

July 5, 2016

Ms. Susan Parker, Town Administrator
Town of Sunset Beach
700 Sunset Boulevard North
Sunset Beach, North Carolina 28468

RE: Revised Proposal for Engineering Services
Stormwater Management Plan
Sunset Beach, North Carolina

Dear Ms. Parker:

McGill Associates, P.A., Consulting Engineers (Consultant) is pleased to submit this proposal to the Town of Sunset Beach (Town) to assist the Town in preparing a Stormwater Management Plan for the Town's stormwater infrastructure. We understand that environmental protection and particularly the mitigation of the negative effects of stormwater discharges to area waterways is a high priority issue for the residents of Sunset Beach. According to 2010 Lumber River Basin Plan and more recent supplements prepared by NC Department of Environmental Quality, Division of Water Resources (NC DEQ DWR), the Calabash River and all other assessed waterways in Sunset Beach are listed on the 303(d) list as impaired, most for "loss of use" but the Calabash River also for turbidity and copper. The "loss of use" designation relates to shellfish waters that are closed or closed following rain events. This study will examine stormwater conditions and make recommendations for stormwater infrastructure improvements that could improve stormwater flow and for the use of Best Management Practices (BMPs) that have been demonstrated to improve water quality. It is our understanding that this project entails several phases of study and deliverables, with the ultimate goal being a comprehensive stormwater capital improvement plan with funding strategies. A brief outline of our anticipated path to reaching that final goal is as follows:

- Review available stormwater infrastructure-related information, including previously prepared stormwater studies, maps, plans, ordinances, and permits.
- Develop a GIS inventory of the Town's existing stormwater infrastructure.
- Assess the capacity and condition of the Town's stormwater infrastructure. We understand that much of the Town's system was installed in the 1970's and is comprised of a combination of pipe materials (corrugated metal, plastic, RCP, Aluminum, BC1000) and varies in condition.
- Identify deficiencies within the Town's stormwater infrastructure and develop flow control and water quality solutions to alleviate those deficiencies.

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McGill Associates, P.A. • 1915 Evans Road • Cary, NC 27513

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- Prioritize identified solutions and develop a 10-year Capital Improvement Plan.
- Identify strategies for funding identified solutions.
- Compile information into a stormwater management plan and summarize the results in a final report.

Following the April 19, 2016 Council meeting and initial meetings and correspondence with Town Staff, we have developed a revised scope of services we feel is consistent with the understood expectations. The images attached to this proposal depict the study area(s). The project study area will extend to the town limits excluding areas with approved State Stormwater Permits / Stormwater Management Plans and NCDOT right-of ways. Work will include inspections and data collection for pipes, manholes, catch basins, and stormwater features, in addition to the remaining general Scope of Work as summarized in the Request for Qualifications and inclusive of stormwater quality studies as additionally requested.

For specific areas as highlighted on Attachment B additional surveying is needed to record stormwater easements

Based on this understanding, Consultant anticipates providing the following detailed scope of services under this proposal:

PROJECT INITIATION PHASE:

1. Attend one (1) project kickoff meeting. Under this item, Consultant will meet with the Town's staff to establish goals for the project. Goals may include flood control, sedimentation control, and water quality improvement. If the Town desires to include other goals, either throughout the project area or in specific targeted areas, services associated with meeting these goals can be provided under a separate agreement. It is anticipated that this meeting will include a tour highlighting the Town's stormwater infrastructure and the Town's known stormwater concerns will be identified.
2. Conduct a review of previously prepared stormwater studies, plans, ordinances, and permits. Under this item, Consultant will review available stormwater-related documentation provided by the Town. Hard copies or electronic copies of documents may be presented to Consultant at the project kickoff meeting. Consultant will also research existing CAMA land use plans for incorporation into the evaluation of stormwater quality practices. Information from these documents will be evaluated based on current stormwater regulations and practices and recommended modifications and/or improvements will be provided.

EXISTING CONDITIONS ASSESSMENT PHASE:

