



Approved 10/24/2012 JM

September 18, 2012

Doc. ID No. 17506

John Murray, PE
Regional Engineer
NC DENR – DWM
 Mooresville, NC 28115
Phone: (704) 235-2163

Via email at: john.murray@ncmail.net

Dear John:

Subject: Greenway Waste Solutions at Apex, LLC Financial Assurance
Greenway Waste Solutions at North Meck, LLC
Permit No. 6013-CDLF-1992
CEC Project No. 111-370

On behalf of Greenway Waste Solutions at North Meck, LLC, please find attached a written estimate, in current dollars, of the cost of hiring a third party to close the entire area of all C&DLF units, post-closure estimates, and corrective action estimates per 15A NCAC 13B .0546. The \$2,000,000 Corrective Action cost estimate was prepared using a scenario of groundwater contamination at the facility. The selected remedy assumed was natural attenuation with monitoring for 30 years. The estimate was divided into 16 separate action items per 15A NCAC 13B .0545.

Once you have approved the cost estimate, Greenway Waste Solutions at North Meck, LLC will establish financial assurance for closure, post-closure, and corrective action pursuant to G.S. 130A-294(b) and 130A-309.27.

Please let me know if you have any questions or comments. I can be reached at (704) 773-6465 or by e-mail at sbrown@cecinc.com.

Sincerely,

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.

Scott L. Brown, PE
Vice President

Cc: Ron Gilkerson, Greenway Waste Solutions at North Meck, LLC

Attachment

Civil & Environmental Consultants, Inc.

Charlotte	2030 S. Tryon Street Suite 3E Charlotte, North Carolina 28203 Ph: 980/224-8104 / Fx: 980/224-8172 Toll Free: 855/859-9932 charlotte@cecinc.com www.cecinc.com	Austin	855/365-2324	Columbus	888/598-6808	North Central PA	877/321-2324
		Boston	866/312-2024	Detroit	866/380-2324	Phoenix	877/231-2324
		Chicago	877/963-6026	Export	800/899-3610	Pittsburgh	800/365/2324
		Cincinnati	800/759-5674	Indianapolis	877/746-0749	St. Louis	866/250-3679
		Cleveland	866/507-2324	Nashville	800/763-2326	Toledo	888/598-6808

**Summary of Closure, Post-Closure, and Corrective Action Estimated Costs
Greenway Waste Solutions of North Meck, LLC**

Facility Name: Greenway Waste Solutions of North Meck, LLC
Permit Number: 60-13
Facility Address: 15300 Holbrooks Rd, Huntersville, NC
Facility Owner: Greenway Waste Solutions of North Meck, LLC
Date Completed: 17-Sep-12

Operational C&D Landfill

Total Area Requiring Closure: 25.40 Acres
Total Area Requiring Post-Closure Care: 25.40 Acres

Total Closure Estimated Cost	\$1,944,000
Total Post-Closure Estimated Cost	<u>\$1,140,000</u>
Total Closure and Post-Closure Care (For 30 Year Period)	\$3,084,000

Corrective Action

Total Corrective Action **\$2,000,000**

**TOTAL CLOSURE, POST-CLOSURE, AND
CORRECTIVE ACTION** **\$5,084,000**



Scott L Brown

North Carolina Board of Examiners for
Engineers and Surveyors
License No. C-3035



Worksheet 1: ESTIMATION OF CLOSURE COSTS
Greenway Waste Solutions of North Meck, LLC

Facility Name: Greenway Waste Solutions of Apex, LLC
 Permit Number: 60-13
 Facility Address: 15300 Holbrooks Rd, Huntersville, NC 28078
 Facility Owner: Greenway Waste Solutions of North Meck, LLC
 Date Completed: 17-Sep-12

Total Surface Area:	15.11	Acres
Total Surface Area with Composite Cap System:	0.00	Acres
Total Surface Area with only Soil Cover:	15.11	Acres
Total Area for LFG Management System:	15.11	Acres

II. PROTECTIVE (CLAY) SOIL COVER

a. Surface area	15.11	acres x 4,840 yd ² /acre	73,132	yd ²	
b. Depth of soil for slope and fill	18	inches x 1 yd/36 in	0.50	yd	
c. Quantity of soil needed		a x b	36,566	yd ³	
d. Percentage of soil from off-site	0%	%	0%		
e. Purchase unit cost off-site material (to include delivery cost)	\$0.00	per yd ³	\$0.00	/yd ³	
f. Percentage of soil from on-site	100%	(1 - d)	100%		
g. Excavation unit cost (on-site material)	\$ 4.15	per yd ³	\$4.15	per yd ³	
h. Total soil unit cost		(d x e + f x g)	\$4.15		
i. Placement and spreading unit cost	\$ 1.50	per yd ³	\$1.50	per yd ³	
j. Compaction unit cost	\$ 1.43	per yd ³	\$1.43	per yd ³	
k. Total soil unit cost		(h + i + j)	\$7.08	/yd ³	
l. Total soil cost			\$258,998.39		
m. Percent compaction	80%		80%		
<i>Subtotal</i>		<i>(l x (1 + m))</i>			<u>\$466,197</u> <u>\$467,000</u>

III. TOPSOIL COVER

a. Surface area	15.11	acres x 4,840 yd ² /acre	73,132	yd ²	
b. Depth of topsoil needed	18	inches x 1 yd/36 in	0.50	yd	
c. Quantity of topsoil needed		a x b	36,566	yd ³	
d. Percentage of soil from off-site	0%	%	0%		
e. Purchase unit cost off-site material (to include delivery cost)	\$0.00	per yd ³	\$0.00	/yd ³	
f. Percentage of soil from on-site	100%	(1 - d)	100%		
g. Excavation unit cost (on-site material)	\$ 4.15	per yd ³	\$4.15	per yd ³	
h. Total soil unit cost		(d x e + f x g)	\$4.15		
i. Placement and spreading unit cost	\$ 1.50	per yd ³	\$1.50	per yd ³	
j. Compaction unit cost (Not Required)	\$ -	per yd ³	\$0.00	per yd ³	
k. Total soil unit cost		(h + I + j)	\$5.65	/yd ³	
l. Total soil cost			\$206,708.73		
m. Percent compaction	80%		80%		
<i>Subtotal</i>		<i>(l x (1 + m))</i>			<u>\$372,076</u> <u>\$373,000</u>

