently as this past May, 2020. An excerpt of the Complaint filed by the State of Michigan against the dam owner is annexed hereto as Exhibit 6. The Michigan dam shared similar deficiencies as with the Hempstead Lake in that it was an older earthen dam, holding back a high volume of water (according it a similar high hazard dam rating) and it also had an inadequate auxiliary emergency spillway to safely release flood water past the dam.

19. The NYSDEC has the responsibility for Dam safety. (6 CRR-NY XA 1 673.) The Hempstead Lake Dam (ID# 234-0193) is the only dam on Long Island that DEC has classified as a Class C High Hazard dam, in both the State Dam Inventory and the USACOE Dam Inventory. Its classification is the result of the large volume of water that it holds back as well as the densely developed area downstream. DEC standards for class C dams require that the dam can withstand 50% of the Probable Most Precipitation ("PMP") and its associated Probable Most Flow ("PMF," which is the maximum flow that can be expected from the severest conditions of the impacting watershed above). See EA Appendix H. Based on limited and questionable hydrologic and hydraulic modeling, the current dam only provides protection to 35% PMF before overtopping. DEC requirement states "[e]xisting dams that are being rehabilitated should have adequate spillway capacity to pass the following floods without overtopping." (NYS DEC Guidelines for the Design of Dams, p. 8.) This standard is based on 50% of the PMP, which means that the Dam should incorporate the capacity to allow (at a minimum) 50% of the storm surge from the probable worst storm to flow under controlled conditions through a pre-built spillway. Based on the definition from the Association of State Dam Safety Officials ("ASDSO"), "The PMP represents the theoretically greatest depth of precipitation for a given duration that is physically possible over a given storm area at a particular geographic location at a certain time of the year. PMP estimates

in conjunction with watershed models to compute flood runoff have been widely accepted over the past few decades as the basis for the evaluation and design of dams where failure of the structure cannot be tolerated."

20. The DEC Dam safety regulations of designing for 50% PMP and not 100% are outdated and less protective than recommended by FEMA and National Research Council ("NRC"). The FEMA report found on https://www.fema.gov/media-library-data/20130726-1849-25045-9688/04_hydrosafetydam_ ch_9_11.pdf that the NRC's Committee on Safety Criteria for Dams questioned the use of composite criteria combining flow frequency concepts with PMF concepts, as well as specifying percentages of the PMP, PMF, or various frequency events (such as DEC does in its guidance). "*The problem with such a criterion, based on an arbitrary percentage of a derived flood or an arbitrary combination of floods developed from differing concepts, is that it permits no direct evaluation of the relative degree of safety provided.*" (Safety of Dams: Flood and Earthquake Criteria – Prepared by the Committee on Safety Criteria for Dams, National Research Council, 1985) The issue was further expounded upon in 1988 by the ASCE Task Committee on Spillway Design Flood Selection who stated: "*Studies by the National Weather Service indicate that the occurrence of a storm producing PMP is not equally probable nationwide. Thus, using a fraction of the PMF results in selecting a safety design flood which varies widely in exceedance probability.... As long as the PMF is used to define a probable upper limit to flooding for use in a safety design, this is not a major concern. The exceedance probability of the PMF, assuming it is correctly defined, is essentially zero. When selecting a safety design flood less than the PMF, use of a fraction of the PMF produces a variation in exceedance probability that results in an inconsistent national safety standard.*"

21. Instead of adhering to DEC's standard for such a potentially hazardous situation, GOSR ignored it. GOSR's EA and associated permit application cynically disregard even the 50% PMP requirement in its response to comments by stating "In such an event, much of the Town of Hempstead would be flooded, regardless of the existing dam." (FEA p. 44.) Had an EIS been prepared the alternative of the construction of an emergency spillway to meet this standard would have been considered and this most pressing dam deficiency would have been addressed.

22. The partial restoration of the outlet gates for Hempstead Lake Dam still does not meet DEC standards for overtopping in the revised EA. The EA falsely states: "While the likely maximum capacity of the dam under the proposed project is not expected to differ from the maximum capacity under the current, existing conditions, the proposed project would allow the Hempstead Lake Dam to withstand a modeled 39% PMP event without overtopping, improve the structural integrity of the dam and make the dam compliant with current dam safety requirements." The proposed project does not adequately address current dam safety requirements since repair of the gates will only improve overtopping prevention by 4% PMP. DEC's approval to exempt the Hempstead Lake Dam from its minimal 50% PMP requirement contradict the recommendations from the ASDSO which states: "Lesson Learned: High and significant hazard dams should be designed to pass an appropriate design flood. Dams constructed prior to the availability of extreme rainfall data should be assessed to make sure they have adequate spillway capacity."