1. Compile a map of the Town's existing stormwater infrastructure. Under this item, Consultant proposes to locate the Town's stormwater infrastructure using consumer grade GPS mapping equipment and visual placement on existing aerial photography. Stormwater infrastructure items to be located include piping, catch basins, junction boxes, pond outlets, road culverts, engineered ditches, and the like. Stormwater infrastructure items must be visible and accessible from the ground surface. This proposal does not include uncovering buried infrastructure or use of equipment to access otherwise inaccessible structures. It is assumed that Town Staff will aid in locating and making these structures accessible and assist in opening manholes and inlet grates. Information gathered as part of the survey will include horizontal location of the infrastructure, and will include supplemental data including size, material, general condition, and approximate age. This information will be used in building a GIS infrastructure map both for the Town's continued use and for the purposes of this study. Topographic mapping to be used for the proposed evaluation will be based on published LIDAR surface maps except as identified for the 10 easement areas on the island as illustrated on Attachment B.
2. Perform a general conditions assessment of the Town's stormwater infrastructure. Under this item, Consultant will visually assess the general condition of the Town's stormwater infrastructure elements that will be located as described above. The purpose of this assessment is to ascertain the general condition of the infrastructure. No material testing is proposed and overall structural integrity of the infrastructure will be based on visual observations. These observations will be performed and recorded simultaneously with the field data collection to the extent practical.
3. Where pipes cannot be adequately inspected from above ground, the lines will be visually inspected utilizing in-pipe video. A per linear foot price (including labor, mobilization, and travel expenses) is being provided for this service and will not be performed without prior authorization by Town Staff. Cleaning of pipes and structures is not included in this proposal. Video data collected will exclude piping that cannot accept equipment due to pipe damage, sediment deposition, or other obstructions.
4. For the scope of this study, no soil testing is proposed. Data for soil characteristics will be derived from published GIS and soil study maps.
5. Drive culverts will be included in the study in general terms only. Visual inspections of roadway shoulders and culverts will be made to determine if areas of right-of-way drainage appear to be adversely affected by inadequate or nonexistent drive culverts. Culverts will not be included in the survey mapped infrastructure.

6. Create a Geographic Information System (GIS) map and database of the Town's stormwater infrastructure. Under this item, Consultant will use data gathered as part of the field survey and general conditions assessment to develop a geodatabase using Environmental Systems Research Institute (ESRI) ArcGIS software. This item will be delivered to the Town for their use independent of this project as well as for use in conjunction with this project.
7. Develop a generalized hydrologic model of the project area. Under this item, Consultant will create hydrologic modeling of the project area representing existing conditions for the purpose of quantifying the amounts of runoff draining to each stormwater infrastructure element. For undeveloped residential lots, 30% impervious cover will be utilized as this is the maximum permitted per the Town' Stormwater Ordinance without utilizing stormwater control measures. As the Town of Sunset Beach Unified Development Ordinance requires stormwater management for all remaining forms of development, a second model simulating the effects of future development will not be needed. Whenever possible, previously published runoff information (such as from the most current Flood Insurance Study published by FEMA) will be incorporated into the hydrologic model. Available topographic, parcel, aerial photography, and soil mapping will be used to determine watersheds and appropriate runoff parameters. Where additional analysis is needed, runoff will be calculated using the NRCS curve number method.
8. Develop a generalized hydraulic model of the Town's stormwater infrastructure. Under this item, Consultant will use information from the field mapping, together with the results of the hydrologic model to create a hydraulic model of the Town's stormwater infrastructure. The hydraulic model will be used to evaluate the approximate capacity of the Town's existing stormwater infrastructure, validate known problems or deficiencies, and identify capacity issues that may not be known.
9. Conduct a review of existing planning level studies focusing on land use and water quality within the Sunset Beach Town Limits. To assess stormwater quality impacts, we specifically propose:
 - a. Create a generic Sub-basin Model that generally represents the existing land development characteristics of the Town. The model will involve a detailed evaluation of developed areas within a generic sub-basin to determine the total runoff from each parcel and from all roads. Existing soils data will be used to determine the infiltration capacity throughout the sub-basin and to determine what types of BMP's could be effectively used. The plan will involve conceptual retrofits and LID concepts and techniques employed throughout the sub-basin to achieve a zero or near-zero discharge scenario for the entire sub-basin for a one year, 24 hour design storm or similar design storm.

- b. **Impervious Area Analysis and Mapping:** A clear and specific understanding of impervious coverage on a parcel by parcel basis is a valuable component of any comprehensive stormwater management planning effort. This information facilitates more accurate modeling and is an essential component if considering a stormwater utility in the future. We would use the most recent digital aerial images to manually digitize all drives, parking areas, sidewalks, and other impervious areas on all parcels within the project planning boundary. In addition to parcels, we would digitize the impervious area of all roads, sidewalks and entrances in public Rights of Way. The final product of this effort would be GIS shapefiles for, Parcel_Other_Imperv and ROW_Imperv, as well as a data base that ties impervious cover to drainage areas, parcels and other significant features.