IV. VEGETATIVE COVER

a. Surface area	15.11	acres	15.11	acres		
b. Unit cost for soil preparation, grading, seed, and fertilizer	\$ 1,984.40	per acre	\$1,984.40	per acre		
<i>Subtotal</i>		<i>(a x b)</i>			<u>\$29,984</u>	<u>\$30,000</u>

VIII. LANDFILL GAS (LFG) MANAGEMENT SYSTEM

a. Number of acres	15.11	acres	15.11	acres		
b. Average passive LFG system unit cost	\$1,882.00	per acre	\$1,882.00	per acre		
<i>Subtotal</i>		<i>(a x b)</i>			<u>\$28,437</u>	<u>\$29,000</u>

VIII. MOBILIZATION / DEMOBILIZATION / INSURANCE / BONDS

a. Cost for Mobilization / Demobilization / Insurance / Bonds	\$10,000.00	lump sum	\$10,000.00	lump sum		
<i>Subtotal</i>					<u>\$10,000</u>	<u>\$10,000</u>

X. SEDIMENT AND EROSION CONTROL AND STORM WATER MANAGEMENT

a. Sediment and erosion control	\$10,000.00	lump sum	\$10,000.00	lump sum		
b. Rip rap downchute length	1,300	linear foot	1,300	linear foot		
c. Rip rap downchute unit cost	\$ 104.00	per linear foot	\$104.00	per LF		
d. Total rip rap downchute cost		<i>(b x c)</i>	\$135,200.00			
e. Outlet and inlet protection	1	each	1	each		
f. Outlet and inlet protection unit cost (20 SY each)	\$1,728.00	per each	\$1,728.00	per each		
g. Total outlet and inlet protection cost		<i>(h x i)</i>	\$1,728.00			
<i>Subtotal</i>		<i>(a+ d + g)</i>			<u>\$146,928</u>	<u>\$147,000</u>

XI. ENGINEERING, COA TESTING AND CERTIFICATION

a. Number of acres to be capped	15.11	acres	15.11	acres		
b. Cost for engineering services	\$35,000.00	lump sum	\$35,000.00	lump sum		
c. CQA testing / field services and documentation unit cost	\$ 882.80	per acre	\$882.80	per acre		
d. Total CQA testing / field services and documentation cost		<i>(a x c)</i>	\$13,339.11			
<i>Subtotal</i>		<i>(b + d)</i>			<u>\$48,339</u>	<u>\$49,000</u>

XII. SURVEY AND DEED NOTATION

a. Area	15.11	acres	15.11	acres		
b. Survey unit cost	\$500.00	per acre	\$500.00	per acre		
<i>Subtotal</i>		<i>(a x b)</i>			<u>\$7,555</u>	<u>\$8,000</u>

XIII. ADMINISTRATION

a. Announcements, deeds, fees, etc. cost	\$5,000	lump sum	\$5,000.00	lump sum		
<i>Subtotal</i>					<u>\$5,000</u>	<u>\$5,000</u>

TOTAL ESTIMATED CLOSURE COST \$1,118,000

Worksheet 2: ESTIMATION OF CLOSURE COSTS
Greenway Waste Solutions of North Meck, LLC

Facility Name: Greenway Waste Solutions of Apex, LLC
 Permit Number: 60-13
 Facility Address: 15300 Holbrooks Rd, Huntersville, NC 28078
 Facility Owner: Greenway Waste Solutions of North Meck, LLC
 Date Completed: 17-Sep-12

Total Surface Area:	10.29	Acres
Total Surface Area with Composite Cap System:	0.00	Acres
Total Surface Area with only Soil Cover:	10.29	Acres
Total Area for LFG Management System:	10.29	Acres

II. PROTECTIVE (CLAY) SOIL COVER

a	Surface area	10.29	acres x 4,840 yd ² /acre	49,804	yd ²
b	Depth of soil for slope and fill	18	inches x 1 yd/36 in	0.50	yd
c	Quantity of soil needed		a x b	24,902	yd ³
d	Percentage of soil from off-site	0%	%	0%	
e	Purchase unit cost off-site material (to include delivery cost)	\$0.00	per yd ³	\$0.00	/yd ³
f	Percentage of soil from on-site	100%	(1 - d)	100%	
g	Excavation unit cost (on-site material)	\$ 4.15	per yd ³	\$4.15	per yd ³
h	Total soil unit cost		(d x e + f x g)	\$4.15	
i	Placement and spreading unit cost	\$ 1.50	per yd ³	\$1.50	per yd ³
j	Compaction unit cost	\$ 1.43	per yd ³	\$1.43	per yd ³
k	Total soil unit cost		(h + i + j)	\$7.08	/yd ³
l	Total soil cost			\$176,379.45	
m	Percent compaction	80%		80%	
	<i>Subtotal</i>		<i>(l x (1 + m))</i>		
				<u>\$317,483</u>	<u>\$318,000</u>

III. TOPSOIL COVER

a	Surface area	10.29	acres x 4,840 yd ² /acre	49,804	yd ²
b	Depth of topsoil needed	18	inches x 1 yd/36 in	0.50	yd
c	Quantity of topsoil needed		a x b	24,902	yd ³
d	Percentage of soil from off-site	0%	%	0%	
e	Purchase unit cost off-site material (to include delivery cost)	\$0.00	per yd ³	\$0.00	/yd ³
f	Percentage of soil from on-site	100%	(1 - d)	100%	
g	Excavation unit cost (on-site material)	\$ 4.15	per yd ³	\$4.15	per yd ³
h	Total soil unit cost		(d x e + f x g)	\$4.15	
i	Placement and spreading unit cost	\$ 1.50	per yd ³	\$1.50	per yd ³
j	Compaction unit cost (Not Required)	\$ -	per yd ³	\$0.00	per yd ³
k	Total soil unit cost		(h + I + j)	\$5.65	/yd ³
l	Total soil cost			\$140,769.88	
m	Percent compaction	80%		80%	
	<i>Subtotal</i>		<i>(l x (1 + m))</i>		
				<u>\$253,386</u>	<u>\$254,000</u>

IV. VEGETATIVE COVER

a	Surface area	10.29	acres	10.29	acres
b	Unit cost for soil preparation, grading, seed, and fertilizer	\$ 1,984.40	per acre	\$1,984.40	per acre
	<i>Subtotal</i>		<i>(a x b)</i>		
				<u>\$20,419</u>	<u>\$21,000</u>