23. The FEA inadequately responds to this most serious deficiency by simply asserting that 50% PMP would put most of the Town of Hempstead underwater. It fails to consider the additional flooding downstream caused by overtopping (uncontrolled flow) causing uneven pressures on the dam and subsequent possible breach and dam collapse. Even worse is that the calculations to determine 50% PMP are based on 1982 information and lack consideration to

increases in storm intensity due to climate change as predicted in the most recent 4th National Climate Assessment report to congress.

24. GOSR'S failure to take a hard look regarding the potentially precipitous situation for the bursting of a future Hempstead Dam merited a reference to it from its funding agency, HUD, as an "abdication of GOSR's responsibilities" in a December 4, 2019 letter, made available to the CAC, from Donna Mahon, HUD Field Environmental Officer-DR, Region 2 to Matt Accardi, GOSR's General Counsel. (Annexed to the Petition as Exhibit "I"). The letter, issued just nine days before the revised EA and FONSI, stated: "We are concerned that **the lack of analysis of the potential direct impacts of the dam operations** leave the **State's FONSI unsupported** and vulnerable to legal challenge. And further suggesting that the operations will be subject to change in the future without additional NEPA analysis or approval is an **abdication of GOSR's responsibilities** under Part 58 for both monitoring and reevaluation of findings based on changed conditions." (Emphasis added.) Acknowledging that the threat posed by the inadequacies of the Hempstead Lake Dam was realized by the similarly deficient dam in Edenville, Michigan that collapsed on May 20, 2020, GOSR, in its APA 26, should have included plans to design and install the spillway to meet 100% most probable precipitation and resultant flow conditions.

25. The Hydrological and Hydraulic Assessment (HHA, done by Lockwood, Kessler & Bartlett, Inc for OPRHP, Appendix G FEA) is incomplete and inaccurate. The FEA HHA is identified as the basis for many of the determination's environmental benefits and anticipates no negative environmental impacts. The HHA lacks the hydrologic and hydraulic input data to calibrate (let alone verify) the models that form the basis of this assessment. Page 31 of the assessment states "There is no available stream gauge data for the Mill River, however there is a limited amount of United States Geological Survey ("USGS") data available for the Pines Brook

(for years 1939 – 1999)." Since Pines Brook is a tributary located downstream, there is no stream flow data available for the HLSP project area. Despite the budget for this project, the FEA failed to collect data to adequately perform modeling. The modeling instead was inadequately partially calibrated (and never verified) based on limited data from a downstream tributary (Pines Brook) which stopped collecting data over 20 years ago. Page 31 of the assessment states "The model predicted much higher flows than the record data. The curve numbers were reduced by ten percent and then the model was re-run. The model predicted flows, while lower, were still more conservative than the recorded data. It was determined that we would use the lower curve numbers throughout the model. No further calibration was attempted since the information about the Pines Brook gauge was very limited" Proper modeling requires calibration using several storms (not only one storm as presented in Appendix G FEA).

26. Page 42 of the HHA states "Because the drainage area for the gauge was different than our calculated area we did not attempt to calibrate this" and is an admission that calculated drainage areas used in the HHA are faulty. In fact, the Pines Brook watershed area presented in table 3.1 on page 31 of the HHA is 2763 acres (or 4.3 square miles) when a USGS report indicated that it is more than twice as large at 10 square miles (USGS, 1992).

27. Reliable predictions also require that the model be validated after calibration using a storm different from storms used for calibration. My conversations with representatives of the United States Army Corps of Engineers Hydrologic Engineering Center ("HEC") confirm the insufficiency of the models used in the EA. (7/14/20, Personal Communication, Stern with David Ho, USACE HEC.) The United States Army Corps of Engineers Hydrologic Engineering Center developed the HEC models used in Appendix G of the FEA. The USACE HEC center's engineers stated "Un-calibrated models could be considered if results are used for rough, quick assessment

but generally not acceptable if results are used for design of spillway." They further suggested that "Model_Evaluation_Guidelines_for_Systematic_Quantification_of_Accuracy_in_Watershed_Simulations" by Moriasi et al. has been used to determine model performance metrics. Model performance metrics were not provided in the FEA.

