PARSONS BRINCKERHOFF

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September 28, 2011

Ms. Christine M. Buckley, P.E.
Environmental Engineer
Harford County Dept. of Public Works
Water Resources Engineering
212 S. Bond Street, 3rd Floor
Bel Air, MD 21014

RE: Heavenly Waters Pond Dam Removal Conceptual Plan Development

Dear Ms. Buckley,

Parsons Brinckerhoff (PB) is pleased to submit a proposal to develop a conceptual plan for the removal of the existing dam at Heavenly Waters Pond as discussed at our August 17, 2011. The pond is located in Heavenly Waters/Tollgate Park. An off-line pond was initially built in this location to aerate VOC levels associated with the upstream landfills. Sometime during the 1980's, the pond was modified and became an in-line facility. The existing embankment is in poor shape and is in need of repair. Because the pond is no longer needed to provide treatment for the upstream flows, removal of the embankment and restoration to a more natural stream/wetland habitat is proposed.

SCOPE OF WORK

Task 1.0 – Data Collection & Site Assessment

PB will gather existing information on the Heavenly Waters Pond and conduct a preliminary site assessment. The project team will consist of a Project Manager, Senior Civil Engineer, Senior Geotechnical Engineer, Senior Natural Resource Specialist, Professional Landscape Architect and a Water Resource Engineer. The Water Resource Engineer will also be performing any CADD and GIS work required on this project.

- **Collect and review existing data** (GIS, as-built information, etc.)
- **Conduct condition assessment** of existing pond including: visual structural and geotechnical investigation, topographic and bathymetric survey. The visual structural and geotechnical investigation will include a field visual assessment of the pond embankment, existing outfall structure and adjancent slopes. The geotechnical

engineer will also look for any evidences of potential seepage/soil piping and other modes of slope failure. The soil maps in the vicinity of the project will also be examined. Both the structural engineer and geotencnical engineer will paricpate in the evaluation and development of the proposed pond conversion concepts. Please note that a detailed topographic field-run survey will not be performed at this stage in order to reduce costs. PB will field verify key elevations such as pipe and stream inverts using a hand-held level in the field to ensure the viability of the proposed concepts.

- **Conduct natural resources field surveys.** This includes WUS/Wetland delineation and identification (dbh, size and condition) of trees 12" and greater located within a 50' radius of the existing pond. Tree locations shall be located using a hand held GPS unit (non-survey grade). The study area to be field investigated is approximately 1,100 linear in length and 400 feet wide, extending approximately 200 feet on both sides of the existing stream channel, and including the open water pond and any wetland fringe zones. The study area to be delineated extends 600 feet upstream of the pond and 200 feet downstream of the pond. It is assumed that any required access onto private property will not be required as the entire study area is on County-owned property.

- **Prepare and submit delineation report.** PB will prepare and submit a WUS/Wetland Identification/Delineation report or memorandum documenting the methods and results of the WUS/wetland delineation, including methods and results, as well as relevant figures, photographs and data sheets. Waterway/wetland boundaries will be depicted on project mapping, and included in the report. Upon review by Harford County, we will submit the report to relevant regulatory agencies prior to the pre-application jurisdictional determination field review. The report will be submitted to US Army Corps of Engineers and the Maryland Department of Environmental Nontidal Wetlands Division, and potentially DNR and USFWS, if those agencies express interest in the project.

- **Conduct stream stability assessment** of stream channel upstream to the next existing in-line pond and downstream to confluence with Winters Run. The PB team will conduct visual assessment, prepare geomorphic features map, conduct photodocumentation, look for bank full indicators, and document areas of channel instability using the Bank Erosion Hazard Index (BEHI) methodology. PB will process data and prepare preliminary write up in office. Write up shall include a preliminary analysis of existing topographic mapping with results of field survey to estimate potential sediment loading that could potentially be delivered downstream after dam breaching.

Task 2.0 – Conceptual Design

PB will study and analyze the results of the data collection and site assessment conducted as part of task 1 in order to develop up to three (3) workable alternatives. The "do nothing" option will not be included in this discussion because the embankment is currently leaking and has piping problems.

- Prepare base mapping using data collected from Sub-Task 1
    - Base mapping will be developed on 11x17 sheets and will include:
        - Key sheet (including a vicinity map)
        - Plan sheet (up to two)
- Develop & analyze design alternatives (up to 3 workable options), include:
    - Description of each alternative and limits of work
    - Preliminary hydrology using Maryland Regional Regression Equations and design discharge estimates based on regional curves (USFWS curves)
    - Approximate proposed channel dimensions
    - Approximate cut/fill quantities
    - 11x17 base map
    - Pros/cons of each alternative
- Prepare preliminary cost estimate for all alternatives
- Finalize report and conceptual design plans

Task 3.0 – Environmental Permitting Coordination

PB understands that no agency coordination has been conducted on this project. After preparation of the conceptual design, PB will contact the agencies and schedule a pre-application meeting to discuss the proposed project.