VIII. LANDFILL GAS (LFG) MANAGEMENT SYSTEM

a	Number of acres	10.29	acres	10.29	acres
b	Average passive LFG system unit cost	\$1,882.00	per acre	\$1,882.00	per acre
	<i>Subtotal</i>		<i>(a x b)</i>		
				<u>\$19,366</u>	<u>\$20,000</u>

VIII. MOBILIZATION / DEMOBILIZATION / INSURANCE / BONDS

a	Cost for Mobilization / Demobilization / Insurance / Bonds	\$10,000.00	lump sum	\$10,000.00	lump sum
	<i>Subtotal</i>				
				<u>\$10,000</u>	<u>\$10,000</u>

X. SEDIMENT AND EROSION CONTROL AND STORM WATER MANAGEMENT

a	Sediment and erosion control	\$10,000.00	lump sum	\$10,000.00	lump sum
b	Rip rap downchute length	1,300	linear foot	1,300	linear foot
c	Rip rap downchute unit cost	\$ 104.00	per linear foot	\$104.00	per LF

d	Total rip rap downchute cost		(b x c)	\$135,200 00		
e	Outlet and inlet protection	1	each	1	each	
f	Outlet and inlet protection unit cost (20 SY each)	\$1,728 00	per each	\$1,728 00	per each	
g	Total outlet and inlet protection cost		(h x i)	\$1,728 00		
	<i>Subtotal</i>		(a + d + g)			<u>\$146,928</u> <u>\$147,000</u>

XI. ENGINEERING, COA TESTING AND CERTIFICATION

a	Number of acres to be capped	10 29	acres	10 29	acres	
b	Cost for engineering services	\$35,000 00	lump sum	\$35,000 00	lump sum	
c	CQA testing / field services and documentation unit cost	\$ 882 80	per acre	\$882 80	per acre	
d	Total CQA testing / field services and documentation cost		(a x c)	\$9,084 01		
	<i>Subtotal</i>		(b + d)			<u>\$44,084</u> <u>\$45,000</u>

XII. SURVEY AND DEED NOTATION

a	Area	10 29	acres	10 29	acres	
b	Survey unit cost	\$500 00	per acre	\$500 00	per acre	
	<i>Subtotal</i>		(a x b)			<u>\$5,145</u> <u>\$6,000</u>

XIII. ADMINISTRATION

a	Announcements, deeds, fees, etc cost	\$5,000	lump sum	\$5,000 00	lump sum	
	<i>Subtotal</i>					<u>\$5,000</u> <u>\$5,000</u>

TOTAL ESTIMATED CLOSURE COST \$826,000

Worksheet 3: ESTIMATION OF POST-CLOSURE COSTS
Greenway Waste Solutions of North Meck, LLC

Facility Name: Greenway Waste Solutions of North Meck, LLC
 Permit Number: 60-13
 Facility Address: 15300 Holbrooks Rd, Huntersville, NC 28078
 Facility Owner: Greenway Waste Solutions of North Meck, LLC
 Date Completed: 17-Sep-12

I. MONITORING

a. Total number of monitoring events per year	<input type="text" value="2"/>	events/year	2	events/year		
b. Sampling, analysis, and reporting	<input type="text" value="\$ 5,184.00"/>		\$5,184	per year		
<i>Annual Subtotal</i>		<i>(a x b)</i>			<u>\$10,368</u>	<u>\$11,000</u>

II. ROUTINE MAINTENANCE AND REPAIRS

a. Mowing frequency	<input type="text" value="2"/>	visits/year	2	visits/yr		
b. Area involved in maintenance and repairs	<input type="text" value="25.40"/>	acres	25.40	acres		
c. Mowing unit cost per visit	<input type="text" value="\$ 77.10"/>	/acre/visit	\$ 77.10	/acre/visit		
d. Total mowing cost per year		<i>(a x b x c)</i>	\$3,917	per year		
e. Area reseed and fertilized	<input type="text" value="2"/>	acres per year	2	acres per year		
f. Fertilizer unit cost	<input type="text" value="\$100"/>	per acre	\$100	per acre		
g. Total fertilizer cost per year		<i>(e x f)</i>	\$200	per year		
h. Reseeding unit cost	<input type="text" value="\$800"/>	per acre	\$800	per acre		
i. Total reseeding cost per year		<i>(e x h)</i>	\$1,600	per year		
j. Cap erosion and settlement repair cost (assume 2.5% of cap area repaired annually)	<input type="text" value="2,049"/>	cy	2,049	cy		
k. Cap erosion and settlement repair unit cost	<input type="text" value="\$ 7.08"/>	per cy	\$ 7.08	per cy		
l. Total cap erosion and settlement repair cost per year		<i>(j x k)</i>	\$14,513	per year		
<i>Annual Subtotal</i>		<i>(d + g + i + l)</i>			<u>\$20,229</u>	<u>\$21,000</u>

III. ACCESS, SECURITY, AND SIGNS

a. Access, security and signs	<input type="text" value="\$ 500.00"/>		\$500	per year		
<i>Annual Subtotal</i>					<u>\$500</u>	<u>\$1,000</u>

IV. FEES, INSPECTION, AND REPORTING

a. Fees	<input type="text" value="\$500"/>	DENR Fee Schedule	\$500	per year		
b. 36" pipe video inspection	<input type="text" value="\$750"/>		\$750	per year		
c. Inspection services and reporting	<input type="text" value="\$3,000"/>		\$3,000	per year		
<i>Annual Subtotal</i>		<i>(a + b + c)</i>			<u>\$4,250</u>	<u>\$5,000</u>

TOTAL ESTIMATED ANNUAL POST-CLOSURE CARE COST **\$38,000**

LENGTH OF POST-CLOSURE CARE PERIOD

TOTAL ESTIMATED POST-CLOSURE CARE COST FOR 30-YEAR PERIOD **\$1,140,000**

Worksheet 4: Suggested and Minimum Default Values

I. Native soil - Excavate, Load, and Haul

native soil	Excavating, Bulk Bank Measure, excavator, hydraulic, crawler mounted, 2 CY capacity	\$	1 42	CY	Means 02315 424 0260
loading	add 15%	\$	0 21	CY	Means 02315 400 0020
hauling	Hauling, Excavated or Borrow, Off Highway Haulers, 1/2 mile round trip, 4 2 loads/hr, 22 CY rear or bottom dump	\$	2 52	CY	Means 02315 490 2020
		Subtotal:	\$ 4 15	CY	

II. Native soil - Place and Spread

Spread	Spread fill, from stockpile with dozer 300 HP, 300' haul	\$	1 50	CY	Means 02315 300 5600
		Subtotal:	\$ 1 50	CY	

