

**SFY2017 Water Quality Restoration Grants for Nonpoint Source
Pollution Application Cover Sheet
Application of Green Infrastructure BMPs
To Reduce Non-Point Source Loading to Deal Lake, Sunset Lake and Wesley Lake**

Applicant Information:

- 1) Applicant Organization Name: **Deal Lake Commission**
2) Organization Address: **Attn: Jesse Joseph, 399 Monmouth Rd, Oakhurst, NJ, 07755**
3) Organization Numbers: **Phone: 732-531-5000 Fax: 732-531-3590**
4) Contact Person: **Jessie Joseph, DLC Clerk**
5) Contact's Phone: **732-547-6961**
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Consultant Information:

- 7) Contact Person: **Stephen J. Souza, Ph.D., Princeton Hydro, LLC**
8) Address: **1108 Old York Rd., POB 720, Ringoes NJ 08551**
9) Contact's Email: **ssouza@princetonhydro.com**
10) Contact's Phone: **(O) 908-237-5660 (C) 609-306-5428**

Watershed Information:

- 11) WMA: **WMA 12 - Monmouth**
12) HUC-14: **HUC 14: 02030104090030 – Deal Lake**
HUC 14: 02030104090090 – Sunset Lake
HUC 14: 02030104090090 – Wesley Lake

- 13) Affected Waterbodies and Impairment Status: **Deal Lake, Sunset Lake and Wesley Lake**

A) **Deal Lake** - Status: Deal Lake appears on NJDEP's and USEPA's impaired waters list (NJ02030104090030-01)

- 2012, Deal Lake has multiple impairments (USEPA, Watershed Assessment and Tracking Results) for Aquatic Life, Fish Consumption, Industrial Water Supply, and Primary Contact Recreation. The specific parameters of concern are pathogens, pesticides, PCBs and pH.
- Listed in the 7 June 2010 NJDEP amendment to the State wide mercury in fish tissue TMDL.
- NJDEP, 2003 Total Maximum Daily Loads for Phosphorus To Address Nine Eutrophic Lakes in the Atlantic Coastal Water Region, Deal Lake, Monmouth County, WMA 12
- Eutrophic Lake as per Sublist 5 of the 2002 *Integrated List of Waterbodies* as per findings of State's Clean Lakes Program (also documents sewage and legacy CSO related impacts).
- 2014 Draft Integrated List of Waters (sub-Lists 1-5); Not supporting – Aquatic Life General, Recreation and Fish Consumption
- 2011 Deal Lake Watershed Protection Plan (Reviewed and Adopted by the NJDEP)
- 2010 Deal Lake appears in "Amendment to the Atlantic, Cape May, Lower Delaware, Lower Raritan- Middlesex, Mercer, Monmouth, Northeast, Ocean, Sussex, Tri-County, Upper Delaware and Upper Raritan Water Quality Management Plans. Total Maximum Daily Load for Mercury Impairments Based on Concentration in Fish Tissue Caused Mainly by Air Deposition to Address 122 HUC 14s Statewide (affected fish - American eel, white perch, largemouth bass).

Sunset Lake – Drains via a series of interconnecting pipes to Deal Lake. The lake was studied as part of the Deal Lake WPP (Grant RP04-082). The lake has a history of intense algae blooms attributable to

the non-point source loading of phosphorus that enters the lake via stormwater runoff. The lake is also suspected to have very high coliform counts owing to the large number of geese that feed in the park adjacent to the lake. If is a contributing source of phosphorus and coliform to the lake and as such is in part responsible for the inability of Deal Lake to be fully conforming. A reduction in phosphorus loading from this source to Deal Lake is consistent with the Deal Lake Phosphorus TMDL. In accordance with the USEPA trophic state criteria, the lake is ranked as a hypereutrophic waterbody.

B) **Wesley Lake** – As per the 1989 Monmouth County Interim Report on the Nine Coastal Lakes, prepared by the Monmouth County Board of Health, Wesley Lake has been documented as having very elevated fecal coliform counts (>1600 colonies per 100 ml), very high concentrations of orthophosphate and ammonia (0.06 mg/L and 0.195 mg/L respectively) and extremely high chlorophyll a concentrations (>100 mg/m³). Similar data was reported in a 2002-2003 Monmouth County Health Department report. The Citizens for Wesley Lake developed in 1998 the Wesley Lake Comprehensive Restoration Plan: Case for Support, which emphasized the need to concerted stormwater management and a reduction in non- point source pollutant loading as the cornerstone elements of the lake's restoration and improvement of its water quality. In accordance with the USEPA trophic state criteria, the lake is ranked as a hypereutrophic waterbody.

Implementation Proposal

14) Implementation Project Name: Application of Green Infrastructure BMPs to Reduce Non-Point Source Loading to Deal Lake, Sunset Lake and Wesley Lake

**15) Name of Watershed Plan Project is Implementing: Deal Lake Watershed Protection Plan
Wesley Lake Comprehensive Restoration Plan**

16) Primary Waterbody Affected: Deal Lake, Sunset Lake and Wesley Lake

17) Types of NPS Implementation Project: Green Infrastructure and NPS Load Reduction

18) Primary Pollutant(s) Targeted: Pathogens and Phosphorus

19) Additional Pollutants Addressed: TSS, Floatables, Dissolved Oxygen (improvement)

Project Information

20) Grant Amount Requested: \$735,000.00

21) Project Duration in Months: 36

22) Legislative District Number(s): 11th State Legislative District of New Jersey