- **Agency Coordination/Correspondence** - Parsons Brinkerhoff will prepare 4 agency letters initiating coordination with regulatory/resource agencies regarding any resource concerns. Letters will be prepared and submitted as follows:

- Maryland Department of Natural Resources (DNR) Wildlife and Heritage Division – requesting any information regarding known state-listed rare, threatened or endangered species in the study area.
- Maryland Department of Natural Resources (DNR) Environmental Review Unit– regarding known fisheries concerns and stream designations/time of year construction restrictions.
- United States Fish and Wildlife Service (USFWS) – regarding federally-listed threatened or endangered species
- Maryland Historical Trust (MHT) – requesting any information regarding known historic or archeological resources of concern in the study area.
- The letters will include a brief description of the proposed concept design along with a study area location map. Each letter will request information or data as outlined above.

- **Interagency Pre-Application Meeting** – Parson Brinckhoff will coordinate, prepare for and attend an interagency field meeting. All interested regulatory/resource agencies will be invited, including US Army Corps of Engineers (Corps), Maryland Department of Environment (MDE) Nontidal Wetlands Division, DNR, USFWS, and MHT. Parsons Brinckhoff will prepare an agenda, mapping, reports, or other information that will facilitate a productive meeting and encourage agency input at the early concept design phase. This field meeting will also be used to obtain a waterway/wetland jurisdictional determination from the Corps and MDE. Meeting minutes will be prepared documenting outcomes of meeting and to maintain on file as part of the project records.

Task 4.0 – Meetings

PB will attend up to four (4) project meetings. The meetings are described as follows:

- Project kick-off meeting – Project kickoff meeting will be held after notice to proceed is issued.
- Attend progress meetings (2) – Project meetings will be scheduled at the request of the County.
- Attend community meeting (1) – The purpose of the community meeting will be to present the preferred concept design to the community.

The professional services fee for performance of this tasks is $ 49,739.36. The attached man-hour estimate provides detailed hours estimates by sub-tasks and overall project cost.

PARSONS BRINCKERHOFF

The PB Team looks forward to supporting Harford County in this project. If you have any questions or comments on this proposal, please do not hesitate to contact PB's project manager, Chin Lien at 410-385-4186

Very truly yours,

PB Americas, Inc.

Gerald Jannetti, P.E.

Principal in Charge

Area Manager, Maryland, Delaware and West Virginia

Harford County

Heavenly Pond Scope and Manhour Estimate

September 28, 2011

Task	PB Project Manager	Sr Civil Engineer	Sr. Geotechnical Engineer	Sr. Natural Resource Specialist	Prof Landscape Architect	Water Resources Engineer	Total
1.0 - Data Collection & Site Assessment							
							0
Collect and review existing data (GIS, as-built information, etc.)	1	4				8	**13**
Conduct condition assessment of existing pond including: visual structural and geotechnical investigation, topographic and bathymetric survey.	1	8	8		4	16	**37**
Conduct field surveys. This includes WUS/Wetland delineation and identification (dbh, size and condition) of trees 12" and greater located within a 50' radius of the existing pond. GPS flags for mapping.				8		8	**16**
Prepare/Submit Delineation Report. Report shall include findings, mapping, and photographs of the wetlands, WUS and trees found during field surveys.	1	6		4		24	**35**
Conduct stream stability assessment of stream channel upstream to next in-line pond and downstream to confluence with Winters Run.	1	8				16	**25**
							0
2.0 - Conceptual Design							
Prepare base mapping using data collected from Sub-Task 1	1	16			4	32	**53**
Develop & analyze design alternatives (up to 3 workable options)	4	24	8	4	8	60	**108**
Prepare preliminary cost estimate for all alternatives	1	8			4	16	**29**
Finalize report and conceptual design plans	1	16		1	8	64	**90**
							0
3.0 - Environmental Permitting Coordination							
Agency Coordination/Correspondence		4		4		2	**10**
Interagency Pre-Application Meeting/Jurisdictional Determination	1	8		7		4	**20**
4.0 - Meetings							
Project kick-off meeting	2	4					**6**
Attend progress meetings (2)	2	8					**10**
Attend community meeting (1)		4					**4**
							0
Total Hours by Classification =	**16**	**118**	**16**	**28**	**28**	**250**	**456**

PB Americas, Inc. Cost Breakdown

9/28/2011

Direct Labor Costs	Labor Hours	Bill Rate	Total Labor Costs
Project Manager	16	$ 173.70	$ 2,779.20
Sr Civil Engineer	118	$ 153.86	$ 18,155.48
Sr. Geotechnical Engineer	16	$ 126.77	$ 2,028.32
Sr. Natural Resource Specialist	28	$ 101.36	$ 2,838.08
Prof Landscape Architect	28	$ 127.21	$ 3,561.88
Water Resources Engineer	250	$ 79.54	$ 19,885.00
	456		

Total Billable Cost (includes overhead, burden & profit) $ 49,247.96

Direct Expenses

Category	Unit	Amount	Unit Cost	Cost
Mileage	miles	500	$ 0.555	$ 277.50
Photocopies - BW	each	1,000	$ 0.07	$ 70.00
Photocopies - Color	each	150	$ 0.96	$ 144.00
Total Direct Expenses				$ 491.50
Total Estimated Cost				$ 49,739.46