III. Native soil - Compact

Compact - Sheepsfoot	Compaction, Sheepsfoot or wobbly wheel roller, 6" lifts, 3 passes	\$	0 96	CY	Means 02315 310 5620
Compact - Vibrating Roller	Compaction, Vibrating roller, 6" lifts, 3 passes	\$	0 47	CY	Means 02315 310 5020
		Subtotal:	\$ 1 43	CY	

IV. Topsoil

Topsoil	Purchase price delivered	\$	13 10	CY	Means 02315 0200 7000
Spread	Spread by dozer, 50' haul	\$	1 50	CY	Means 02315 410 2020
Compact - Sheepsfoot	Compaction, Sheepsfoot or wobbly wheel roller, 6" lifts, 3 passes	\$	0 96	CY	Means 02315 310 5620
		Subtotal:	\$ 15 56	CY	

V. Stone

stone	purchase price delivered	\$	7 50	CY	Means 02315 200 5000
spread stone	spread by dozer 50' haul	\$	1 31	CY	Means 02315 410 2000
		Subtotal:	\$ 8 81	CY	

VI. Clay - Excavate, Load, and Haul (on-site and off-site)

clay	purchase price delivered	\$	4 11	CY	Means
soil	excavation	\$	1 63	CY	Means 02315 400 0200
clay	add 60% for clay	\$	0 97	CY	Means 02315 400 4100
loading	add 15%	\$	0 24	CY	Means 02315 400 0020
hauling	12 CY truck 1/2 mile onsite	\$	2 52	CY	Means 02320 200 0320
		Subtotal:	\$ 5 36	CY	

VII. Clay soil - Place and Spread

spread clay	spread by dozer 50' haul	\$	1 38	CY	Means 02314 505 0010
		Subtotal:	\$ 1 38	CY	

VIII. Clay soil - Compact

compact clay	sheepsfoot 4 passes	\$	0 83	CY	Means 02315 300 6030
compact clay	vibrating roller 4 passes	\$	0 96	CY	Means 02315 300 6220
		Subtotal:	\$ 1 79	CY	

IX. Drainage Pipe

pipe	6"pvc	\$	4 22	LF	Means 02620 210 3020
trenching	48" deep compact add 50%	\$	0 99	LF	Means 02315 940 2600
	Piping, Drainage & Sewage, Corrugated HDPE, Type S, not including excavation and backfill, bell & spigot, with gaskets, 18" diameter	\$	18 62	LF	Means 334113501060
18" PE Down drain pipe	Elbows	\$	321 80	EA	Means 334113501160
	Tees	\$	488 50	EA	Means 334113501280
	Piping, Drainage & Sewage, Corrugated HDPE, Type S, not including excavation and backfill, bell & spigot, with gaskets, 24" diameter	\$	26 22	LF	Means 334113501070
24" PE Down drain pipe	Elbows	\$	475 80	EA	Means 334113501170
	Tees	\$	612 50	EA	Means 334113501300
	Piping, Drainage & Sewage, Corrugated HDPE, Type S, not including excavation and backfill, bell & spigot, with gaskets, 30" diameter	\$	39 31	LF	Means 334113501080
30" PE Down drain pipe					

	Elbows		\$	671 80	EA	Means 334113501180
	Tees		\$	858 50	EA	Means 334113501320
	Riprap Outlet (Machine placed, 18" min thickness)		\$	86 40	SY	Means 02370 450 0200
				Subtotal:		
X.	Synthetic Membrane					
	60 mil HDPE		\$	0 33	SF	Agru Quote for Allied (04-30-08)
	40 mil PVC		\$	0 25	SF	Means 33 08 0563
	40 mil Texturtd LLDPE		\$	0 18	SF	Price from Morris Farms
	installation and testing		\$	0 10	SF	Price from Morris Farms
				Subtotal:	\$	0 86 CY
XI.	Geotextile Filter Fabric					
	10 oz Geotextile		\$	0 07	SF	Means 33 080533
	installation		\$	0 01	SF	Local Installer Aug 2010
				Subtotal:	\$	0 08 CY
XII.	Geonet/geocomposite					
	Geonet 25 inch		\$	0 14	SF	Means 33 08 0511
	Geonet Geotextile 1 side		\$	0 30	SF	Means 33 08 0512
	geonet Geotextile 2 sides		\$	0 46	SF	Agru Quote for Allied (04-30-08)
	installation		\$	0 09	SF	Price from 2008 FA
				Subtotal:	\$	0 99 CY
XIII.	Geosynthetic clay liner					
	bentomat	Installed cost	\$	0 40	SF	Local Installer Aug 2000
				Subtotal:	\$	0 40 SF
XIV.	Soil Testing					
	Density	5/acre 35 36 EA	\$	177 80	AC	Means 33 08 0506 02231 2101
	Moisture Density Curve	1/acre	\$	80 00	AC	Proctor (ASTM D698) - Price from ACC
	Grain Size	1/acre	\$	55 00	AC	Particle Size (ASTM D422) - Price from ACC
	Moisture	5/acre 5 00 ea	\$	25 00	AC	Moisture (ASTM D2216) - Price from ACC
	Undisturbed Permeability	3/acre 18" soil 165 00EA	\$	495 00	AC	UD Perm (ASTM D5084) - Price from ACC
	Atterberg Limits	1/acre	\$	50 00	AC	Atterberg (ASTM D4318) - Price from ACC
				Subtotal:	\$	882 80 AC
XV.	Vegetative cover					
	Hydro seeding	Seeding, Mechanical Seeding, Hydro or air seeding for large areas, including seed and fertilizer, with wood fiber mulch added (\$0 41 per sy)	\$	1,984 40	AC	Means 02920 310 1100
				Subtotal:	\$	1,984 40 AC
XVI.	Landfill Gas Management System					
	Gas Probe	Assume 50' Probe, 20' Screen, 25' filter pack				
	boring	11" hollow stem auger (50' @ \$26 00/LF)	\$	1,300 00	EA	Means 33 23 1103
	screen	2" schedule 40 (20' @ \$10 00/LF)	\$	200 00	EA	Means 33 23 0211
	casing	2" schedule 40 (30' @ \$7 00/LF)	\$	210 00	EA	Means 33 23 0101
	filter pack	2" screen filter pack (25' @ \$8 00/LF)	\$	200 00	EA	Means 33 23 1401
	bentonite seal		\$	30 00	EA	Means 33 23 2101
	surface pad		\$	175 00	EA	Means 33 23 1502
				Probe Cost	\$	2,115 00 EA Means
	Gas Vent	Assume 40' vent, 20' screen, 30" diam				
	drilling	bored piles 30" dia (40' @ \$41 00/LF)	\$	1,640 00	EA	Means 02465 600 0300
	screen	6" sch 40 (20 @ \$22 00/LF)	\$	440 00	EA	Means 33 23 0203
	casing	6" sch 40 (20' @ \$12 00/LF)	\$	240 00	EA	Means 33 23 0103
	stone	6 CY @ \$26 00/CY	\$	156 00	EA	Means 023 15 130 0100
	bentonite seal	Use 12" Means: 8 CF @ \$161 00/CF	\$	1,288 00	EA	Means 33 23 1806
				Vent Cost	\$	3,764 00
				Subtotal:	\$	5,879 00 EA
XVII.	Sediment & Erosion Control and Stormwater Management					

