




CITY of NOVI CITY COUNCIL

Agenda Item L
September 22, 2008

SUBJECT: Approval to award a construction contract for the Meadowbrook Commons Detention Basin Improvement project to A&M Construction, the lowest responsive bidder, in the amount of \$53,496.

SUBMITTING DEPARTMENT: Parks, Recreation & Forestry; Engineering ¹⁻²¹

CITY MANAGER APPROVAL 

EXPENDITURE REQUIRED	\$53,496
AMOUNT BUDGETED	\$60,000
APPROPRIATION REQUIRED	N/A
LINE ITEM NUMBER	594-000.00-941.000

BACKGROUND INFORMATION:

Last fall, Public Works and Meadowbrook Commons staff requested assistance from the Engineering Department in regard to the on-site stormwater detention basin at the Senior Center. Public Works representatives reported that the basin's outlet structure was difficult to maintain, and Meadowbrook Commons staff indicated that the periphery of the basin was overgrown with cattails that block the residents' view of the water feature.

Spalding DeDecker investigated the site and subsequently prepared a brief report with recommendations for retrofitting the basin (SDA's October 25, 2007 report, attached). Specifically, the project will include removing accumulated sediments and retrofitting the outlet structure to facilitate ease of maintenance and improve detention capacity. In addition to basin improvements, Meadowbrook Commons staff requested that the correction of building drainage issues and the rehabilitation of a boulder retaining wall along the south side of the basin also be included in the project scope.

The project was designed last winter and spring, and the original intent was to bid and construct the project this past summer; however, the reconstruction of Cherry Hill Road delayed this work. Now that Cherry Hill reconstruction is completed, competitive bids have been solicited.

Nine bids were received and opened on September 12, 2008 following a public solicitation period. The low bidder is A&M Construction of Washington Twp., Michigan. A&M's bid is recommended as being in the best interest of the City as it is responsive (i.e., A&M has complied with all requirements of the bidding instructions) and it is the lowest price. (SDA's award recommendation letter dated September 15, 2008 is attached). A summary of the nine bids is as follows:

<i>Company</i>	<i>Bid Amount</i>
A&M Construction	\$53,496.00
D&M Contracting	\$59,957.00
D&R Earthmoving	\$71,999.00
B&D David Doz	\$73,303.20
D&E Landscaping	\$73,552.76
Harte, Inc.	\$87,130.00
Anglin Civil Constructors	\$99,317.53
International Construction	\$103,082.89
Kensington Valley Constr.	\$104,725.90

Construction is scheduled to begin in October and will be completed in November 2008.

RECOMMENDED ACTION: Approval to award a construction contract for the Meadowbrook Commons Detention Basin Improvement project to A&M Construction, the lowest responsive bidder, in the amount of \$53,496.

	1	2	Y	N
Mayor Landry				
Mayor Pro Tem Capello				
Council Member Crawford				
Council Member Gatt				

	1	2	Y	N
Council Member Margolis				
Council Member Mutch				
Council Member Staudt				



September 15, 2008

Rob Hayes, City Engineer
City of Novi
Engineering Department
45175 West 10 Mile Road
Novi, Michigan 48375

Re: Meadowbrook Commons Detention Pond Excavation - Recommendation Letter
SDA Job No.: NV07-018

Dear Mr. Hayes:

Subsequent to the bid opening for the Meadowbrook Commons Detention Pond Excavation on Friday, September 12, 2008, the low bidder as-read was A & M Construction Company, LLC, 12387 31 Mile Road, Washington, Michigan 48095. Based upon our review of A & M Construction Company's bid tabulation, and based upon the information provided by the bidder, discussion with references and a discussion with the Contractor, Mr. Tony Volpe, we find the low bidder A & M Construction Company, LLC, satisfactory to perform the work under this contract.

Accordingly, we recommend that the low bidder, **A & M Construction Company, LLC.**, be awarded the contract for the Meadowbrook Commons Detention Pond Excavation in the amount of **\$53,496.00**, conditional upon receiving acceptable bonds and insurances, as required in the contract documents.

Please notify us once your office has approved the contract award, in order for us to prepare the contract documents for execution. Please do not hesitate to contact our office if you have any questions regarding this matter.

Sincerely,

SPALDING DEDECKER ASSOCIATES, INC.

