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**Golder
Associates**

RECEIVED
2/12/99

VIA FACSIMILE AND U.S. MAIL

FAXED
2/11/99

February 11, 1999

P99-3925

Nassau County Board of County Commissioners
3163 Bailey Road
P.O. Box 1010
Fernandina Beach, Florida 32035

Attn: Mr. Walter D. Gossett
County Coordinator

RE: PROPOSAL FOR ADDRESSING PHASE IV FOUNDATION ISSUES
WEST NASSAU CLASS I LANDFILL
NASSAU COUNTY, FLORIDA

Dear Mr. Gossett:

Golder Associates Inc. (Golder) is pleased to submit this proposal and cost estimate to Nassau County for professional services to evaluate specific conditions in the Phase IV subgrade for the West Nassau Class I Landfill in Nassau County. This proposal is submitted following a request by the County engineering services negotiating committee during a meeting on January 19, 1999.

Specifically, two issues regarding the Phase IV liner foundation will be addressed. The first is the need for an underdrain to collect groundwater seepage from the side slopes of the Phase IV excavation. The second is to evaluate the need for stabilization of the liner system over the old slurry wall which runs generally through the middle of Phase IV. The scope of services for addressing each issue separately is presented below.

SCOPE OF SERVICES

Task 1 - Evaluate Underdrain Requirement

Task 1 will cover the evaluation of the need for an underdrain below the Phase IV liner system. Golder understands that, during construction of Cells 10, 12, and 14 of Phase II, an underdrain was required below the liner system to collect and control groundwater seepage which was flowing into the excavation for the landfill cells. The seepage was apparently flowing from a limestone marl layer which outcrops within a portion of the side slopes. This underdrain

APPROVED

DATE 2/22/99 *JML*

consisted of a perforated collection pipe installed near the bottom of the limestone marl layer, a geocomposite drainage layer on the side slope along the bottom 12.5 feet of the marl, and a 12-inch thick compacted clay foundation layer over the entire marl outcrop to provide a seepage barrier and a relatively dry foundation on which to place the compacted clay liner component of the liner system. We also understand that the current general contractor for Phase IV construction has submitted a change order to the County in the amount of \$64,500 to construct the underdrain in Phase IV.

Golder performed a site visit with Ms. Marianne Marshall, County Commissioner, and Mr. Robert McIntyre, County Solid Waste Director, on January 20, 1999. Based on observations of the seepage into the excavation of Phase IV at the time of the site visit, Golder concurs that an underdrain system will be required to intercept groundwater flow to allow construction of the liner system. The scope of Task 1 would essentially consist of a brief letter to the County recommending the need for an underdrain, and would also present any recommendation for improvement to the design. We anticipate that one additional site visit would be required, which could be combined with the work performed on Task 2.

Task 2 - Design Slurry Wall Liner Support

Task 2 will consist of the preparation of a design for support of the liner system over the old slurry wall which transects the base of Phase IV. This design will most likely consist of a combination of over-excavation of the subgrade by several feet along the alignment of the slurry wall and backfilling of the over-excavation with a structural fill reinforced with a geogrid or a high strength woven geotextile. Golder will prepare a cross section detail of the support works which will show typical depth and width of the over-excavation as well as the spacing and material type of the reinforcement layers. The detail will show specifications for the backfill material, compaction of the backfill, and the reinforcement type and/or product.

Golder will require a plan from the County showing the location of the slurry wall through Phase IV area, as well as any as-built information on the original trench width, bentonite content, and depth. We do not anticipate any additional field investigation unless this as-built information is not available. Additional field investigation is not covered in our cost estimate.

It should be noted that Golder assumes that no permit modification will be required from the Florida Department of Environmental Protection (FDEP) for this foundation support and that it will be documented in the final construction certification report following completion of the Phase IV liner system.

SCHEDULE

Golder will complete the work in Tasks 1 and 2 within two weeks of our receipt of written notice to proceed from the County.

COST ESTIMATE

Golder Associates' cost estimate to complete this work is \$4,805.00 based on the scope of services as outlined above. A detailed breakdown of this cost estimate is presented in Table 1, which is attached to this letter.

Golder Associates proposes to perform this work on a cost reimbursable not-to-exceed basis in accordance with the labor and unit rates listed in Table 1. The County will only be billed actual hours and expenses incurred on the project for work within the agreed scope of work. Direct expenses will be marked-up 10 percent for administrative purposes. Photocopies, computer and CADD time will be billed at the unit rates listed in Table 1. Travel and communications costs will not be billed to Nassau County as stated in our August 1998 proposal. The cost estimate will not be exceeded without prior authorization from Nassau County.

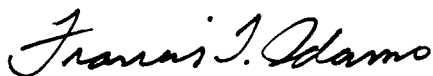
TERMS AND CONDITIONS

This work will be performed under the agreement for solid waste engineering services which is currently being negotiated between Golder Associates and the County.

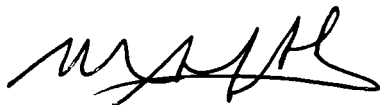
Golder Associates appreciates this opportunity to provide engineering services to Nassau County. If you have any questions regarding this proposal, please do not hesitate to call.

Very truly yours,

GOLDER ASSOCIATES INC.



Francis T. Adams, P.E.
Senior Project Manager



Mark A. Swallow, P.E.
Engineering Group Leader/Associate

MAS/FTA:

Attachment

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TABLE 1
Cost Estimate
Phase IV Foundation Issues
West Nassau Landfill
Callahan, Nassau County, Florida

LABOR		LABOR CATEGORY AND RATE										TOTAL HOURS	SUBTOTAL LABOR
		Principal \$130	Associate \$110	Senior Proj. Mgr. \$105	Senior Engineer \$95	Project Engineer \$75	Staff Engineer I \$60	Staff Engineer II \$55	Drafting \$45	Technician \$40	Clerical \$40		
TASK	DESCRIPTION												
1	Evaluate Underdrain Requirement	0	0	6	0	8	0	0	0	0	2	16	\$1,310
2	Design Slurry Wall Liner Support	0	0	12	0	20	0	0	8	0	2	42	\$3,200
TOTALS:		0	0	18	0	28	0	0	8	0	4	58	\$4,510

EXPENSES		Field Vehicle (day) \$75	Per Diem (day) \$25	Communi- cations (est.)	Mileage (mile) \$0.31	Shipping/ Postage (est.)	Lab Testing (est.)	Office Computer (hr) \$10	AutoCAD Computer (hr) \$20	Photo- copying (each) \$0.15	Field Equipment (est.)	Subcon- tractors (est.)	SUBTOTAL EXPENSES
TASK	DESCRIPTION												
1	Evaluate Underdrain Requirement	0	0	\$0	0	\$15	\$0	2	0	100	\$0	\$0	\$50
2	Design Slurry Wall Liner Support	0	0	\$0	0	\$50	\$0	2	8	100	\$0	\$0	\$245
TOTALS:		\$0	\$0	\$0	\$0	\$65	\$0	\$40	\$160	\$30	\$0	\$0	\$295

COST SUMMARY				
TASK	DESCRIPTION	SUBTOTAL LABOR	SUBTOTAL EXPENSES	TASK TOTAL
1	Evaluate Underdrain Requirement	\$1,310	\$50	\$1,360
2	Design Slurry Wall Liner Support	\$3,200	\$245	\$3,445
TOTALS		\$4,510	\$295	\$4,805