Grass Lined Channel		\$	10 00	LF	Morgan Corp quote for Anderson Landfill
Matting	\$1 96 per sy for 4 ft wide roll	\$	0 87	LF	Means 02370 700 0020
Class IV Rip Rap	\$52 00 per ton, 2 tons per LF	\$	104 00	LF	NCDOT bid averages
		Subtotal:	\$ 10 87	LF	

XVIII. Groundwater Monitoring Well

well boring, hollow stem auger	Up to 100 foot depth (50' @ \$16 11/LF)	\$	805 50	EA	Means 33 23 1101
casing	2" diameter pvc, sch 40 (40' @ \$6 86/LF)	\$	274 40	EA	Means 33 23 0101
screen	2" diameter pvc, sch 40 (10' @ \$9 85/lf)	\$	394 00	EA	Means 33 23 0201
		Subtotal:	\$ 1,473 90	EA	

XIX. Groundwater Monitoring - Analytical

conductivity		\$	11 75	EA	Means 33 02 0505
pH		\$	9 13	EA	Means 33 02 0505
TOC		\$	23 33	EA	Means 33 02 0505
TOX		\$	90 00	EA	Means 33 02 0505
hardness		\$	11 50	EA	Means 33 02 1639
sodium		\$	11 56	EA	Means 33 02 0508
chloride		\$	16 67	EA	Means 33 02 1653
iron		\$	11 56	EA	Means 33 02 0508
lead		\$	11 56	EA	Means 33 02 0508
Appendix I List	\$180-\$225 depending on number of wells sampled	\$	200 00	EA	Local consultant January 2001
Appendix II List	\$640-\$810 depending on the number of wells sampled	\$	725 00	EA	Local Consultant January 2001
		Subtotal:	\$ 397 06	EA	

XX. Groundwater Monitoring - Sampling

Personnel		\$	100 00	Well	estimate
Equipment		\$	50 00	Well	estimate
		Subtotal:	\$ 150 00	EA	

XXI. Gas Monitoring

LANDTEC GEM-200		\$	125 00	day	Price from Enviro-Pro
mobilization		\$	150 00	event	estimate
field technician	1 technician @ 75/hr for 8 hours	\$	600 00	event	estimate
engineer	report preparation @ \$120/hr for 4 hours	\$	480 00	event	estimate
		Subtotal:	\$ 1,355 00	event	

XXII. Routine Maintenance and Repairs

Mowing	Mowing with tractor & attachments, lawn mowing, smooth terrain, 5' (\$1 77 / 1,000 sf * 43,560 sf/acre)	\$	77 10	AC	Means 029353004210
reseeding	Hydroseeding	\$	800 00	AC	Hydro Spec Cost Estimate for Lee County
fertilizer	Fertilizer	\$	100 00	AC	
		Subtotal:	\$ 977 10	AC	

XXIII. Erosion Repair

native soil	Excavating, Bulk Bank Measure, excavator, hydraulic, crawler mounted, 2 CY capacity	\$	1 42	CY	Means 02315 424 0260
loading	add 15%	\$	0 21	CY	Means 02315 400 0020
hauling	Hauling, Excavated or Borrow, Off Highway Haulers, 1/2 mile round trip, 4 2 loads/hr, 22 CY rear or bottom dump	\$	2 52	CY	Means 02315 490 2020
spread native soil	Spread fill, from stockpile with dozer 300 HP, 300' haul	\$	1 50	CY	Means 02315 300 5600
Compact - Sheepsfoot	Compaction, Sheepsfoot or wobbly wheel roller, 6" lifts, 3 passes	\$	0 96	CY	Means 02315 310 5620
Compact - Vibrating Roller	Compaction, Vibrating roller, 6" lifts, 3 passes	\$	0 47	CY	Means 02315 310 5020
		Subtotal:	\$ 7 08	CY	

XXIV. Leachate Management

Treatment at POTW	based on 1 50/1000 gal	\$	0 0015	Gal	Means 33 19 7103
hauling		\$	0 03	Gal	
		Subtotal:	\$ 0 0315	Gal	

ESTIMATION OF CORRECTIVE ACTION COST
ASSUMED SCENARIO - GROUNDWATER CONTAMINATION - NATURAL ATTENUATION REMEDY
Greenway Waste Solutions of North Meck, LLC

Facility Name: Greenway Waste Solutions of North Meck, LLC
Permit Number: 60-13
Facility Address: 15300 Holbrooks Rd, Huntersville, NC
Facility Owner: Greenway Waste Solutions of North Meck, LLC
Date Completed: 17-Sep-12