David L. Potter, PE, Vice-President
Manager – Municipal and Construction Engineering

Attachments: Bid-Tab Dated September 15, 2008.

cc: Jim Van Tiflin, PE, SDA Project Manager
Taylor Reynolds, PE, SDA Project Engineer
SDA Job File, SDA Chronological File

BID TAB: MEADOWBROOK COMMONS DETENTION POND

JOB NO.: NV07-018

DATE PREPARED: 9/15/2008

OWNER: CITY OF NOVI
 45175 W. TEN MILE RD.
 NOVI, MI 48375
 PHONE: (248) 347-0456

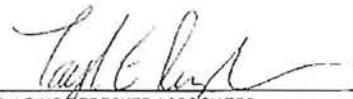
ENGINEER: SPALDING DEDECKER ASSOCIATES
 905 SOUTH BLVD EAST
 ROCHESTER HILLS, MI 48307
 PHONE: (248) 844-5400

ITEM NO.	DESCRIPTION	UNIT	QTY	A&M CONSTRUCTION		D&M CONTRACTING		D&R EARTHMOVING	
				UNIT PRICE	CONTRACT AMOUNT	UNIT PRICE	CONTRACT AMOUNT	UNIT PRICE	CONTRACT AMOUNT
MEADOWBROOK COMMONS DETENTION POND									
1	Bonds, Insurance and Initial Set-Up Expense (3% Max)	LS	1	\$1,500.00	\$1,500.00	\$3,200.00	\$3,200.00	\$2,000.00	\$2,000.00
2	Audio/Visual DVD Coverage	LS	1	\$1,300.00	\$1,300.00	\$1,400.00	\$1,400.00	\$1,500.00	\$1,500.00
3	Detention Basin Dewatering	LS	1	\$3,100.00	\$3,100.00	\$2,400.00	\$2,400.00	\$2,655.25	\$2,655.25
4	Temporary Mud Tracking Control	EA	1	\$540.00	\$540.00	\$1,400.00	\$1,400.00	\$1,750.00	\$1,750.00
5	Sediment Removal & Basin Reshaping	CY	810	\$8.74	\$7,079.40	\$15.00	\$12,150.00	\$17.00	\$13,770.00
6	Remove Temporary Sediment Structure and 8" DI Piping	EA	1	\$1,680.00	\$1,680.00	\$600.00	\$600.00	\$8,500.00	\$8,500.00
7	30" RCP culvert	LF	16	\$128.50	\$2,056.00	\$68.00	\$1,088.00	\$225.00	\$3,600.00
8	30" RCP End Section w/bar screen	EA	1	\$1,843.00	\$1,843.00	\$1,100.00	\$1,100.00	\$2,000.00	\$2,000.00
9	Install Slide Gate Waterman A-9	LS	1	\$1,600.00	\$1,600.00	\$7,400.00	\$7,400.00	\$5,000.00	\$5,000.00
10	5' Overflow Manhole	EA	1	\$3,750.00	\$3,750.00	\$2,400.00	\$2,400.00	\$3,750.00	\$3,750.00
11	Stoner Rip Rap (8" - 15")	SF	485	\$4.76	\$2,308.60	\$6.00	\$2,910.00	\$3.75	\$1,818.75
12	Roof Drain Collection System	LS	1	\$2,800.00	\$2,800.00	\$7,500.00	\$7,500.00	\$8,700.00	\$8,700.00
13	Rebuild Boulder Retaining Wall	LF	250	\$67.00	\$16,750.00	\$44.00	\$11,000.00	\$45.00	\$11,250.00
14	Remove & Replace Tree	EA	4	\$500.00	\$2,000.00	\$415.00	\$1,660.00	\$500.00	\$2,000.00
15	Silt Fence	LF	370	\$2.70	\$999.00	\$1.20	\$444.00	\$1.50	\$555.00
16	Low Point Inlet Filter	EA	2	\$27.00	\$54.00	\$300.00	\$600.00	\$100.00	\$200.00
17	Detention Basin Seed Mix	SY	1200	\$1.98	\$2,376.00	\$0.90	\$1,080.00	\$1.00	\$1,200.00
18	3" Topsoil & Hydro-Seed	SY	500	\$3.52	\$1,760.00	\$3.25	\$1,625.00	\$3.50	\$1,750.00
TOTAL BID AMOUNT					\$53,496.00		\$59,957.00		\$71,999.00