RECOMMENDATIONS PHASE:

1. Consultant will identify areas for infrastructure improvement. Under this item, Consultant will use the generalized hydraulic model, together with newly created mapping, to identify practical solutions for addressing any identified deficiencies and provide recommendations on areas where drive culvert installations or repairs would improve drainage characteristics. Consultant will also prepare concept layouts and establish conceptual total project cost estimates for the proposed solutions.
2. Recommend new water quality retrofits for sites identified in the CIP. These recommendations will include a general location; size or length; typical detail; and an estimate of function and water quality benefit for devices recommended for various drainage basins.
3. Consultant, with assistance from Town Staff, will then review the conceptual solutions to the identified deficiencies, and will prioritize the projects into a Capital Improvements Plan (CIP) spanning the next ten (10) years. In order to perform this task objectively, Consultant will work with Town Staff to develop a decision-making matrix for evaluating projects and assigning relative importance to the proposed improvements. This item will include Consultant attendance at two (2) staff-level review meetings. As directed by the Town, Consultant can also facilitate or attend community meetings to present and discuss the conceptual solutions with the public. Should the Town desire our assistance with presentation to the public, we can prepare a proposal for these services under a separate agreement.
4. Consultant will prepare a financial analysis of the completed CIP in order to determine the affordability of the plan, and to identify potential funding scenarios involving capital needs and debt assumptions. This analysis will also identify and recommend potential outside funding sources, as well as identify potential modifications to the Town's current revenue streams in order to better support the recommended 10-Year CIP.

5. Consultant will consolidate all of the above information into a comprehensive Stormwater Management Plan document. This document will, to the extent possible, be created such that it can be used as supporting documentation as required by potential outside funding programs. The plan will include a summary of tasks performed for this project, as well as implementation costs and schedules for the recommended CIP. This item includes Consultant attendance at one (1) Town Council meeting in order to formally present the document.

PROPOSED FEES

Consultant anticipates providing the above services for the following Fees:

LUMP SUM FEES:

PROJECT INITIATION PHASE	\$ 15,900
EXISTING CONDITIONS ASSESSMENT PHASE	\$182,700
RECOMMENDATIONS PHASE	\$125,300
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TOTAL OF LUMP SUM FEES	\$323,900

UNIT COST FEES:

VIDEO INSPECTION OF STORM SEWERS **\$5.00 / Linear Foot**

ADDITIONAL SERVICES

The following services are not included in this proposal. If any of the following services are required or desired, they may be provided as Additional Services and paid by the Town on an hourly basis in accordance with the attached fee schedule, or provided under a separate agreement.

1. Providing property boundary, topographic, and/or other surveying services not specifically identified in the scope of services.
2. Making revisions to drawings or other documents when such revisions are inconsistent with approvals or instruction previously given by Town, or are due to causes beyond the control of Consultant.
3. Work required because of errors in information provided by others.

4. Providing services of professional subconsultants for items of work other than those outlined above.
5. Attendance at project related meetings other than those specifically listed above.
6. Preparation of applications and/or exhibits for review and/or presentation at public meetings other than those specifically listed above.
7. Performing traffic counts and/or performing Traffic Impact Studies.
8. Preparation and/or coordination of Phase I/Phase II Environmental Assessments.
9. Delineation of Wetlands/Jurisdictional Waters and Clean Water Act Section 401/404 permitting assistance.
10. Geotechnical investigation/engineering and/or performing soil/pavement borings and assessments.
11. Any design beyond the conceptual level of any recommended improvements.
12. Providing services other than those specifically listed in the above Scope of Services.

TOWN'S RESPONSIBILITIES

1. Town shall provide full information regarding the project area and promptly disclose any related requirements for the Project.
2. Town shall provide Consultant with electronic copies of all documents that the Town desires to have reviewed as part of this Project. Paper copies of documents may be provided, however, the Town shall be responsible for delivery of the documents to Consultant.
3. Town shall provide Consultant with access to the Town's mapping resources. This item includes existing GIS databases, digital copies of aerial photography, topography, and or infrastructure/utility mapping.
4. Town shall provide Consultant personnel full access to the project site.
5. Town shall provide assistance as needed in field locating infrastructure. This item includes uncovering buried infrastructure and assistance with accessing infrastructure that cannot be manually accessed or would be difficult to manually access with hand tools.

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6. Town shall designate a representative authorized to act in their behalf with respect to the Project. The Town or Town's representative shall examine documents submitted by Consultant and shall render decisions pertaining thereto promptly, in order to avoid unreasonable delay in the progress of Consultant's work.

PAYMENT

Payment shall be made monthly as work progresses.

We sincerely thank you for the opportunity to work with you on this very important project. If you have any questions concerning this proposal or any element of our proposed scope of work, please do not hesitate to contact me at 919-378-9111. If the above is acceptable to you, please sign and return the attached Consulting Services Agreement to our office.

Sincerely,
McGILL ASSOCIATES, P.A.



BILL ROARK, PE, CPSWQ
Cary Office Manager

Enclosures: Attachments A and B
Consulting Services Agreement
Basic Fee Schedule

Cc: Michael Norton, Compass Pointe Engineering
Andy Lovingood, McGill Associates
John Vials, McGill Associates