28. The NRC recommends model validation for studies to prevent flooding of nuclear facilities as "It is extremely important that the validation of the simulation models and associated parameters use the largest reported historical floods near the site. The ability of the models to reproduce historical floods provides some assurance that the estimated design-basis floods near the site would not be underestimated. (Pages 5-6 NRC)

29. Based on phone conversations with Long Island Office of USGS, gauge stations could be easily established for approximately $10,000 each which is a minimal amount relative to the $120 million project. (5/21/19, Personal Communication, Stern with Ronald Busciolano, Supervisory Hydrologist, USGS, New York Water Science Center.) Accordingly, essential data to properly calibrate and verify the models presented in the HHA is relatively easy to obtain.

30. The FEA's HHA failed to adequately use the capabilities within the HEC-HMS model to optimize parameters and conduct an uncertainty analysis to provide the level of reliability of the final model. The HEC-HMS users' manual (https://www.hec.usace.army.mil/software/hec-hms/documentation/HEC-HMS_Users_Manual_4.3.pdf) includes discussions that would have been readily available to GOSR on the use of these built-in tools to make the model product more useful.

31. The HHA hydrology is based on PMP predictions from a 1982 SCS document. These predictions predate the effects from climate change and therefore minimize the prediction of PMP values that may be significantly higher. The FEA not only fails to address predictable

changes due to climate change but states boldly that "climate change" is "beyond its scope," a confounding statement since adaptation to climate change is one of the guiding missions of the heavily-funded LWTB program (https://stormrecovery.ny.gov/living-bay).

32. The FEA, further, presents inadequate hydrologic and hydraulic modeling of the Northern Ponds portion of the project. The hydrologic evaluation used in the FEA is the TR-55 model, a model which is designed for storm flow evaluation, not base flow conditions, which is the effective measure for the hydrology of settling basins. Since there has not been any flow monitoring measurements, the models have not been calibrated nor validated and as such have questionable predictability. Modeling is essential to estimate the loss of wetland functions, water quality changes and estimated effectiveness of mitigation. Without adequate modeling any determination regarding benefits or environmental impacts are questionable. This deficiency becomes more evident when considering the limited capabilities of the proposed floatables containment system and sediment settling basins. These systems are likely to just temporarily collect floatables and sediment during the more frequent smaller storms, only to release a concentrated slug during larger storms. The FEA indicates under its overly optimistic statement that these facilities can only function for one-year frequent storms and does not consider the additional environmental impacts when sediment and floatables (along with toxins) break through these facilities when more intensive storms occur.

33. The FEA fails to assess the loss of wetland water filtration function. The Park has served as a critical groundwater recharge and water filtration area. The Park's trees capture carbon, cleaning the air, and its wetlands filter pollutants and absorb annual rainfall and stormwater surges that have been steadily increasing due to climate change. Water quality testing for the existing Northern Ponds that was performed by Cashin Associates (2015) indicates that the existing ponds

provide significant water quality improvements currently. Comparing the water quality collected at the inlet of the Ponds (site WQ-1) to the quality leaving the ponds (site WQ-7) shows greater than 80% reductions of almost all pollutants sampled. Page 67 of the Final EA claims "New Wetland B would be sized to capture and treat 90% of 24-hour rains events and to achieve estimated reductions in phosphorous (by 50%); oil and grease (by 70%); zinc, copper, and lead (by more than 35%); floatables (by 80%); total suspended solids (by 70%); and other anticipated pollutant reductions from the in-pond constructed filtering wetland". The proposed project would reduce filtering capabilities from the currently documented >80% removals to 50- 70%, a loss of 10-30% removal capabilities for the disturbed wetland areas. The applicant fails to evaluate how disturbing this area will significantly reduce the current water treatment ability of the existing ponds.

34. The incomplete and limited wetland function analyses fail to acknowledge the net increase of fill to the northern ponds segment and the resultant loss of the stormwater storage as a result. None of the supporting documentation provides an evaluation of the hydraulic changes due to this additional fill or the change in flow paths.

