

**City of Port Richey Dredging  
Geotechnical Data Collection and Opinions of Probable Costs  
C2008-053-03 [Work Order #4] Progress Summary  
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October 2009

<b>TASK NO. DESCRIPTION/PROGRESS SUMMARY</b>	<b>APPROX. % COMPLETE</b>
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<b>Task 1: Geotechnical Data Collection from Miller's Bayou &amp; Cotee River</b>	<b>75%</b>
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Taylor Engineering will coordinate with Ardaman and Associates (Ardaman), a subconsultant to Taylor Engineering to provide the City of Port Richey with a geotechnical investigation of the Miller's Bayou (Channels 1, 7, 8, 9, 10, 14, 15, 16, 17, 18, 24, and 26) and the Cotee River (Channels 2, 3, 4, 5, 6, 19, 20, 21, 22, 25, and 29). The focus of this investigation is to determine detailed geotechnical investigations needed to define the extent and quality (location, depths, thickness, hardness) of rock within the dredging template.

To approximate the amount of existing (pre-dredging) rock versus the amount of existing (pre-dredging) unconsolidated material (sand, shell, silt, clay, and muck) within the permitted dredging template, Taylor Engineering will conduct the following investigation and analysis. To evaluate the approximate volume of rock within the proposed dredging template, Taylor Engineering will analyze any existing reliable data and the results of the proposed geotechnical data collection (with protocols established in Ardaman's scope of services). From this information, Taylor Engineering will develop a series of three-dimensional (3D) surfaces for each channel based on the top and bottom of rock elevations encountered during the proposed geotechnical field investigation. Ardaman will collect approximately 40 Standard Penetration Test (SPT) borings within the permitted channels (excluding Channels 11 & 13) to evaluate the strength of the rock within the proposed dredging template.

Taylor Engineering will base these 3D surfaces on the lateral location of top and bottom of rock elevation for each boring. For those borings that did not encounter rock, Taylor Engineering will assume an elevation below the dredge template to ensure that the surface does not mistakenly calculate rock in these areas. These surfaces will assume a linear relationship between borings and a uniform cross section for each individual boring.

To determine the amount of existing rock within the dredging template, Taylor Engineering will use AutoCAD (Automatic Computer Aided Design) and proprietary programs to perform a series of "cut and fill" calculations. The calculations will provide a comparison of the various sediment stratum within each the created surfaces and the proposed dredging template. The result will yield an approximate calculated volume of rock within the dredging template of each channel.

Ardaman and Associates has completed their field investigation and written report. Taylor Engineering is in the process of calculating the amount of rock within Miller's Bayou.

<b>TASK 2: Preliminary Opinion of Probable Cost for Cotee River</b>	<b>15%</b>
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Taylor Engineering will provide the City of Port Richey with a preliminary opinion of probable cost for dredging channels within Cotee River (Channels 2, 3, 4, 5, 6, 19, 20, 21, 22, 25, and 29). The cost opinion will include all expected engineering, modification of the existing FDEP permit, establishment of special assessment district (provided by GSG), construction, and final permit certification expenses. Taylor Engineering will perform material take-offs to estimate the quantities of project construction materials. Taylor Engineering will research material unit costs, adjusted for the project location and current market conditions. Taylor Engineering will also attempt to obtain

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cost information from local contractors and material suppliers near the project. This opinion of probable cost will serve for planning purposes. Actual construction costs may vary depending on prevailing market conditions at the time of dredging.

Taylor Engineering has created the opinion of probable cost forms for this task and inputted data not related to the geotechnical investigation. This task is on hold the results of Task 1 (geotechnical investigation).

**TASK 3: Preliminary Opinion of Probable Cost for North Bay Boulevard 40%**

Taylor Engineering will provide the City of Port Richey with a preliminary opinion of probable cost to dredge permitted channels (numbers 11 & 13, and new channels 12, 23, and 30) within the North Bay Boulevard area. Providing adequate access (height, width, and depth clearance) to these five channels will require the construction of at least one bridge near the intersection of Channel 24 and Bay Boulevard, and possibly a second bridge between Green Street and Betty Street. Taylor Engineering will analyze the collected data and provide an opinion of probable cost for two channel alignments and the request bridge and road infrastructure needed to connect these channels with Channel 24.

Taylor Engineering will provide the city with an order of magnitude cost for the two bridges mentioned above. Taylor Engineering will base this cost on one site visit and one geotechnical boring. Taylor Engineering will not obtain topographic survey data, right-of-way location, or develop preliminary roadway or bridge design as typically performed for an engineering cost estimate. For each bridge, Taylor Engineering will assume the following:

- A required clearance for boat passage beneath the bridge of about 10 ft at MHW
- A required width for single boat passage beneath the bridge of 12 ft
- A minimum water depth of 6 ft at MLW
- Unencumbered, 24-hour access along Bay Blvd.

Based on these assumptions, simple field measurements, and one soil boring, Taylor Engineering will recommend a bridge type — culvert crossing, arch, or other type bridge — based on cost. With this determination, Taylor Engineering will contact pre-fabricated bridge suppliers for order of magnitude cost estimates. For the bridge approaches, Taylor Engineering will estimate soil fill, retaining wall costs (if necessary), and roadway costs. To determine potential effects to utilities, Taylor Engineering will contact the “Sunshine Call before You Dig” agency to identify utilities within the right-of-way. Based on information supplied by this agency, Taylor Engineering will provide an order of magnitude costs for utility work associated with bridge construction.

The cost opinion will include all expected permitting, engineering, establishment of special assessment district (provided by GSG), construction, and final permit certification expenses. Taylor Engineering will perform material take-offs to estimate the quantities of project construction materials. Taylor Engineering will research material unit costs, adjusted for the project location and current market conditions. Taylor Engineering will also attempt to obtain cost information from local contractors and material suppliers near the project. This opinion of probable cost will serve for planning purposes. Actual construction costs may vary depending on prevailing market conditions at the time of dredging.

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**Taylor Engineering believes the successful completion of this task will provide the city with the requisite cost information to proceed with one design alternative. Please note that at this time, the city does not have an active FDEP Environmental Resource Permit Application for any configuration of Channels 12, 23, and 30.**

The fieldwork component of the Taylor Engineering's bridge raising feasibility investigation for the Bay Boulevard Bridge is complete. Taylor Engineering has created the opinion of probable cost forms for this task and inputted data not related to the geotechnical investigation. The remainder of this task is on hold awaiting the results of Task 1 (geotechnical investigation).

**ANTICIPATED WORK NEXT MONTH:**

Ardaman and Associates has completed their field investigation and written report. Taylor Engineering is in the process of calculating the amount of rock within Miller's Bayou. Following the successful completion of this task, Taylor Engineering will complete the work on the Task 2 and 3 opinion of probable cost.