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Lake**

WMA 12

**Deal Lake HUC 14: 02030104090030
Sunset Lake HUC 14: 02030104090060
Wesley Lake HUC 14: 02030104090060**

Applicant: Deal Lake Commission

**Contact Person: Ms. Jessie Joseph,
Clerk Deal Lake Commission
Attn: Jesse Joseph, 399 Monmouth Rd, Oakhurst, NJ, 07755
732-547-6961 www.deallake.org**

**Contact Person: Mr. Donald Brockel, Chairman
710 Laurel Ave
West Allenhurst,
NJ
732-539-0743 brockel@optonline.net**

**Project Partners
City of Asbury
Park
Sunset Lake
Commission Wesley
Lake Commission**

Total 319(h) Funding
Grant Amount Requested: **\$735,000.00**

Prepared by:

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4 March 2017

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1.0 ABSTRACT AND DESCRIPTION OF APPLICANT

1.1 Project Abstract – The Deal Lake Commission submits this proposal as a cooperative effort of the Deal Lake Commission (DLC), Sunset Lake Commission (SLC), Wesley Lake Commission (WLC) the City of Asbury Park. The DLC will serve as the grant recipient and oversee this project. The DLC has a long, successful history of conducting 319(h) funded projects as well as project funded by other entities including the US Army Corp of Engineers (USACE) and NJDEP. This project not only builds upon the success of the DLC’s most recently completed 319(h) project, but helps implement non-point source control measures recognized in other independent studies (Monmouth County Board of Health and Monmouth University) as critical to the improvement of the water quality of both Sunset Lake and Wesley Lake. The proposed stormwater management load reduction techniques proposed herein are consistent with the goals of the Deal Lake Watershed Protection Plan and the NJDEP’s TMDLs for Fecal Coliform and Total Phosphorus¹ for Atlantic Coastal Lakes. It also addresses the eutrophication problems negatively affecting all three lakes. These problems have been demonstrated via watershed modeling and in-lake sampling data as being directly caused by non-point source, stormwater runoff loading.

The Deal Lake and Sunset Lake projects are consistent with the findings and recommendations of the NJDEP approved Deal Lake Watershed Protection Plan. That plan identified specific implementation projects capable of substantially reducing the lakes’ phosphorus, pathogen and sediment loads, thereby improving the lakes’ ability to meet USEPA and NJDEP water use goals. The Deal Lake and Sunset Lake projects are consistent with the directives of Deal Lake Watershed Protection Plan (Grant #RP 04-082) and build upon the success of the implementation projects completed by the DLC under Grant #RP10-

088. The projects proposed for Wesley Lake are consistent with the restoration and management recommendations contained in the 2008 Wesley Lake Comprehensive Rehabilitation Plan². In that plan goals were set to manage stormwater loading to the lake by retrofitting the existing catch basin system, creating pocket gardens, and stabilizing the eroding edges of the lake adjacent to the lake’s surrounding bulkhead. These efforts are discussed in the Stormwater Management and Streetscape sections of the plan. It should be noted that the WLC attempted in 2004 to obtain 319(h) funding for work of a similar nature proposed herein.

Our project consists of three main elements with one unifying goal: **Decrease non-point source pathogen, nutrient and sediment loading to each of the three targeted coastal lakes using green infrastructure techniques; engage and educate the public about the benefits of green infrastructure; and quantify the load reductions achieved thorough the implementation of the implemented non- point source (NPS) control stormwater management.**

Our project will result in the following green infrastructure implementation projects (all of which will be conducted on publically owned and accessible lands located in Asbury Park):

¹ NJDEP 2003. Total Maximum Daily Loads for Fecal Coliform to Address 31 Streams in the Atlantic Water Region NJDEP 2009 Total Maximum Daily Loads for Pathogens to Address 18 Lakes in the Atlantic Coastal Water Region NJDEP 2003 Total Maximum Daily Loads for Phosphorus to Address 9 Lakes in the Atlantic Coastal Water Region ² 2008 Wesley Lake Rehabilitation Plan, prepared for the Wesley Lake Commission by Leon S. Avakian

- **Sunset Lake –**

Curb-side Tree Boxes – Installation of up to five (5) curb-side tree boxes (Street Tree Trench as per the NJDEP Green Infrastructure Practices website) to improve the quality of road runoff discharged into Sunset Lake. The final location of the tree boxes will be determined based on a field inspection of the stormwater collection system. However, the standard street-side catch basins targeted for replacement are located along Bond Street, 5th Avenue, Sunset Avenue and Emory Street, Asbury Park (Figure 3).

Floating Wetland Islands – Installation of two (2) floating wetland islands; one in the lake’s central basin and one in the lake’s eastern basin (Figure 3). We plan on using the Biohaven mats, manufactured by Floating Island International. Princeton Hydro has successfully utilized these islands at other 319 funded project sites. Each floating wetland island will be approximately 250 ft² in size. They will be planted with native, aggressively growing, low-maintenance wetland plants. To protect the islands from damage due to ducks and geese, goose fencing will be erected on each island using a PVC frame system. It should be noted that the Sunset Lake Commission plans to install a floating wetland island in Sunset Lake in the summer of 2016.
- **Deal Lake –**

Curb-side Tree Boxes – Installation of two (2) curb-side tree box (Street Tree Trench as per the NJDEP Green Infrastructure Practices website) to improve the quality of road runoff discharged into the main body of Deal Lake. The proposed location of the tree boxes are shown on (Figure 2) near the intersection of Kingsley Street and Deal Lake Avenue in Asbury Park. The two standard catch basins at this location were targeted for replacement as part to the 319(h)-implementation grant submitted to the NJDEP by the DLC in 2016.