35. Converting open water wetland to emergent wetland will increase habitat for mosquitoes. Deep pools help promote and maintain aquatic predators of mosquito larvae (e.g. larvivorous fishes, dragonfly naiads, predacious diving beetles, water boatmen, backswimmers, salamander larvae). A deep central pool also inhibits vegetation colonization within the pool, allowing wind to agitate the surface water, which discourages mosquito egg-laying.

36. Hempstead Lake is listed as an impaired water body under Clean Water Act section 303d. As such, total maximum daily load ("TMDL") of pollutants including nutrients must be established and considered when issuing permits. The LWTB grant program provides ample funds

to determine these standards with monitoring and modeling. The need and effectiveness of the proposed projects should be based on TMDL requirements.

37. The DEC permits would allow the removal of some wetlands and create others, remove many trees and expand trails. The North Ponds currently provide valuable and rare wetland habitat of shallow open water and mudflats that are used by an abundance and diversity of shorebirds, wading birds, and dabbling ducks. Dredging and increasing water capacity may flood the habitat and make it unusable by these at-risk species. This loss was not analyzed. The proposed constructed wetlands of the stormwater catchment facility will have high slope berms and provide questionable suitable habitat. This loss was not analyzed. The expansion of trails and creation of viewing points around the North Ponds is gratuitous destruction of habitat and removal of native vegetation that provides crucial food and shelter for birds, including Bald Eagles and Great Horned Owls. This loss was not analyzed. The North Ponds area is one of the last wild areas of Nassau County, and as much as possible, should be preserved as such. Further fragmenting the woodlands and wetlands with trails and disturbing the area with recreational traffic defeat the purpose of increasing access to nature by removing nature from the equation. Seatuck Environmental Association is correct in that the North Ponds area be designated as a Parks Heritage Area pursuant to New York Law governing State Parks. [New York Parks, Recreation and Historic Preservation Law § 20.02.] The EA failed to address these impacts.

38. The activities proposed in the FEA include disturbance of the soil, sediment and fill. Toxins have been found in the limited soil and sediment sampling. Accordingly, adequate data should be obtained on any toxic contaminates in the soil, fill and sediment to ensure protection of human health and the environment. Sampling indicated particularly high levels of Dioxin in some locations. Additionally, the persistent pollutant Chlordane has been found in the sediment

of every Lake and pond on Long Island that has been tested (NYSDEC Lake Classification and Inventory ("LCI") Survey). Appendix J of the EA also identifies high levels of chlordane especially in the Northwest pond. In addition, NYS Department of Health advises not to eat the fish from the either the water body upstream of Hempstead Lake (Halls Pond) or the water body downstream (Smith Pond) due to heavy Chlordane contamination https://www.health.ny.gov/environmental/outdoors/fish/health_advisories/regional/long_island.htm. Hempstead Lake may not be included due to the lack of data for this water body. The applicant should conduct a more thorough assessment of the extent and concentration of these toxins. The assessment needs better QA/QC controls than the previous sampling that had many problems.

39. The FEA fails to evaluate the negative impacts from disturbing toxic materials found in the sediment and soil of the project area. The activities proposed in the EA include disturbance of the soil and fill within the Northern Ponds, along the Hempstead Lake Dam, widening of trails and construction of a new building. When the Dam was widened with fill in the 1920s to construct the Southern State Parkway, there were no environmental laws to control toxic contaminates. Toxins have been found in the limited soil and sediment sampling conducted upstream of the project area. [Appendix J Sediment Sampling Findings Report.]

40. Limited soil and sediment testing have detected toxic materials such as Dioxin in levels that require removal and not reuse on site. The FEA indicates there will be migration of toxic materials downstream that will require Site specific dredging methods and controls (FEA Appendix J Sediment Sampling Findings Report page 19), however the FEA lacks quantification of the extend of the dispersal of these toxic as a result of the disturbance caused by the project. This is of particular concern since as of GOSR's final CAC meeting held by Zoom on May 4, 2020, GOSR initially claimed that there would be no dredging of HLSP's Northwest Pond yet later

in the meeting they admitted that there would be dredging of the Northwest Pond—again lacking sufficient analysis of the possible migration downstream of highly toxic materials. The data on toxic soil and sediment is inadequate data because only very limited sampling sites were sampled. In addition, some of the samples collected were diluted with samples from cleaner areas by averaging samples resulting in the reporting of lower toxic levels than are present in hot spots in the project area. Several of the toxic material tests failed quality control and should be repeated. The NYSDEC recognized this problem but failed to require resampling.