ENGINEER'S ESTIMATE: \$50,000.00

OTHER BIDDERS
 D&E LANDSCAPING & GRADING \$73,552.76
 B&D DAVID DOZ \$73,303.20
 HARTE, INC. \$87,130.00
 ANGLIN CIVIL CONST. \$99,317.53
 INTERNATIONAL CONST. \$103,082.89
 KENSINGTON VALLEY \$107,725.90

AND CORRECT SUMMARY OF THE PROPOSALS RECEIVED
 I HEREBY CERTIFY THAT THE ABOVE IS THE TRUE



SPALDING DEDECKER ASSOCIATES

* BID CORRECTED BY SDA

BID TAB: MEADOWBROOK COMMONS DETENTION POND

OWNER: CITY OF NOVI
 45175 W. TEN MILE RD.
 NOVI, MI 48375
 PHONE: (248) 347-0456

ITEM NO.	UNIT	QTY	D&E LANDSCAPING & GRADING		B&D DAVID DOZ		HARTE, INC.		
			UNIT PRICE	CONTRACT AMOUNT	UNIT PRICE	CONTRACT AMOUNT	UNIT PRICE	CONTRACT AMOUNT	
MEADOWBROOK COMMONS DETENTION POND									
1	Bonds, Insurance and Initial Set-Up Expense (3% Max)	LS	1	\$2,206.56	\$2,206.56	\$2,500.00	\$2,500.00	\$2,000.00	\$2,000.00
2	Audio/Visual DVD Coverage	LS	1	\$1,450.00	\$1,450.00	\$1,400.00	\$1,400.00	\$2,000.00	\$2,000.00
3	Detention Basin Dewatering	LS	1	\$2,600.00	\$2,600.00	\$8,000.00	\$8,000.00	\$4,500.00	\$4,500.00
4	Temporary Mud Tracking Control	EA	1	\$1,560.00	\$1,560.00	\$1,100.00	\$1,100.00	\$2,000.00	\$2,000.00
5	Sediment Removal & Basin Reshaping	CY	810	\$20.92	\$16,945.20	\$18.00	\$14,580.00	\$30.00	\$24,300.00
6	Remove Temporary Sediment Structure and 8" DI Piping	EA	1	\$1,000.00	\$1,000.00	\$500.00	\$500.00	\$1,500.00	\$1,500.00
7	30" RCP culvert	LF	16	\$154.00	\$2,464.00	\$100.00	\$1,600.00	\$200.00	\$3,200.00
8	30" RCP End Section w/bar screen	EA	1	\$2,500.00	\$2,500.00	\$1,900.00	\$1,900.00	\$1,500.00	\$1,500.00
9	Install Slide Gate Waterman A-9	LS	1	\$3,990.00	\$3,990.00	\$5,900.00	\$5,900.00	\$4,500.00	\$4,500.00
10	5' Overflow Manhole	EA	1	\$6,700.00	\$6,700.00	\$6,900.00	\$6,900.00	\$7,500.00	\$7,500.00
11	Stoner Rip Rap (8" - 15")	SF	485	\$4.20	\$2,037.00	\$4.12	\$1,998.20	\$8.00	\$3,880.00
12	Roof Drain Collection System	LS	1	\$11,410.00	\$11,410.00	\$7,000.00	\$7,000.00	\$7,500.00	\$7,500.00
13	Rebuild Boulder Retaining Wall	LF	250	\$43.60	\$10,900.00	\$48.00	\$12,000.00	\$48.00	\$12,000.00
14	Remove & Replace Tree	EA	4	\$450.00	\$1,800.00	\$400.00	\$1,600.00	\$700.00	\$2,800.00
15	Silt Fence	LF	370	\$2.50	\$925.00	\$2.50	\$925.00	\$5.00	\$1,850.00
16	Low Point Inlet Filter	EA	2	\$170.00	\$340.00	\$500.00	\$1,000.00	\$200.00	\$400.00
17	Detention Basin Seed Mix	SY	1200	\$1.75	\$2,100.00	\$1.50	\$1,800.00	\$3.50	\$4,200.00
18	3" Topsoil & Hydro-Seed	SY	500	\$5.25	\$2,625.00	\$5.20	\$2,600.00	\$3.00	\$1,500.00
TOTAL BID AMOUNT					\$73,552.76	\$73,303.20	\$87,130.00		