Sub-surface manufactured treatment device (MTD) – Installation of a Stormceptor type MTD at the intersection of Memorial Drive and 6th Avenue (Figure 2). This MTD will be used to manage the runoff discharged to Deal Lake from a 48” outfall; a well-documented major source of nutrient, sediment, pathogen and floatable loading to the lake. The runoff conveyed to this location includes the stormwater that will be pre-treated by the tree boxes installed at Sunset Lake (which is piped to this location and discharges into Deal Lake). The proposed MTD will complement another MTD installed at the base of Comstock Avenue by DLC as part of our earlier 319(h) grant. Details of the performance capabilities of the Comstock Avenue unit are provided in the attached USEPA Success Story (Appendix B). THE DLC has worked closely with the Asbury Park DPW to ensure that the Comstock Avenue MTD is inspected and cleaned out on a routine basis. For this MTD the DLC will take responsibility for the over-sight and validation of its post-installation inspection and maintenance. As per Table 4, Asbury Park will provide the in-kind maintenance in keeping with their normal catch basin maintenance activities.
- **Wesley Lake**

Curb-side Tree Boxes – Installation of four (4) curb-side tree box (Street Tree Trench as per the NJDEP Green Infrastructure Practices website) to improve the quality of road runoff discharged into Wesley Lake from Lake Avenue. Although the final selection of the tree box installations will be based on a detailed inspection of the stormwater collection system, the boxes will replace the standard catch basins located along Lake Avenue near the Emory Street, Grand Avenue and Hecks Street intersections (Figure 4).

Linear Bioswale/Vegetated Filter Strip – Construct a linear bioswale/vegetated buffer (Grass Swale as per the NJDEP Green Infrastructure Practices website) along a 100-150’ section of the lake’s northern edge. The final location will be selected by the Wesley lake Commission but will likely be located between Emory Street and Grand Avenue (Figure 4) where significant subsidence and erosion problems have been noted in past studies of the lake. The linear bioswale/vegetated buffer will be planted with low-maintenance native vegetation.

Our project also includes a significant **Educational Outreach** element. Over the entire course of this project the DLC will coordinate and implement educational and outreach activities to keep stakeholders engaged and involved, and to demonstrate how this project's goals and objectives can be replicated elsewhere within the Deal, Sunset and Wesley watersheds. Specifically:

- Upon notification of the award of the grant the DLC will coordinate a joint public, project initiation meeting conducted by members of the DLC, SLC, and the WLC. The purpose of this meeting will be to educate the public on the importance of this grant, discuss in general the planned projects, and review the proposed time-table for project implementation.
- Over the course of the grant all three entities will update their respective websites as needed with information on the grant, the various projects and project status reports.
- The DLC as part of their monthly meetings will provide a project update and solicit input from the public.
- The DLC will further engage the public through the DLC's spring/fall lake clean up events carp fishing contest and sharing of data collected as part of an independent joint-effort between the DLC, Monmouth University and volunteer lake monitors.
- The DLC will conduct three "Informational Breakfast Meetings" for municipal public work officials, planning board members and township council/committee members dealing with the benefits of green infrastructure.
- The DLC will design and erect educational signage at each lake that summarizes the work that is being conducted and the benefits of green infrastructure BMPs.
- As the projects are completed the DLC will prepare and distribute project success stories prepared using the USEPA Success Story format.
- Upon completion of the project, the DLC, SLC and WLC will conduct a joint presentation that highlights the work that was conducted through this grant and use the presentation as an opportunity to identify other sites where green infrastructure projects could be conducted in the communities represented by each lake commission.
- The DLC will prepare digital copies of the final report for distribution by the NJDEP, DLC, SLC, WLC and the municipalities represented by each lake commission.

As required by the NJDEP we will Measure the Success of the project by quantifying the non-point source load reductions achieved through the implementation through our green infrastructure projects. Our Measure of Success will be consistent with the requirements outlined by the NJDEP in Appendix E of the RFP. Specifically we will use either the USEPA STEPL model or a similar unit areal loading modeling technique approved by the NJDEP (such as the MapShed model used to develop the Deal Lake WPP) to compute the non-point pollutant (phosphorus, nitrogen, sediment and/or pathogen) loads decreased by each of the implemented green infrastructure BMPs (tree boxes, vegetated bioswale/buffer, floating wetland island and MTD).

Applicant Description - Consistent with the NJDEP's criteria for **Eligible Entities**, the DLC is a "designated water quality management planning agency". The DLC's commissioners are appointed by each of the seven member municipalities (each of which is located within the lake's boundaries). As per its charter with the State of New Jersey, since its formation in the early 1980's, the DLC has served as the State's appointed "steward" of Deal Lake. Over the past 30+ years the DLC has implemented watershed-based initiatives to reduce nonpoint source pollutant loading to Deal Lake and its tributaries and to increase/improve the quality and diversity of the ecosystem's wetland, riparian and aquatic habitats.

Representing the interests of the seven municipalities bordering the lake, the DLC has completed several comprehensive watershed studies, prepared NPS control plans, and implemented lake restoration and pollutant reduction projects with funding provided through local, NJDEP, USACE and USEPA sources. Each project involved strong municipal and stakeholder cooperation. Each project addressed and corrected either the causes of NPS pollutant loading to the lake or mitigated an impact caused by excessive nutrient, sediment and pathogen loading. The successful completion of these past NJDEP 319(h) funded projects demonstrates the DLC's ability to satisfy NJDEP's **Eligible Entity Capabilities** with respect to:

- The capability, expertise, and environmental experience to perform the proposed work;
- The ability and authority to implement the proposed project(s);
- The ability to establish and maintain partnerships to ensure project implementation;
- Through their municipal partners the ability to provide long-term O&M and management;
- Proven 319 project partner with NJDEP, having completed past projects on time and within budget, and consistent with those projects' goals and objectives.

