January 17, 2025

Christy Ferguson
Town Manager
110 Rothschild Street
Holden Beach, NC 28462
Christy.Ferguson@HBTownHall.com

SUBJECT: REVISED Holden Beach Pier Repair or Replacement Engineering Contract Scope

Dear Ms. Ferguson,

Thank you for the opportunity for HDR Engineering, Inc. of the Carolinas (HDR) to provide this scope and fee proposal to support the Town of Holden Beach (Town) with preliminary design and cost estimating services related to revitalizing the Town's historic fishing pier. HDR's scope of services for this preliminary design include project management and administration oversight, subconsultant management and oversight, a preliminary design and 30-year life cycle maintenance plan based on a repairs approach, a preliminary design and 30-year life cycle maintenance plan based on a full reconstruction approach, and comprehensive Class 3 cost estimations for both designs and life cycle maintenance plans.

HDR PROPOSED SCOPE OF WORK

Task 1: Project Management and Administration

HDR will perform the following project administrative functions for the project:

a) Create a detailed project schedule that covers receiving HDR's Notice to Proceed (NTP) through HDR's completion of services and final scoped deliverables.
b) Record summaries of coordination meetings between HDR and the Town for the Town's records. The Town will be provided with a draft summary and have the opportunity to review and provide comments before the summaries are finalized.
c) Coordinate and participate in a kickoff meeting with Town staff following NTP.
d) Attend and participate in monthly progress meetings with the Town while the project remains active.
e) Hold bi-weekly HDR internal project staff meetings to monitor and coordinate progress while the project remains active.
f) Prepare monthly project invoices.
g) HDR will coordinate subcontractor activities to include:

i. An underwater structural inspection by Collins Engineers, Inc.
ii. Geotechnical borings by Catlin Engineers and Scientists
iii. A beach profile survey by McKim & Creed

Administrative Assumptions

1) Local HDR staff will attend monthly in-person meetings with the Town. Additional HDR staff may attend virtual meetings on an as-needed basis. HDR anticipates seven (7) monthly meetings.
2) HDR internal meetings will only be attended by the project manager and the leads for each discipline who are actively involved in project design. Maximum of fourteen (14) meetings one-hour in duration.

Administrative Deliverables

- Complete project schedule following receipt of NTP.
- Summaries from meetings and coordination with the Town or Town staff.

Task 2: Geotechnical Services

HDR will provide geotechnical services to support both of the repair and reconstruction designs. The subconsultant, Catlin Engineers and Scientists, will provide drilling support services. The following services will be performed as part of this task:

a) HDR will develop a boring plan to assist with the field investigation.
b) HDR will provide on-site personnel during field investigation operations.
c) Subconsultant, Catlin Engineers and Scientists, will conduct subsurface drilling consisting of two (2) soil borings advanced to a depth of approximately 80 to 100 feet below existing mudline to gather structural input for pile loads.
d) HDR will provide select samples collected (up to 5) in the field for laboratory testing. These samples will be tested in a NCDOT approved materials and testing laboratory to verify visual field classification including grain size and soil index properties analyses.
e) All laboratory testing will be performed in accordance with the latest AASHTO and American Society for Testing and Materials (ASTM) specifications, NCDOT modified testing procedures, and classified according to the AASHTO classification system.
f) HDR will provide the following discussions and/or design recommendations to the structural design team:
    i. Stratigraphy and parameters for lateral analysis (one set of parameters for each terminal)
    ii. Pile Drivability Analysis (one analysis for each terminal)

g) HDR will summarize the geotechnical results in a Subsurface Investigation Inventory Report that follows NCDOT requirements, consisting of title sheet, plan sheet(s) with boring locations, final boring logs, and lab test results. A Geotechnical Recommendation Letter will also be developed.