	<u>DESCRIPTION</u>	<u>ESTIMATED COST</u>	<u>COMMENT</u>	
I	Appendix II Background Sampling of Groundwater Monitoring Network (4 events per 10 sampling locations)	\$ 43,919	<u>\$ 44,000</u>	15A NCAC 13B 0545
II	Installation of at least two wells (deep and shallow) at the compliance boundary	\$ 27,742	<u>\$ 28,000</u>	15A NCAC 13B 0545
III	Appendix II Sampling of Original Well Network and Compliance Boundary Wells Annually (First Semi-Annual Monitoring Event)	\$ 29,738	<u>\$ 30,000</u>	15A NCAC 13B 0545
IV	Appendix I and II Detects Sampling of Original Well Network and Compliance Boundary Wells Annually (Second Semi-Annual Monitoring Event)	\$ 27,296	<u>\$ 28,000</u>	15A NCAC 13B 0545
V	Installation of additional monitoring wells to characterize the nature and extent (S&E) of the plume	\$ 60,466	<u>\$ 61,000</u>	15A NCAC 13B 0545
VI	Appendix II Background Sampling of S&E Monitoring Network (4 events per sampling location)	\$ 46,891	<u>\$ 47,000</u>	15A NCAC 13B 0545
VII	Appendix II Sampling of S&E Well Network Annually (First Semi-Annual Monitoring Event)	\$ 15,073	<u>\$ 16,000</u>	15A NCAC 13B 0545
VIII	Appendix I and II Detects Sampling of S&E Well Network Annually (Second Semi-Annual Monitoring Event)	\$ 13,968	<u>\$ 14,000</u>	15A NCAC 13B 0545
IX	Assessment of Corrective Measures (Report, Public Notice, Public Meeting)	\$ 74,860	<u>\$ 75,000</u>	15A NCAC 13B 0545
X	Selection of Remedy	\$ 19,752	<u>\$ 20,000</u>	15A NCAC 13B 0545
XI	Corrective Action Plan Submittal, Approval, and Implementation	\$ 1,571,049	<u>\$ 1,572,000</u>	15A NCAC 13B 0545
XII	Installation of Additional Monitoring Wells to Monitor Effectiveness of Selected Remedy	\$ 37,782	<u>\$ 38,000</u>	15A NCAC 13B 0545
XIII	Maintenance and Repair of Additional Monitoring Wells	\$ 8,000	<u>\$ 8,000</u>	15A NCAC 13B 0545
XIV	Sampling and Analysis of Additional Monitoring Wells	\$ -	<u>\$ -</u>	15A NCAC 13B 0545
XV	Corrective Action Remedy is Complete	\$ 18,800	<u>\$ 19,000</u>	15A NCAC 13B 0545
ESTIMATE OF PROBABLE COST - CORRECTIVE ACTION SCENARIO			<u>\$ 2,000,000</u>	

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK I

15A NCAC 13B .0545

Appendix II Background Sampling of Groundwater Monitoring Network

(4 events per sampling location)

10 Well Locations, 3 Days to Sample

Analytical (4 events)	QTY	Unit	\$/Unit	Total
Appendix II - Volatiles	40	each	\$ 110.00	\$ 4,400.00
Appendix II - Semi Volatiles	40	each	\$ 175.00	\$ 7,000.00
Appendix II - Pesticides/PCB	40	each	\$ 100.00	\$ 4,000.00
Appendix II - Herbicides	40	each	\$ 115.00	\$ 4,600.00
Appendix II - Metals	40	each	\$ 100.00	\$ 4,000.00
Appendix II - CN	40	each	\$ 41.40	\$ 1,656.00
Appendix II - Sulfide	40	each	\$ 17.20	\$ 688.00
			subtotal	\$ 26,344.00
Field Work (4 events)				
Technician Time (2 techs)	200	\$/hr	\$ 66.00	\$ 13,200.00
Mileage	240	\$/hmi	\$ 0.53	\$ 127.20
Water Level Probe	12	days	\$ 30.00	\$ 360.00
pH Meter 12 days	12	days	\$ 30.00	\$ 360.00
Conductivity Meter	12	days	\$ 35.00	\$ 420.00
Gator Rental	12	days	\$ 14.00	\$ 168.00
Disposable Teflon Bailers	5	each	\$ 180.00	\$ 900.00
Disposables (Tubing, Gloves, Ropes etc)	1	each	\$ 400.00	\$ 400.00
			subtotal	\$ 15,935.20
Reporting (1 event)				
Senior Professional	20	\$/hr	\$ 120.00	\$ 2,400.00
Registered Professional	80	\$/hr	\$ 105.00	\$ 8,400.00
Project Professional	40	\$/hr	\$ 95.00	\$ 3,800.00
CAD Operator	40	\$/hr	\$ 62.00	\$ 2,480.00
Administration	40	\$/hr	\$ 41.00	\$ 1,640.00
			subtotal	\$18,720.00
			Total	\$ 43,919.20

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK II

15A NCAC 13B .0545

Installation of at least two wells (deep and shallow) at the compliance boundary

	QTY	Unit	\$/Unit	Total
Well Development and Slug Testing (2 days)				
Project Professional	20	hours	\$ 95.00	\$ 1,900.00
Mileage	150	miles	\$ 0.52	\$ 78.00
Water Level Meter	2	days	\$ 25.00	\$ 50.00
Pressure Transducer and Data Logger	1	days	\$ 40.00	\$ 40.00
Battery Operated Well Pump	2	days	\$ 20.00	\$ 40.00
			subtotal	\$ 2,108.00
Well Survey				
Project Professional	2	hours	\$ 95.00	\$ 190.00
Subcontracted Survey	1	each	\$ 1,250.00	\$ 1,250.00
			subtotal	\$ 1,440.00
Soil Laboratory Classification				
Atterburg Limits	1	each	\$ 68.00	\$ 68.00
Grain Size with Hydrometer	1	each	\$ 99.00	\$ 99.00
Specific Gravity	1	each	\$ 47.00	\$ 47.00
			subtotal	\$ 214.00
Drilling Services				
Drill Rig Mobilization	1	each	\$ 490.00	\$ 490.00
Soil Test Boring	50	foot	\$ 9.00	\$ 450.00
Auger Boring	50	foot	\$ 7.00	\$ 350.00
Rock Coring	1	each	\$ 120.00	\$ 120.00
Installation of Temporary NW Casing	50	foot	\$ 5.00	\$ 250.00
NQ Coring 25 feet	25	foot	\$ 40.00	\$ 1,000.00
Installation of Type II Monitor Well	125	foot	\$ 25.00	\$ 3,125.00
Above Grade Protective Casing	2	each	\$ 175.00	\$ 350.00
Steam Cleaner	2	day	\$ 130.00	\$ 260.00
Grout Plant	1	day	\$ 91.00	\$ 91.00
Water Trailer	3	day	\$ 72.00	\$ 216.00
Non-drilling time (water hauling, decon, etc.)	4	hours	\$ 110.00	\$ 440.00
			subtotal	\$ 7,142.00
Drilling Oversight				
Project Professional	30	hours	\$ 95.00	\$ 2,850.00
Mileage	150	miles	\$ 0.52	\$ 78.00
Water Level Meter	3	days	\$ 30.00	\$ 90.00
			subtotal	\$ 3,018.00
Boring Logs, Well Logs, and Estimation of Groundwater Flow				
Registered Professional	20	hours	\$ 105.00	\$ 2,100.00
Project Professional	80	hours	\$ 95.00	\$ 7,600.00
CAD Operator	40	hours	\$ 62.00	\$ 2,480.00
Administration	40	hours	\$ 41.00	\$ 1,640.00
			subtotal	\$ 13,820.00
			Total	\$ 27,742.00