ENGINEER'S ESTIMATE: \$50,000.00

OTHER BIDDERS
 D&E LANDSCAPING & GRADING \$73,552.76
 B&D DAVID DOZ \$73,303.20
 HARTE, INC. \$87,130.00
 ANGLIN CIVIL CONST. \$99,317.53
 INTERNATIONAL CONST. \$103,082.89
 KENSINGTON VALLEY \$107,725.90

* BID CORRECTED BY SDA

BID TAB: MEADOWBROOK COMMONS DETENTION POND

OWNER: CITY OF NOVI
 45175 W. TEN MILE RD.
 NOVI, MI 48375
 PHONE: (248) 347-0456

ITEM NO.	UNIT	QTY	ANGLIN CIVIL CONST.		INTERNATIONAL CONST.		KENSINGTON VALLEY		
			UNIT PRICE	CONTRACT AMOUNT	UNIT PRICE	CONTRACT AMOUNT	UNIT PRICE	CONTRACT AMOUNT	
MEADOWBROOK COMMONS DETENTION POND									
1	LS	1	\$3,311.13	\$3,311.13	\$2,514.25	\$2,514.25	\$3,177.96	\$3,177.96	
2	LS	1	\$1,665.00	\$1,665.00	\$1,200.00	\$1,200.00	\$250.00	\$250.00	
3	LS	1	\$11,100.00	\$11,100.00	\$7,500.00	\$7,500.00	\$1,300.00	\$1,300.00	
4	EA	1	\$2,775.00	\$2,775.00	\$1,200.00	\$1,200.00	\$370.00	\$370.00	
5	CY	810	\$31.08	\$25,174.80	\$40.75	\$33,007.50	\$70.82	\$57,364.20	
6	EA	1	\$1,665.00	\$1,665.00	\$2,750.00	\$2,750.00	\$800.00	\$800.00	
7	LF	16	\$111.00	\$1,776.00	\$78.39	\$1,254.24	\$193.75	\$3,100.00	
8	EA	1	\$2,442.00	\$2,442.00	\$1,650.00	\$1,650.00	\$1,280.00	\$1,280.00	
9	LS	1	\$13,320.00	\$13,320.00	\$3,762.75	\$3,762.75	\$2,434.04	\$2,434.04	
10	EA	1	\$4,995.00	\$4,995.00	\$3,916.40	\$3,916.40	\$4,044.00	\$4,044.00	
11	SF	485	\$11.10	\$5,383.50	\$8.15	\$3,952.75	\$4.92	\$2,386.20	
12	LS	1	\$5,328.00	\$5,328.00	\$8,150.00	\$8,150.00	\$6,117.00	\$6,117.00	
13	LF	250	\$35.52	\$8,880.00	\$66.25	\$21,562.50	\$36.75	\$9,187.50	
14	EA	4	\$666.00	\$2,664.00	\$900.00	\$3,600.00	\$500.00	\$2,000.00	
15	LF	370	\$3.33	\$1,232.10	\$1.25	\$462.50	\$1.50	\$555.00	
16	EA	2	\$166.50	\$333.00	\$100.00	\$200.00	\$250.00	\$500.00	
17	SY	1200	\$4.44	\$5,328.00	\$2.00	\$2,400.00	\$5.10	\$6,120.00	
18	SY	500	\$3.89	\$1,945.00	\$8.00	\$4,000.00	\$13.48	\$6,740.00	
TOTAL BID AMOUNT				\$99,317.53		\$103,082.89		\$107,725.90	

ENGINEER'S ESTIMATE: \$50,000.00

OTHER BIDDERS
 D&E LANDSCAPING & GRADING \$73,552.76
 B&D DAVID DOZ \$73,303.20
 HARTE, INC. \$87,130.00
 ANGLIN CIVIL CONST. \$99,317.53
 INTERNATIONAL CONST. \$103,082.89
 KENSINGTON VALLEY \$107,725.90

* BID CORRECTED BY SDA

City of Novi - Meadowbrook Commons

Detention Pond Analysis

October 25, 2007



Background

The Meadowbrook Commons Senior Center is located along the west side of Meadowbrook Road, north of Ten Mile Road, and immediately south of Cherry Hill Drive. In 2000, construction was initiated on the facility. As a part of the site improvements, a 10-year design storm detention basin was constructed along the south side of Cherry Hill Road, immediately west of the development's entrance, which collects surface and roof runoff flows through enclosed storm sewers from the Senior Center facility. The detention basin outlets through an enclosed storm sewer and oil/gas separator structure directed to the east and outlets into the ditch on the west side of Meadowbrook Road. Records indicate that the east side of the detention basin was constructed partially over existing landfill materials. Original design plans and environmental reports show that efforts were taken to maintain adequate separation between the landfill soils and the detention pond by constructing a clay liner to seal the basin from the landfill materials.