The Wesley Lake Commission, the DLC's project partner, also has a long history of successfully managing various projects that improved the water quality and recreational utilization of Wesley Lake. This has included the dredging of accumulated sediment, control of invasive aquatic weeds, management of stormwater related floatable loading, shoreline stabilization, and public education and outreach.

Likewise, the Sunset Lake Commission, although a newly formed entity is already implementing a floating wetland island project with the City of Asbury Park. The City has also been involved in past initiatives designed to improve the lake's quality including installation of aeration equipment, invasive weed and algae control, dog waste management and the erection of signage to discourage the feeding of geese.

The City actively inspects and manages the local stormwater system to reduce non-point source loading to all three lakes. This includes the on-going maintenance of the Comstock Avenue MTD. The City also has experience with green infrastructure BMPs as exemplified by the rain garden located at the City of Asbury Park Municipal Plaza.

Ms. Jeannie Toher is the representative appointed by the Asbury Park City Council to the Deal Lake Commission. Given that all of the work proposed in this 319(h) grant application is being conducted within Asbury Park, Ms. Toher will act as the liaison between the DLC, the Sunset Lake Commission and the Wesley Lake Commission. It should also be noted that the Deal Lake Commission is currently working closely with the newly formed Sunset Lake Commission.

Princeton Hydro, LLC and Leon S. Avakian, will provide the **technical support** needed by the DLC to complete this project. The former is the environmental consultant to the DLC and the latter the environmental engineer. Both have functioned in this capacity since the inception of the DLC in the early 1980s. Both served similar roles in past 319 projects, including the DLC's recently completed (2014) 319(h) funded plan implementation project (#RP 04-082). Princeton Hydro and Leon S Avakian, Inc. also have a long history of working with the Friends of Wesley Lake and the Wesley Lake Commission and

more recently with the Sunset Lake Commission.

2.0 PROJECT DESCRIPTION AND IMPLEMENTATION SCHEDULE

2.1. Project Eligibility - This project submitted by the DLC meets the NJDEP's Project Eligibility requirements for SFY2107 319(h) as follows:

- Deal Lake is the largest of New Jersey's coastal lakes. The lake, located in Monmouth County, discharges directly into the Atlantic Ocean. As per Appendix B, Page 2 of the NJDEP's SFY 2017 319(h) Grant Project Evaluation Criteria, coastal lakes have been prioritized for funding.
- All of the projects proposed by the DLC will be conducted on publically owned lands.
- The project involves the implementation of green infrastructure BMPs that address the primary documented source of nutrient, suspended solids and pathogen loading to Deal Lake, Sunset Lake and Wesley Lake as per data compiled by the Deal Lake Commission, Monmouth University and Monmouth County Health Department, Friends of Wesley Lake.
- The project involves the implementation of environmental education initiatives that advance both the DLC's and the NJDEP's green infrastructure goals.

The Deal Lake Commission is the State's recognized steward of Deal Lake and a designated water quality management planning entity. We have demonstrated through our successful implementation of previous 319 (h) funded projects and the successful implementation of other publically funded projects (USEPA, NJDEP, USACOE, NRCS, local) our ability to administratively manage projects of this magnitude and meet all grant and project requirements on-time and on-budget. We have worked in the past in close cooperation with the NJDEP. The work completed through the NJDEP 319(h) Grant #RP04-082 received a Technical Excellence Award from the North American Lake Management Society.

2.2 Project Need and Importance - The overall goal of our SFY2017 Water Quality Restoration Grant Implementation Project is to improve the water quality of Deal Lake, Sunset Lake and Wesley Lake by reducing non-point source loading through improved stormwater management. Non-point source pollutant loading is the primary reason that the three Coastal Lakes do not fully attain USEPA swimmable and fishable status, are subject to eutrophication, and are not consistently compliant with State water quality standards. **The overall goal of our project will be primarily met by reducing stormwater driven nutrient, pathogen, sediment and floatable loading using NJDEP supported Green Infrastructure techniques.** The project detailed herein is consistent with the NJDEP's five project evaluation criteria as outlined in Appendix B of the RFP:

1. Project Applicability - Our project involves the improvement of the water quality of three coastal lakes through the reduction of non-point source pollutant loading, the primary documented cause of the water quality impairments affecting each of the three lakes. Based on the past success of the DLC, the project has a very high likelihood of achieving a positive environmental outcome and has water quality, public health, and environmental benefits. Finally, the project implements elements of the NJDEP approved Deal Lake WPP and thus integrates other federal, state and local programs, plans and policies.

Project Readiness – The proposed green infrastructure project sites have been largely identified. The past efforts of the DLC, WLC and City of Asbury Park have documented the feasibility and effectiveness of green infrastructure projects. These projects will be conducted within one municipality and can be implemented simultaneously, thus facilitating their completion within the 36 month project schedule (refer to Table 1). Although some engineering design and sizing work will be needed for the tree boxes and MTD, none of those projects require a NJDEP permit and the floating

wetland islands can be installed under a simple Flood Hazard Permit by Rule (PBR-32), thus increasing the shovel ready nature of the projects. Finally, all of these projects as reflected by the efforts of the DLC, WLC, and SLC, are supported by the public.