41. Although not an Industrial area, the Hempstead area faced decades of toxic exposure- including pesticides and lead from parkway traffic. It should also be noted that DDT was widely used at state parks and as a persistent pollutant it (or its breakdown product DDE) may be at unacceptable levels.

42. In addition to the lack of direct toxic material testing, the EA failed to include the pH levels associated with the toxics. pH levels are a major factor in determining how mobile a toxin is in the water and soil. Without pH measurements, there is no information on transport of these toxins within the environment within the Park and downstream.

43. The FEA fails to evaluate the negative impacts the project will produce on the water quality of Mill River. Since the proposed settling basins and floatable catchers in the northern wilderness area of HLSP are sized to capture materials from relatively low flow storms, a large slug of pollutants and floatables can be expected to be released from these facilities during larger storms that occur several times a year. The FEA fails to assess the effects of these storms to the water quality of Hempstead Lake and downstream Mill River.

44. The transformation of significant portions of HLSP from forest to grasslands may provide ideal habitat to attract Canada Geese in large numbers, however there were no plans for

maintenance presented by GOSR. If this is so, the Canada Geese in turn will add high concentrations of nutrients and fecal pathogens into the waterway, resulting in additional eutrophication. This issue is well-documented by the New York City Department of Environmental Protection and their multi-million-dollar program to harass Canada Geese and Gulls off the grassy lands near NYC reservoirs. https://www1.nyc.gov/assets/dep/downloads/pdf/about/filtration-avoidance-determination/fad-waterfowl_management_annual_report-10-19.pdf.

45. The FEA fails to provide adequate analysis of alternatives. Far less impacts would result in the wilderness areas of HLSP if the proposed floatable catchers and settling basins were located just North of the proposed site, with the proximity of Hempstead High School. In response to public comments, GOSR claims Hempstead High School is outside their jurisdiction. This is a direct result of GOSR segmenting the LWTB Program impacts. Under the LWTB Program the entire watershed is to be considered, including Hempstead High School. Excluding consideration of Hempstead High School for LWTB projects but including significant funding to East Rockaway High School projects raises serious environmental justice concerns. The East Rockaway High School projects includes such unrelated components as an emergency backup generator system for the school. Ironically, while placing adequately sized sediment control systems at Hempstead High School would improve a large part of the Mill River watershed (because its location at the headwaters), the East Rockaway High School projects would add to the confinement of the river and may result in additional flooding for the residents across the River.

46. Regarding the many probable impacts on the Park and the watershed, the analysis performed by the Respondents herein was not the required "hard look." Indeed, no "reasoned elaboration" was ever made with respect to how the Project would impact water quality, what the impact of the tree removal would be on the dam and lake , the change in the character of the Park,

especially of the wild northwest portion, the effects of the failure to properly maintain the dam, the failure to consider wetlands mitigation and the inadequate analysis with respect to the release of toxins into the atmosphere as a result of the Project. Various of these deficiencies are discussed below.

47. Regarding the removal of more than one thousand trees from the dam, GOSR barely took any look at the critical reduction of the integrity of the Dam during overtopping. The EA does not adequately examine this issue. Modeling is needed to evaluate overtopping conditions and the importance of vegetation in providing friction to reduce the velocity of the overtopping flow and the stability of holding the soil in place. These effects are highly dependent on the velocities needed to reach the "Reynolds number" which is the point that flow changes from smooth laminar flow to turbulent conditions.

48. Since the EA fails to acknowledge USACE and NYSDEC dam inspection recommendations for an emergency spillway, an EIS which would have included information on the impacts of removing trees on the Dam during overtopping conditions must be required The applicant has used an uncalibrated USACE HECRAS model to attempt to provide hydrologic and hydraulic simulation of Hempstead Lake portion of the Mill River. Significantly, the same model (if calibrated and verified) can be used to evaluate the effects of vegetation in contrast with the clear cut. Although the applicant's modeling efforts are deficient the model could have provided useful information on the impact of changing this one variable (vegetated cover with associated friction factors), which would have told us how trees effect overtopping flow. Note that based on Manning's friction factors (n) presented by Chow (1959), grass has a Manning's n of 0.025-0.035 whereas trees provide much greater friction (more than three times) with a Manning's n of 0.080 – 0.120. Instructions to perform such analyses are provide here, and must be used:

https://www.hec.usace.army.mil/publications/TrainingDocuments/TD-39.pdf. The friction provided by the presence of trees on an earthen dam, contrary to the standards and requirements used by DEC to validate GOSR clear cutting of thousands of trees, is significant in arriving at the best management practices, especially for the huge, aged, earthen nature of the instant Hempstead Dam.