Task 2 Deliverables

- Subsurface Investigation Inventory Report
- Geotechnical Recommendation Letter

Task 3: Coastal Services

HDR will perform coastal engineering services to support both the pier repair and reconstruction designs. The subconsultant, McKim & Creed, will provide surveying support services. The following services will be performed as part of this task:

a) Perform a meteorological and oceanographic analysis to obtain, collate, and compile readily available information on tides, wind, storm surge, and wave conditions.
b) Assess relative sea level rise (RSLR) based on the NOAA 2022 Sea Level Rise and Coastal Flood Hazard Scenarios and Tools Interagency Task Force report.
c) Perform cursory wave analysis utilizing readily available information from U.S. Army Corps of Engineers (USACE), NOAA, and other entities.
d) Develop wave loadings based on the cursory wave analysis and proposed bent geometry. Loadings will be developed based on the AASHTO Guidelines for Bridges Vulnerable to Coastal Storms with 2010 errata.
e) Perform a scour analysis for the piers using the cursory wave analysis and methodology from HEC-18. Methods may also consider the USACE Coastal Engineering Manual.
f) Review historical shoreline change values published by the NC Department of Environmental Quality Division of Coastal Management.
g) Six (6) beach profile transects are to be collected by the subconsultant McKim & Creed. The beach profiles will be collected such that:
    i. Coverage in the cross-shore direction includes the start of the pier extending offshore to 500’ beyond the ending location of the pier’s full 1,000’ length, at minimum
    ii. Coverage in the alongshore direction includes three transects to each side of the pier, with the first occurring as close to the pier as possible, and the remaining transects separated by 100’ spacings
    iii. The hydrographic portion will be collected by a single-beam survey

Task 3 Assumptions

1) This proposal does not include a beach morphology analysis. Beach morphology will be characterized at a conceptual level based on readily available historical information and previous studies by others.
2) Numerical modeling of waves, currents, and sediment transport are not included in this proposal. If a full pier replacement is pursued numerical modeling may be required to refine some of the design values.

Task 3 Deliverables

- Coastal Meteorological and Oceanographic Report
- Beach profile survey raw data file(s)

Task 4: Preliminary Repair Design

The subconsultant, Collins Engineers, Inc., will provide underwater inspection support services and HDR will perform the following services during the preliminary repair design:

a) HDR will conduct a condition assessment of the pier structure according to *ASCE MOP 130 – Waterfront Facilities Inspection and Assessment* to identify the extent of required repairs above water. The assessment will be coordinated and overseen by the project's structural lead. A total of two (2) HDR staff will perform the assessment. The assessment will include:
    i. Measuring sections for typical timber members
    ii. Types of defects
    iii. Size of defects
    iv. Location of defects
b) An underwater structural inspection, performed by the subconsultant Collins Engineers, Inc., from mudline to waterline for 30 submerged bents having 2 piles per bent. The inspection will involve Type1 inspections on 100% of piles and Type 3 inspections (to include resistance resting) on 10% of piles. The inspection report is to include:
    i. Method of inspection
    ii. Existing Conditions and Summary of Inspection Findings
    iii. Evaluation and Recommendations
    iv. Above and below water photographs (as conditions permit)
    v. Bent elevation drawings locating quantity and location of each deficiency
c) Provide updated project completion schedule based on condition assessment and subcontractor inspection findings.
d) Create a preliminary design covering a full repair of the pier structure, including estimated construction timeline.

e) Create a Class 3 cost estimate covering all components of the preliminary repair design based off results from the newly performed underwater structural inspection, above water structural inspection, and geotechnical borings.
f) Develop a draft maintenance and repair plan that shall include annual life cycle cost estimates for a 30-year period. The maintenance plan shall include periodic inspections.

Task 4 Assumptions

1) An underwater structural investigation is necessary due to the previous investigation occurring in April 2022 was a Class 1 inspection and did not include any Class 3 inspections.
2) The amount of man hours estimated by HDR to be necessary for the repair design is only based on the information that was provided to HDR prior to any Notice to Proceed (NTP). The results of the inspections outlined in this Task may require additional repair work. HDR assumes the repair scope of work:
    i. Does not require additional cuts, braces, holes drilled, or additional supports below water level.
    ii. Does not require the replacement of currently intact pilings.
    iii. Does not require structural redesign and the current design is at minimum appropriate for any lateral loads due to non-extreme surf conditions (tides, waves, surges within standard design criteria, etc.).
3) All water/electrical utilities will need to be replaced.
4) The design plans will be at the preliminary level and will include relevant drawings, standard details, and general design notes. Drawings will include typical:
    i. Plan views
    ii. Section views
    iii. Elevation views