2. **Likelihood of Success** – As previously noted the DLC has an excellent record in completing NJDEP funded projects on time and within budget. The most recently completed 319(h) implementation project received a Technical Excellence Award from the North American Lake Management Society. The projects are all being conducted on public lands and as such do not require any private property guarantees. Because of some of the work already conducted by the DLC, SLC and WLC, we will be able to complete this project with 36 months. Finally, the DLC as noted above will take on the responsibility of overseeing and validating the inspection and maintenance of the Memorial Avenue MTD.

3. **Cost Share/Matching Funds/Leveraging of other Funding Sources** – Our proposal includes a fairly detailed budget that accounts for the cost of the green infrastructure BMPs, planting of the floating wetland island, all engineering costs, and traffic control and road repair costs associated with the installation of the tree boxers and MTD. The project also leverages \$82,300 in in-kind services that will be provided over the course of this project by the project partners (refer to Table 5).

4. **Monitoring and Evaluation Information** – As detailed herein the DLC will compute the resultant pollutant load reductions utilizing STEPL or a similar NPS model approved by the NJDEP.

2.3 Project Implementation Schedule and Goals by Objective - Our project schedule, outlined below, demonstrates how we will meet the project's overall goal and supporting objectives. Task start and end dates are based on the date of receipt of a NJDEP signed and approved contract. As per the RFP, the time frame is expressed in months. **The total duration of our project is 36 months with the project divided into four basic elements: data collection /development, design, installation/construction and measurements of success/reporting.** Because we have already conducted some of the background site assessments and analyses needed for the MTD and Tree Box installations it will be possible to easily meet the project schedule. We do not need to conduct any preliminary planning and can build on earlier site assessment efforts. As such, our projects have already been progressed beyond the preliminary planning and concept phases.

Objective 1 (Acquire /Develop Engineering and Ecological Data, Finalize Designs and Specifications).

Tasks 1-3 pertain to the development of the remaining field data needed to size the Tree Boxes, Floating Wetland Island and MTD. This will consist of site-specific final survey/topography data, engineering sizing, hydrologic modeling and baseline ecological data collection (GIS related data compilation). Before finalizing any plans, Princeton Hydro and LSA will submit draft designs to NJDEP's assigned BEAR Project Manager for approval of the proposed curb-side tree boxes, MTDs and linear bio-swale/vegetated buffer. Once the draft plans are approved by the NJDEP, they will be developed into detailed plans and specifications. The finalized plans and specifications will be used to prepare contractor bid documents and advertise for bids. Note that tasks are not sequential. Because of the amount of work that has already been conducted for Sunset Lake and Deal Lake we will implement those projects first (years 1 and 2) and then implement the Wesley Lake projects later (years 2 and 3).

of the projects. Finally, all of these projects as reflected by the efforts of the DLC, WLC, and SLC, are supported by the public.

5. **Likelihood of Success** – As previously noted the DLC has an excellent record in completing NJDEP funded projects on time and within budget. The most recently completed 319(h) implementation project received a Technical Excellence Award from the North American Lake Management Society. The projects are all being conducted on public lands and as such do not require any private property guarantees. Because of some of the work already conducted by the DLC, SLC and WLC, we will be able to complete this project with 36 months. Finally, the DLC as noted above will take on the responsibility of overseeing and validating the inspection and maintenance of the Memorial Avenue MTD.

6. **Cost Share/Matching Funds/Leveraging of other Funding Sources** – Our proposal includes a fairly detailed budget that accounts for the cost of the green infrastructure BMPs, planting of the floating wetland island, all engineering costs, and traffic control and road repair costs associated with the installation of the tree boxers and MTD. The project also leverages \$82,300 in in-kind services that will be provided over the course of this project by the project partners (refer to Table5).

7. **Monitoring and Evaluation Information** – As detailed herein the DLC will compute the resultant pollutant load reductions utilizing STEPL or a similar NPS model approved by the NJDEP.

2.4 Project Implementation Schedule and Goals by Objective - Our project schedule, outlined below, demonstrates how will meet the project’s overall goal and supporting objectives. Task start and end dates are based on the date of receipt of a NJDEP signed and approved contract. As per the RFP, the time frame is expressed in months. **The total duration of our project is 36 months with the project divided into four basic elements: data collection /development, design, installation/construction and measurements of success/reporting.** Because we have already conducted some of the background site assessments and analyses needed for the MTD and Tree Box installations it will be possible to easily meet the project schedule. We do not need to conduct any preliminary planning and can build on earlier site assessment efforts. As such, our projects have already been progressed beyond the preliminary planning and concept phases.

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Table 1A - Implementation Schedule - Objective 1 - Develop Engineering and Environmental Data for Preparation of Draft and Final NJDEP Approved Designs for Green Infrastructure BMPs					
Task	Deliverable	Responsible Party	Time frame	Start Date	End Date
1. Obtain/review existing data, plans, reports and background info local stormwater collection system in each project area	Updated stormwater collection system data including catch basin/pipe dimensions and inverts	PHydro & LSA	3	1	3
2. Develop site survey and conduct hydrologic modeling for proper sizing of green infrastructure BMPs and MTDs	Design criteria for sizing and selection of Green Infrastructure BMPs and MTD	Princeton Hydro & LSA	6	1	6
3. Complete sizing analysis for floating wetland islands, green Infrastructure BMPs and MTD. Review with NJDEP and project partners.	Properly designed and sized green Infrastructure BMPs and MTD.	Princeton Hydro & LSA	6	3	9