The City is concerned with the ability of this pond to perform as designed in its current condition. It is understood that the priorities with regard to the detention basin are restoring storm water detention volume in the basin and addressing deficiencies in the enclosed outlet system downstream of the basin.

Scope of Services

Pursuant to the City's request, SDA has surveyed and analyzed the detention pond at Meadowbrook Commons along with the inlets and downstream outlet system in order to address concerns with the condition of the enclosed outlet system and storm water storage within the detention basin. We have reviewed historical soils reports on this site as well as the original design plans for the detention pond and outlet system. With regard to detention basin volume, we have performed a cross-sectional survey to accurately define the shape and existing volume of the detention basin. We have also provided a field survey of the outlet system and basin elevations. Additional inspection has been performed inside each existing structure (where accessible). Details of specialized structures were noted and compared to the design plans. Our findings are outlined below for your use.

Design Conditions

The detention pond was originally designed to detain flows from a 10-year storm, with a design volume of 46,927 cf. The pond has three inlets (8", 15", and 30" diameter) and a designed permanent water surface area of 1,430 sf near the outlet point. The maximum storage is 3.5' deep to an elevation of 977.5, again near the outlet point as the basin bottom slopes from west to east (outlet end). The pond is designed to be substantially dry. A proposed 8" restrictor was sized to allow agricultural discharge rates (0.2 cfs per acre) flow into the storm sewer system during a design storm event. Downstream of the restrictor, a permanent oil/grease separator structure and 100-year overflow structure

were proposed, which flows into an enclosed storm sewer system east to Meadowbrook Road. Additionally, a temporary sedimentation structure was installed at the pond's outlet to reduce sediment entering the outlet storm sewer system. This structure was to be kept in place throughout site construction and removed once final grading was complete after vegetation was established.

Plans and/or reports show that the east end of the detention basin was designed partially over the landfill materials. The soils reports from this design recommended a liner be placed beneath the east end of the basin to maintain separation of the soils. It is unclear how much, if any, clay liner was installed to provide this separation.

Outlet System – Existing Conditions

Our field information has verified that the outlet storm sewer system from the entrance drive catch basins east to the structure in Meadowbrook Road is in general conformance to the designed outlet system. Upstream (west) of the entrance drive, the following non-conformities have been identified:

1. The designed 5' diameter overflow structure was not installed. Analysis - Without this overflow structure in place, water in the pond has the potential to flood overland to the drive and parking areas if the 10-year design storm is exceeded or the restrictor becomes blocked or obstructed. Additionally, water levels that exceed the design storm will surcharge the on-site collection system.
2. The proposed temporary sedimentation control structure is still in place, although it has been modified from the original design. The designed intake holes are clogged and a portion of the corrugated standpipe has been cut and bent down, as shown in the adjacent photo. The outlet from the temporary sedimentation control structure was designed as a 30" concrete pipe (with an 8" restrictor) connecting to the oil/gas separator structure. The constructed outlet of the temporary sedimentation control structure exists as an 8" ductile iron pipe



1.1 Sedimentation Control Structure

City of Novi - Meadowbrook Commons

Detention Pond Analysis

October 25, 2007



connected directly to the oil/grease separator. Analysis – Debris in the temporary sedimentation control structure is likely clogging the restrictor, reducing the pond's ability to de-water in design time frames. This structure was designed to be temporary and no longer serves its intended purpose. The original plans called for the removal of this structure and installation of a concrete end section, which never happened.

3. For the oil/gas separator structure, the design plans indicate the structure was to be 12' in depth. Our field information indicates this structure is only 9' deep. A more shallow structure may have been made as a field change to avoid impact into landfill materials. Analysis – In our opinion the structure's depth is not a significant factor in its proper operation. The reduced depth does result in reduced storage volume for sediment and misc. debris and creates a more frequent need for maintenance (i.e. pumping out the sediment, debris & grease), but this does not warrant replacement.
4. The design plans also call for an underdrain system adjacent to the outlet piping east of the pond; however, the location and limits of constructed improvements could not be confirmed in the field. Additionally, the design plans do not indicate the limits or outlet point for the underdrain.