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK III

15A NCAC 13B .0545

Appendix II Sampling of Original Well Network and Compliance Boundary Wells Annually (First Semi-Annual Monitoring Event)

12 Well Locations, 2 Days to Sample

Analytical (1 event)	QTY	Unit	\$/Unit	Total
Appendix II - Volatiles	12	each	\$ 110.00	\$ 1,320.00
Appendix II - Semi Volatiles	12	each	\$ 175.00	\$ 2,100.00
Appendix II - Pesticides/PCB	12	each	\$ 100.00	\$ 1,200.00
Appendix II - Herbicides	12	each	\$ 115.00	\$ 1,380.00
Appendix II - Metals	12	each	\$ 100.00	\$ 1,200.00
Appendix II - CN	12	each	\$ 41.40	\$ 496.80
Appendix II - Sulfide	12	each	\$ 17.20	\$ 206.40
			subtotal	\$ 7,903.20
Field Work (1 event)				
Technician Time (2 techs)	42	\$/hr	\$ 66.00	\$ 2,772.00
Mileage	156	\$/mi	\$ 0.53	\$ 82.68
Water Level Probe	2.5	days	\$ 30.00	\$ 75.00
pH Meter	2.5	days	\$ 30.00	\$ 75.00
Conductivity Meter	2.5	days	\$ 35.00	\$ 87.50
Gator Rental	2.5	days	\$ 14.00	\$ 35.00
Disposable Teflon Bailers	5	each	\$ 180.00	\$ 900.00
Disposables (Tubing, Gloves, Ropes etc)	1	each	\$ 400.00	\$ 400.00
			subtotal	\$ 4,427.18
Reporting (1 event)				
Senior Professional	20	\$/hr	\$ 120.00	\$ 2,400.00
Registered Professional	80	\$/hr	\$ 105.00	\$ 8,400.00
Project Professional	40	\$/hr	\$ 95.00	\$ 3,800.00
CAD Operator	40	\$/hr	\$ 62.00	\$ 2,480.00
Administration	8	\$/hr	\$ 41.00	\$ 328.00
			subtotal	\$17,408.00
			Total	\$ 29,738.38

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK IV

15A NCAC 13B .0545

Appendix I and II Detects Sampling of Original Well Network and Compliance Boundary Wells Annually (Second Semi-Annual Monitoring Event)

	Qty	Unit	\$/Unit	Total
Analytical (1 event)				
Appendix II - Volatiles	12	each	\$ 110.00	\$ 1,320.00
Appendix II - Semi Volatiles	12	each	\$ 175.00	\$ 2,100.00
Appendix II - Pesticides/PCB	12	each	\$ 100.00	\$ 1,200.00
Appendix II - Herbicides	12	each	\$ 115.00	\$ 1,380.00
Appendix II - Metals	12	each	\$ 100.00	\$ 1,200.00
Appendix II - CN	12	each	\$ 41.40	\$ 496.80
Appendix II - Sulfide	12	each	\$ 17.20	\$ 206.40
			subtotal	\$ 7,903.20
Field Work (1 event)				
Technician Time	1	\$/hr	\$ 66.00	\$ 66.00
Mileage	2	\$/mi	\$ 0.53	\$ 1.06
Water Level Probe	14	days	\$ 30.00	\$ 420.00
pH Meter	2.5	days	\$ 30.00	\$ 75.00
Conductivity Meter	2.5	days	\$ 35.00	\$ 87.50
Gator Rental	2.5	days	\$ 14.00	\$ 35.00
Disposable Teflon Bailers	5	each	\$ 180.00	\$ 900.00
Disposables (Tubing, Gloves, Ropes etc)	1	each	\$ 400.00	\$ 400.00
			subtotal	\$ 1,984.56
Reporting (1 event)				
Senior Professional	20	\$/hr	\$ 120.00	\$ 2,400.00
Registered Professional	80	\$/hr	\$ 105.00	\$ 8,400.00
Project Professional	40	\$/hr	\$ 95.00	\$ 3,800.00
CAD Operator	40	\$/hr	\$ 62.00	\$ 2,480.00
Administration	8	\$/hr	\$ 41.00	\$ 328.00
			subtotal	\$17,408.00
			Total	\$ 27,295.76

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK V

15A NCAC 13B .0545

Installation of additional monitoring wells to characterize the nature and extent (S&E) of the plume

6 shallow and 3 deep wells

Well Development and Slug Testing (5 days)

	Qty	Unit	\$/Unit	Total
Project Professional	40	hours	\$ 95.00	\$ 3,800.00
Mileage	259	miles	\$ 0.52	\$ 134.68
Water Level Meter	3	days	\$ 25.00	\$ 75.00
Pressure Transducer and Data Logger	3	days	\$ 40.00	\$ 120.00
Battery Operated Well Pump	3	days	\$ 20.00	\$ 60.00
			subtotal	\$4,189.68

Well Survey

Project Professional	2	hours	\$ 95.00	\$ 190.00
Subcontracted Survey	1	each	\$ 4,500.00	\$ 4,500.00
			subtotal	\$ 4,690.00

Soil Laboratory Classification

Atterburg Limits	6	each	\$ 68.00	\$ 408.00
Grain Size with Hydrometer	6	each	\$ 99.00	\$ 594.00
Specific Gravity	6	each	\$ 47.00	\$ 282.00
			subtotal	\$ 1,284.00

Drilling Services

Drill Rig Mobilization	1	each	\$ 490.00	\$ 490.00
Soil Test Boring	300	foot	\$ 9.00	\$ 2,700.00
Auger Boring	150	foot	\$ 7.00	\$ 1,050.00
Rock Coring - Set up	3	each	\$ 120.00	\$ 360.00
Installation of Temporary NW Casing	150	foot	\$ 5.00	\$ 750.00
NQ Coring	75	foot	\$ 40.00	\$ 3,000.00
Installation of Type II Monitor Well	525	foot	\$ 25.00	\$ 13,125.00
Above Grade Protective Casing	9	each	\$ 175.00	\$ 1,575.00
Steam Cleaner	12	day	\$ 130.00	\$ 1,560.00
Grout Plant	4	day	\$ 91.00	\$ 364.00
Water Trailer	12	day	\$ 72.00	\$ 864.00
Non-drilling time (water hauling, decon, etc.)	12	hours	\$ 110.00	\$ 1,320.00
			subtotal	\$ 27,158.00