Objective 2 (Implement/Install/Construct Green Infrastructure BMPs and Floating Wetland Islands) Tasks 4-6 encompass the construction phase of the project and involves the selection of contractors, the installation of the MTDs and curb-side tree boxes, and the construction of linear bio-swale/vegetated buffer. **Again, some of these tasks overlap and thus the project time line and task start/end dates are not sequential.** Specifically, we expect the Deal Lake and Sunset Lake green infrastructure and MTD elements will be ready to bid by end of Year 1 of the project and the tree boxes and MTD should be installed between months 12 and 24. The green infrastructure installations planned for Wesley Lake will be conducted during Year 2 between months 18 and 30. This time-line accounts for the amount of time required for review of the received bids by the DLC and Asbury Park and the time needed to contract with the select qualified contractors, place orders with Contach for the manufacturing of the tree boxes and MTDs and the delivery and installation of the tree boxes and MTD. The actual work to be conducted by the approved contractor(s) will begin upon the finalization of all contractual matters and receipt of the NJDEP's approval to proceed. The contractor oversight services provided by LSA and Princeton Hydro reflect work encompassing all the construction elements of the project pertaining to the installation of the tree boxes, floating wetland islands and the MTDs. Please note the proposed structural green infrastructure BMPs, including the MTD, do not require any NJDEP permits. The total disturbance at each site should typically be less than 5,000 ft² thus negating for the most part the need for a Freehold County SCD permit. The installation of the floating wetland islands is covered under Food Hazard Permit by Rule 32 (NJAC 7:13-7.32) and as such does not require formal NJDEP review.

Table 1B - Objective 2 – Implement BMPs and Floating Wetland Islands (Tasks 4-6)					
Task	Deliverable	Responsible Party	Time frame	Start Date	End Date
4. Advertise bids to install curb-side tree boxes, MTDs, and, review bids, select qualified contractor	All work associated with finalization of specifications, bid review and contractor selection	Princeton Hydro & LSA	22	6	28

5. Implement projects	Installed and functioning curb-side tree boxes and MTD at Deal Lake, Sunset Lake and Wesley Lake.	Contractor TBD	18	10	28
6. Provide contractor oversight.	All work conducted as per specs and any permit requirements	Princeton Hydro & LSA	18	10	28

Objective 3 (Measures of Success and Reporting) Most of the effort associated with the completion of Tasks 7-9 pertains to the post-implementation measurement of success and the preparation of various project reports (Table 1C). To demonstrate the benefits of each green infrastructure BMP we will quantify the post-installation pollutant load reductions by means of the USEPA STEPL model (or another NJDEP approved public-domain load reduction model). The resulting data will serve as the foundation for the preparation of the USEPA Success Story developed for each installation and later in the preparation of the Draft and Final Reports. Over the course of the project, Project Success will also be documented and communicated with the NJDEP and the project partners through the preparation of the Quarterly Technical Reports.

In month 32 of the project we will begin work on the Draft Final Report. Upon completion of the Draft Final Report it will be circulated by the DLC, NJDEP, SLC and WLC for review and comment. Upon receipt of all comments the Final Report will be prepared. The Final Report will satisfy all of the report requirements identified in Appendix E of the RFP. This will include all plans and specifications for each of the green infrastructure BMPs, the Operation and Maintenance Plans for each of the green infrastructure BMPs, the individual EPA Success Stories for each of the green infrastructure BMPs, and examples of the education and outreach materials prepared for this project. All GIS data or mapping components will follow the Department's 2013 Mapping and Digital Data Standards. Twelve (12) bound copies and 20 CDs of the Final Report will be prepared and subsequently circulated by the DLC to the NJDEP, project partners and member municipalities.

Table 1C - Objective 3 Measures of Success and Reporting (Tasks 7 -9)					
Task	Deliverable	Responsible Party	Time Frame	Start Date	End Date
7. Develop data used to document/measure success	Conduct post-installation modeling of green infrastructure and MTDs. Confirm planting success of FWIs.	Princeton Hydro	20	14	34
8. Interim Reports	Preparation of all technical documents including Quarterly Reports, EPA Success Stories and Draft Final Reports	Princeton Hydro and DLC	36	1	36
9. Final Report	Preparation of Final Report	Princeton Hydro and DLC	34	2	36

Objective 4 Public Education and Outreach – Completion of Task 12 will be the responsibility of the DLC, with assistance provided by Princeton Hydro. Starting in Month 1 and continuing throughout the duration of the project, the DLC will implement a variety of public outreach and education initiatives. The objective of these initiatives will be three-fold; meet the reporting requirements of the NJDEP, keep stakeholders and public apprised of project progress, educate the community about green infrastructure stormwater management techniques and the benefits of living shorelines. Details have already been provided in Section 1.1. of our application. To summarize, education and outreach will involve the preparation and circulation of environmental education materials, coordinated public presentations conducted by all tree lake commissions, presentations to public works, planning board and elected officials on the merits of green infrastructure (see below), multiple lake clean-ups, posting of information and educational materials on the website of each commission and via the social media sites of the DLC, and other means that will keep the public informed and engaged. Material will be routinely disseminated at DLC monthly and/or special meetings conducted in concert by the DLC, SLC and WLC. Signage will be erected at each green infrastructure BMP site.

As part of Task 10 the DLC will conduct three “Informational Breakfast Meetings”. Local public works personnel, land use board members and elected local officials will be invited to these meetings during which we will promote the value of green infrastructure stormwater management and their role in the improvement of the water quality of the lake and its tributaries. The presentations will include examples of the use of such measures as part of new and redevelopment projects, discussion of the superior performance of these measures compared to standard stormwater management techniques, and review their maintenance needs. We have had great success in the past with such breakfast meetings.