Task 4 Deliverables

- Underwater inspection report from subconsultant Collins Engineers, Inc.
- Above water condition assessment report performed by HDR
- Plans for a preliminary design level repair alternative
- 30-year draft lifecycle maintenance and repair plan
- Class 3 cost estimates for the preliminary repair design and draft maintenance plan

Task 5: Preliminary Reconstruction Design

HDR will perform the following services during the preliminary reconstruction design:

a) Create a preliminary design covering a full reconstruction of the pier structure, including estimated construction timeline.
b) Create a Class 3 cost estimate covering all components of the preliminary reconstruction design.
c) Develop a draft maintenance and repair plan that shall include annual life cycle cost estimates for a 30-year period. The maintenance plan shall include periodic inspections.

Task 5 Assumptions

1) The design plans will be at the preliminary level and will include relevant drawings, standard details, and general design notes. Drawings will include typical:
    i. Plan views
    ii. Section views
    iii. Elevation views

Task 5 Deliverables

- Plans for a preliminary design level reconstruction alternative
- 30-year draft lifecycle maintenance and repair plan
- Class 3 cost estimates for the preliminary reconstruction design and draft maintenance plan

General Project Assumptions

1) A CAMA permit or permit decision will be required by regulatory agencies and the Town is responsible for permit acquisition.
2) The maintenance plans for both design options will not include damage projections related to hurricane, storm, or other natural disaster events. Such events are unpredictable in both frequency and intensity so meaningful projections are not feasible.
3) Project recommendations and design criteria will take current sea level rise projects into consideration for both the repair and reconstruction design process.
4) The Town will issue a building permit for either the repair or reconstruction options.
5) The anchor building connected to the base of the pier is not included during considerations for either design plan.
6) Current applicable ADA standards and requirements will be implemented for both repair and reconstruction design plan options.

7) HDR Engineering staff will visit the site and perform or witness inspections as required.
8) If the necessary condition assessment and inspections are completed and a review determines that either:
    i. The pier's current condition is substantially deteriorated such that structural integrity is seriously compromised;
    ii. The current structural elevation of the pier is determined (by HDR) to not be sufficient for the projected lifetime of the structure following a projected sea level rise analysis,

    in which case a recommendation will be made by HDR for the Town to cease further repair design efforts and only focus further efforts on the reconstruction design option. This recommendation would only be made in order to save the Town time and costs that would be unnecessarily incurred from pursuit of a repair scenario HDR has determined to be unfeasible. If the Town still requests completion of the preliminary repair design phase following HDR's recommendation, then HDR will still complete the preliminary repair design as otherwise outlined in this scope.

FEE

HDR proposes to provide the **Task 1-5** services on a lump sum basis for a total amount of **Two Hundred and Eighty Five Thousand Six Hundred and Sixty Dollars ($285,660).** A summary for each major task is listed below. No other services are presently expected. However, if additional services do become necessary, we will acquire authorization in advance from the Town and bill for these in accordance with HDR's most current rate schedule or at an agreed to lump sum fee. This Proposal is valid for 30 days.

Task	Amount Per Task
Task 1: Project Management and Administration	$31,832.26
Task 2: Geotechnical Services	$48,278.64
Task 3: Coastal Services	$27,809.22
Task 4: Preliminary Repair Design	$108,243.92
Task 5: Preliminary Reconstruction Design	$69,495.54
Total Proposed Budget (Tasks 1-5):	**$285,660.00**

PERFORMANCE SCHEDULE

The following tasks are planned to be completed within the timeline indicated below, counted forward from the date the Town issues the Notice to Proceed.

Task	Start (Months)	End (Months)
Data Gathering & Review	NTP	0.5
Structural Conditions Investigation & Assessment	0.5	2
Geotechnical Investigations & Reporting	0.5	2
Draft Preliminary Reconstruction Design & Cost Estimate	1	5
Draft Preliminary Repair Design & Cost Estimate	1.5	5
Draft Preliminary Design Maintenance & Repair Plans	2.5	5
Town Review & Comment	5	6
Finalize Draft Plans	6	7

Sincerely,
HDR Engineering, Inc. of the Carolinas

Fuller, William

Digitally signed by Fuller, William
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