49. On this point regarding relevant best management practices for earthen dams, consideration needs to be given to the latest research on the positive effects of trees on flood control structures. USACE, FEMA and NYSDEC long term policy on vegetation on flood control structures and Dams has been to allow only grasses on these structures. Due to the low priority of maintaining grass vegetation (as exhibited at HLSP), the grass vegetation is succeeded with woody vegetation. In addressing this reality, Congress initiated a review of the national levee vegetation policy in the 2014 Water Resources Reform and Development Act ("WRRDA"). The result of studies indicate that trees offer a significant reduction in the risk of failure under many situations. One such study is the Synthesis of Levee Vegetation Research Results (2007–2014) for the California Levee Vegetation Research Program (2016): (https://water.ca.gov/LegacyFiles/floodsafe/leveeveg/levee_documents/2016-0127-Levee-Veg-Synthesis-Report-FINAL.pdf) The findings gathered from national and international studies found in this report include:

a. Woody vegetation significantly improves slope stability (p. 10-14).
b. The probability of trees blowing over is low (p. 15-1).
c. Burrowing animals favor grass cover over tree cover (p. 15-2).
d. "An association between clear-cutting of forested hillslopes and slope failures has been widely noted, so any large-scale tree removals from levees would need to be completed quite carefully to avoid detrimental effects" (pp. 10-14).
e. Woody vegetation can provide significant benefits in damping waves, thus reducing associated erosion during high water (pp. 6-8).

50. Events such as Super Storm Sandy underscore the existing pressures on the natural ecology of the Mill River Watershed and Hempstead Bay, which has long functioned as the ecological, economic and cultural engine for Nassau County. Experts, as well as Government officials have correctly opined that Nassau County faces serious threats from sea level rise, polluted stormwater, wastewater, and insufficient groundwater recharging. *See, e.g.*, EA, Appendix C (DEC's sediment findings); Appendix G (DEC's wildlife, plants, and natural communities' findings); Appendix H (U.S. Fish and Wildlife Service's endangered and threatened species findings)

51. As described in the EA documents, HLSP is the largest freshwater body in Nassau County and represents the largest continuous track of natural land in southern Nassau County. The proposed project will transform a significant percentage of the natural portion of the park into active recreational areas (trails, kayak launches or open grass vistas). The EA states that HLSP currently has no master plan to provide a vision of the Park. There has not been any public input on the major transformation of this last large natural area in southern Nassau County.

52. Based on the historic budget priority for maintenance of HLSP it appears doubtful that there will be the significant increase in funding needed to maintain the infrastructure of the proposed project. Based on past performance it is unlikely that the dam will be maintained in grassland especially during a fiscal crisis. With the added fiscal burdens exerted by the Covid pandemic, it is even more unlikely that funding will be made available for these activities.

53. According to the most recent LWTB Action Plan Amendment, the approval of the final designs for the proposed project and the project's eventual construction are contingent on the development of a long-term maintenance and operation plan with budget. These documents were not drafted nor included in the EA.

54. As per Federal and State public trust doctrine, the state has a duty to hold public parkland for the benefit of the people and restrict change of use. Transformation of significant portions of HLSP from natural park to non-park uses (such as a preserved treed area to a manicured embankment) represents an alienation of parkland and a violation of the use of this property as parkland under the concept of the "Public Trust." In addition, the change of use also requires approval from the National Park Service ("NPS") because of federal funding for "conversion" of this land since HLSP has received federal funds for use of HLSP as a park. No such approval has been sought or received.

55. For the reasons set forth herein and in the Verified Petition it is respectfully requested that this Court annul the FEA and the Negative Declaration and stay all activities authorized by the permits issued as a result of the same until a proper environmental review which considers the entire Project and various alternatives to the same is conducted.

David Stern, Ph.D.

Sworn to before me this
22 day of August, 2020

Notary Public

DENIS P. O'LEARY
Notary Public, State of New York
No. 4846221
Qualified in Kings County
Commission Expires January 31, 2024