Table 1D - Objective 4 Public Education and Outreach (Task 10)					
Task	Deliverable	Responsible Party	Time Frame	Start Date	End Date
10. Public education and outreach and related activities	Conduct quarterly special meetings to keep partners and public apprised of project success, prepare and submit quarterly reports, develop and install project specific signage, disseminate information on green infrastructure, NPS pollution reduction and benefits of floating wetland islands via DLC website.	Princeton Hydro and DLC	36	1	36

Objective 5 - Project Administration - All project administration will be provided by the Deal Lake Commission as part of Task 11 of this project.

Table 1E - Objective 5 Project Management, Project Administration and Reporting (Task 11)					
Task	Deliverable	Responsible Party	Time Frame	Start Date	End Date
11. Project Administration. All responsibilities associated with the administration of the grant and coordination of stakeholders and contractors, preparation of Quarterly Reports, fiscal management and reporting, interfacing with NJDEP	Project management and administration	Deal Lake Commission	36	1	36

3.0 Project Budget - Table 2, prepared in accordance with the budget instructions provided in the RFP, provides a breakdown of costs by responsible party. Additional budget details are provided in Tables 3 and 4.

Table 2 Budget Summary Deal Lake Watershed Protection Plan Implementation– Non-Point Source Control and Habitat Improvement Projects, Monmouth County, New Jersey		
Project Element	Responsible Party	Amount Requested
Administration (Fiscal Mgmt, Overall Proj Mgmt, Education and Outreach, Administrative related Reporting), contractual services of DLC Clerk and Financial Officer to administer grant; project closeout audit	DLC	\$24,000
Environmental and ecological services, design of Floating Wetland Islands and BioSwale	Princeton Hydro	\$8,700
Required site survey, preparation of plans and specs, bid packages and related civil engineering services associated with the design and implementation of tree box, MTD projects, provide contractor oversight	LSA	\$91,000
Purchase of materials and installation/construction of proposed green infrastructure BMPs including MTD	Contractors TBD	\$495,500
Purchase of materials and plants for floating wetland islands (2)	Contractors TBD	\$37,650
Post-Implementation Measures of Success, STEPL and UAL Modeling and Post-BMP Installation Monitoring	Princeton Hydro	\$13,400
Develop and implement education and outreach program Prepare presentation materials and conduct public presentations Prepare Operation and Maintenance Plans for tree boxes, MTD and floating wetland Islands	Princeton Hydro	\$12,500
Participation in education and outreach program, Additional engineering services, Assistance with preparation of draft and final reports	LSA	\$13,650
Compile and analyze all data, Prepare Technical QRs, Preparation of Draft and Final Reports, Technical Project Mgmt	Princeton Hydro	\$21,000
Design of Materials for Public Education Out-Reach Information, Design of Educational Signage	Princeton Hydro	\$7,100
Preparation of Materials for Public Education Out-Reach and Dissemination of Information, Production of Signage	DLC	\$10,500
Amount of Grant Funding Requested		\$735,000.00

Table 3- Proposed Budget With Breakdown By Key Project Technical Contributors		
Category	Amount (\$)	Responsible Party
Administration*	\$22,000.00	DLC Clerk and Fiscal Officer
Fringe	NA	NA
Indirect expenses	NA	NA
Audit	\$2,000.00	DLC Accountant
Travel (@\$0.31/mile)	NA	NA
Training	NA	NA
Contractual Services –Signage and Education and Outreach Materials	\$10,500.00	Contractor TBD by DLC
Contractual Services – Environmental Services. Performance analysis of green infrastructure BMPs, report preparation, public education and outreach, preparation of FWI maintenance manual, project management, contractor oversight	\$62,700	Princeton Hydro
Contractual Services – Environmental Engineering Services, site survey and civil engineering services, bid spec preparation, preparation of green infrastructure maintenance manuals, contractor oversight	\$104,650	LSA
Contractual Services - Materials, Construction, Deal Lake Memorial Drive MTD Installation, Tree Box Installations at Deal, Sunset and Wesley Lake, Wesley Lake Biofilter. Includes purchase of materials.	\$ 495,500	Contractors TBD by DLC
Materials needed for 2 Sunset Lake floating wetland islands; Biohaven mats, plant material, anchors/tethers, and goose fencing	\$37,650	Contractors TBD by DLC
Grant Monies Requested		\$735,000.00

*The DLC Clerk and Fiscal Officer are contracted service providers and are not employees of the DLC

In Kind Match – Non-monetary, In-kind services will be provided by the DLC and the DLC’s partners over the 36-month timeframe of this project. These in-kind services are presented herein to demonstrate the commitment of the DLC and the DLC’s partners in the completion of this project. Details of the proposed in-kind services and respective estimated in-kind dollar equivalent are detailed in the Table 4. The DLC’s in-kind services are associated with the overall coordination and management of all facets of the project, including fiscal management, preparation and submittal of the quarterly reports, overall project management, dissemination of information via the DLC website and press releases, coordination and scheduling of public meetings, facilitation of public meetings, legal review of contracts and bidding documents, and editorial review and comment on all project deliverables. In-kind services provided by City of Asbury Park, will consist of consultation on the design of the proposed BMPs and living shoreline work conducted in Asbury Park. They will also provide in-kind services related to the cleanout of the municipal catch basins discharging to Deal Lake including the Comstock Avenue MTD. The Borough of Interlaken will make at no expense to the DLC the use of their municipal building for the 36 monthly meetings and additional scheduled public outreach meetings. Over the course of this project, the DLC, with assistance from local stakeholder groups, such as the Friends of Deal Lake, will coordinate and conduct four lakeshore clean ups. Disposal of the collected debris will be provided as in-kind services by the municipalities bordering the lake.