Detention Basin – Existing Conditions

A field survey of the detention basin was performed. The top of bank surrounding the basin was field located at approximately elevation 877.0', which is 2' lower than the design freeboard (elevation 879.0'). We do not consider this a significant concern since the grades surrounding the detention pond continue to rise well beyond the 879.0' elevation with no impact to existing facilities (buildings, homes or other structures). Furthermore, the detention basin does not exist in a dedicated easement area for which freeboard limits would be restricted. The inlet pipe locations and elevations are consistent with the original design. The following inconsistencies have been identified to affect the detention volume of the pond:



1.2
Detention Pond

City of Novi - Meadowbrook Commons

Detention Pond Analysis

October 25, 2007



1. The basin low water elevation is designed at 874.0'. The modifications to the temporary sedimentation control structure previously described have effectively raised the outlet 1.0', which has eliminated a portion of the detention volume in the detention basin.
2. A good amount of sediment has deposited in the basin. Based on the vegetation growth in the pond over the sediment, most of the sediment was probably deposited during building construction on site. The vegetation growth in the basin and the side slopes has helped to stabilize the sediment material over time. Our field information shows that the bottom of the pond ranges from 874.6' to 875.4', which averages approximately 1.0' above the design low water level, reducing required detention volume. The design volume of the detention pond from the construction plans prepared by Ziemet/Wozniak was 46,927 cf. Based on basin cross-sections, the existing volume to the design high water level without surcharging the collection system is 37,947 cf. This amounts to a current deficiency of 8,980 c.f. or 19% of original volume.

Recommendations

Upon comparison of the original design requirements against the current conditions, the following recommendations are provided to restore the system to its original design conditions. Recommendations are made with regard to modifications to the outlet system and the detention basin.

Outlet System

1. Remove the temporary sedimentation control structure and 8" ductile iron pipe to the oil/grease separator. Construct a 30" concrete storm sewer with end section and bar screen per the original design with appropriate rip rap for soils control and to provide a base for the end section. This will restore the system outlet level to the designed low water level.
2. Construct an overflow structure (5' catch basin w/ 2' sump and grate cover) in line with the existing 30" storm sewer outlet downstream (east) of the oil/gas structure. Care will need to be taken during construction so as not to impact any clay liner that may exist in that area.
3. Grout a new 8" PVC restrictor in the 30" outlet pipe to the oil/gas structure. This will provide the required detention in the basin (based on the originally designed 10-year storm volume) and place the restrictor in a location where it can be easily maintained from debris or damage.

City of Novi - Meadowbrook Commons

Detention Pond Analysis

October 25, 2007



4. Jet the outlet system and pump down the sumps in the structures downstream of the catch basin in order to remove any settle debris that may be inhibiting the timely drainage of the system.

Detention Volume

1. Excavate excessive sediment (approx. 9,000 c.f.) in the pond as outlined on the attached diagram to restore original design function. This will restore the low water level to match the recommended elevation, including a small area (1,430 sf) of permanent water surface near the outlet. This will restore the volume of the pond to the originally designed 10-year storm volume. Caution will need to be taken along the east end of the pond, as to not disturb the landfill soils beneath.

Alternative Basin Recommendation - As an alternative to restoring original basin elevations, the City may wish to over excavate the detention basin to provide a larger permanent water surface. It is recommended that the east end of the basin, adjacent to the outlet and primary inlet remain dry, and be finished with rip-rap. West of the primary inlet, we recommend holding the existing top of bank at grade and excavating down at a slope of 1:5 to an elevation of 971.8, providing a permanent water depth averaging 1.5' in this area. We estimate that a permanent water surface (in normal conditions) area of 8,700 square feet can be established with a surface elevation of approximately 973.0'. This would require additional excavation of approximately 13,000 c.f.. The projected surface area is shown on the attached exhibit. The additional excavation area for this alternative stays clear of the east end of the pond and any potential impact to the landfill materials.

We have included estimated costs for the above recommendations on the attached worksheet. Sediment excavation and disposal costs are based on non-hazardous materials. It is recommended that a sample of the sediment be tested to determine if any special handling is required which could increase excavation and/or disposal costs.