Table 4 - Summary of In-Kind Services and Value of In-Kind Funding Associated With These Services					
In-kind Service Provider	Meetings, coordination of public hearings, review reports and deliverables ¹	Review Project Design, Bid Specs, Contractor Quals	Review Measures of Success	Shoreline Clean ² up Catch Basin Clean Outs ³	Other Donated Services ⁴
DLC	\$18,000	\$2,000	\$3,000	\$3,600	\$18,000
Local stakeholders	0.00	0.00	0.00	\$18,000	0
City of Asbury Park	0.00	\$4,000	0.00	\$7,500	0
Borough of Interlaken	\$7,200	0.00	0.00	0.00	0.00
Neptune Township	\$1,000	0.00	0.00	0.00	0.00
Total In-kind	\$26,200	\$6,000	\$3,000	\$29,100	\$18,000
Grand Total of In-Kind Services					\$82,300

1 – Based on 36 meetings, 4 hrs/month (@\$25/hr) at minimum 5 DLC Commissioners and Clerk time. Use of Interlaken Borough meeting room based on \$200/ meeting for minimum of 36 meetings. Use of Neptune Township meeting room for special meetings

2 – At minimum 6 shoreline cleanups, 4 DLC staff and 30 additional volunteers, 4 hrs/person @\$25/hr (does not include donated time of municipal DPW to pick up debris or any disposal fees). DLC coordination, planning and advertising of events

3 – DPW vac-all and dispose of debris collected in catch basins and Comstock MTD, personnel and equipment, \$2,500/year

4 – Various types of in-kind services provided by DLC and community over 36 month timeframe of project, this has included the DLCs legal review of all contracts, invasive aquatic species and HAB management conducted with local funds, assistance with the maintenance of the flume, invasive species control at Asbury Park boat launch, the annual carp fishing derby, etc.

Additional Grant Conditions

- a. For scopes of work that require a QAPP - "All monitoring measurements, or data generation must have a quality assurance project plan (QAPP) approved by the Department before any monitoring, measurements, or data generation is initiated. If the applicant generates data without a Department-approved QAPP, the costs will not be eligible for funding";

- b. Data Submission - "All data collected through the course of the project must be submitted in the format requested by the Department. All data must be entered into the Department's Water Quality Data Exchange online database. Information regarding using this database is located at: <http://www.state.nj.us/dep/wms/wqde>

- c. All Final Reports must be submitted in hard copy and electronic forms utilizing Microsoft Word or compatible format. All Final Reports for NPS implementation projects must include a maintenance plan, approved by the Water Quality Restoration Grants Program, to ensure the long-term viability of the implementation structures or measures. Documentation must be provided that this approved maintenance plan was provided to the entity that will assume ownership and long-term maintenance responsibilities, and that said entity was provided the appropriate training regarding the specific maintenance of the implementation structure or measure. All Final Reports must provide all the information as detailed in Appendix E of the Water Quality Restoration Grants Program Request for Proposal (located here): <http://www.state.nj.us/dep/wms/bears/npsrestgrants.html>

- d. Pollutant load reduction estimates utilizing the EPA STEPL or other non-proprietary load reduction estimation model and "EPA success story" style summary must be provided within 90 calendar days of completion of each implementation measure. Use of models other than STEPL must be approved by the Water Quality Restoration Grants Program. All Final Reports must include a detailed summary of load reductions achieved by individual implementation measures supported through this grant contract;

- e. All Final Reports must include a project summary consistent with the EPA "success story" format guidelines, submitted in hard copy and electronic format utilizing Microsoft Word or compatible format. The Water Quality Restoration Grants Program shall provide the grantee with the success story format guidelines;

- f. All equipment purchased utilizing grant funds must be relinquished to the Department upon completion of the project, unless otherwise notified in writing by the Department;

- g. GIS - All projects involving activities using a GIS data or mapping component must follow the Department's 2013 Mapping and Digital Data Standards located at http://www.nj.gov/dep/gis/assets/NJDEP_GIS_Spatial_Data_Standards_2013.pdf. If the applicant is not capable of following this guidance, the costs associated with GIS are not eligible for funding";

- h. Preliminary design information necessary to initiate a pre-application meeting for implementation projects requiring Division of Land Use Regulation (DLUR) permits must be submitted to the Water Quality Restoration Grants Program for review prior to proceeding to final design of the project. If approved, the Water Quality Restoration Grants Program shall be identified as the Co-applicant on permit applications completed by the grant recipient. To facilitate this process, all DLUR permit applications must be submitted directly to the designated Water Quality Restoration Grants Program project manager.

The Water Quality Restoration Grants Program will coordinate initiation of pre-application meetings should they be deemed necessary;

i. Grantee must provide appropriate acknowledgement indicating that the project(s) supported through this contract was funded by a Water Quality Restoration and/or Federal 319(h) grant awarded by the New Jersey Department of Environmental Protection, on all publicly available and distributed publications, press releases, web postings, email notifications or project-specific signage, relating to the project as supported through this grant contract;

j. Grantee must submit a hard copy of progress and expenditure forms to:

Russell Rader, Senior Mgmt Asst/Grants Manager
NJDEP/Water Resource Management
Office of the Assistant Commissioner
401 East State Street
PO Box 420 Mail Code 401-02A
Trenton, NJ 08625-0420
Phone: (609) 292 – 6133
Email: russ.rader@dep.nj.gov

In addition, an electronic copy (pdf file) must be submitted to the Water Quality Restoration Grant Program project manager.

k. Grantee shall ensure that its selection of subcontractor(s) complies with all applicable federal, state, and local statutes, rules and ordinances, including but not limited to those related to public advertisement and/or bidding.