Drilling Oversight

Project Professional	105	hours	\$ 95.00	\$ 9,975.00
Mileage	580	miles	\$ 0.52	\$ 301.60
Water Level Meter	12	days	\$ 30.00	\$ 360.00
			subtotal	\$ 10,636.60

Boring Logs, Well Logs, and Estimation of Groundwater Flow

Registered Professional	20	\$/hr	\$ 105.00	\$ 2,100.00
Project Professional	80	\$/hr	\$ 95.00	\$ 7,600.00
CAD Operator	40	\$/hr	\$ 62.00	\$ 2,480.00
Administration	8	\$/hr	\$ 41.00	\$ 328.00
			subtotal	\$12,508.00

Total \$ 60,466.28

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK VI

15A NCAC 13B .0545

Appendix II Background Sampling of S&E Monitoring Network (4 events per sampling location)

Analytical (4 events)	Qty	Unit	\$/Unit	Total
Appendix II - Volatiles	32	each	\$ 110.00	\$ 3,520.00
Appendix II - Semi Volatiles	32	each	\$ 175.00	\$ 5,600.00
Appendix II - Pesticides/PCB	32	each	\$ 100.00	\$ 3,200.00
Appendix II - Herbicides	32	each	\$ 115.00	\$ 3,680.00
Appendix II - Metals	32	each	\$ 100.00	\$ 3,200.00
Appendix II - CN	32	each	\$ 41.40	\$ 1,324.80
Appendix II - Sulfide	32	each	\$ 17.00	\$ 544.00
			subtotal	\$ 21,068.80

8 S&E Well Locations, 1 Days to Sample Field Work (4 events)

Technician Time	170	\$/hr	\$ 66.00	\$ 11,220.00
Mileage	156	\$/mi	\$ 0.53	\$ 82.68
Water Level Probe	4	days	\$ 30.00	\$ 120.00
pH Meter	4	days	\$ 30.00	\$ 120.00
Conductivity Meter	4	days	\$ 35.00	\$ 140.00
Gator Rental	4	days	\$ 14.00	\$ 56.00
Disposable Teflon Bailers	4	each	\$ 180.00	\$ 720.00
Disposables (Tubing, Gloves, Ropes etc)	1	each	\$ 400.00	\$ 400.00
			subtotal	\$ 12,858.68

Reporting (1 event)

Senior Professional	8	\$/hr	\$ 120.00	\$ 960.00
Registered Professional	40	\$/hr	\$ 105.00	\$ 4,200.00
Project Professional	70	\$/hr	\$ 95.00	\$ 6,650.00
CAD Operator	12	\$/hr	\$ 62.00	\$ 744.00
Administration	10	\$/hr	\$ 41.00	\$ 410.00
			subtotal	\$ 12,964.00

Total \$ 46,891.48

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK VII

15A NCAC 13B .0545

Appendix II Sampling of S&E Well Network Annually (First Semi-Annual Monitoring Event)

Analytical (1 event)	Qty	Unit	\$/Unit	Total
Appendix II - Volatiles	8	each	\$ 110.00	\$ 880.00
Appendix II - Semi Volatiles	8	each	\$ 175.00	\$ 1,400.00
Appendix II - Pesticides/PCB	8	each	\$ 100.00	\$ 800.00
Appendix II - Herbicides	8	each	\$ 115.00	\$ 920.00
Appendix II - Metals	8	each	\$ 100.00	\$ 800.00
Appendix II - CN	8	each	\$ 41.40	\$ 331.20
Appendix II - Sulfide	8	each	\$ 17.20	\$ 137.60
			subtotal	\$ 5,268.80
8 S&E Well Locations, 1 Days to Sample				
Field Work (1 event)				
Technician Time	16	\$/hr	\$ 66.00	\$ 1,056.00
Mileage	170	\$/mi	\$ 0.53	\$ 90.10
Water Level Probe	1	days	\$ 30.00	\$ 30.00
pH Meter	1	days	\$ 30.00	\$ 30.00
Conductivity Meter	1	days	\$ 35.00	\$ 35.00
Gator Rental	1	days	\$ 14.00	\$ 14.00
Disposable Teflon Bailers	1	each	\$ 180.00	\$ 180.00
Disposables (Tubing, Gloves, Ropes etc)	1	each	\$ 400.00	\$ 400.00
			subtotal	\$ 1,835.10
Reporting (1 event)				
Senior Professional	4	\$/hr	\$ 120.00	\$ 480.00
Registered Professional	8	\$/hr	\$ 105.00	\$ 840.00
Project Professional	60	\$/hr	\$ 95.00	\$ 5,700.00
CAD Operator	12	\$/hr	\$ 62.00	\$ 744.00
Administration	5	\$/hr	\$ 41.00	\$ 205.00
			subtotal	\$7,969.00
			Total	\$ 15,072.90

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK VIII

15A NCAC 13B .0545

Appendix I and II Detects Sampling of S&E Well Network Annually
(Second Semi-Annual Monitoring Event)

Analytical (1 event) Assume Appendix I VOCs, Appendix I Metals, and Appendix II Semi's	Qty	Unit	\$/Unit	Total
Appendix II - Volatiles	8	each	\$ 110.00	\$ 880.00
Appendix II - Semi Volatiles	9	each	\$ 175.00	\$ 1,575.00
Appendix II - Pesticides/PCB	0	each	\$ 100.00	\$ -
Appendix II - Herbicides	0	each	\$ 115.00	\$ -
Appendix II - Metals	8	each	\$ 100.00	\$ 800.00
Appendix II - CN	0	each	\$ 41.40	\$ -
Appendix II - Sulfide	0	each	\$ 17.00	\$ -
			subtotal	\$ 3,255.00
8 S&E Well Locations, 1 Days to Sample				
Field Work (1 event)				
Technician Time	16	\$/hr	\$ 66.00	\$ 1,056.00
Mileage	170	\$/mi	\$ 0.53	\$ 90.10
Water Level Probe	1	days	\$ 30.00	\$ 30.00
pH Meter	1	days	\$ 30.00	\$ 30.00
Conductivity Meter	1	days	\$ 35.00	\$ 35.00
Gator Rental	1	days	\$ 14.00	\$ 14.00
Disposable Teflon Bailers	1	each	\$ 180.00	\$ 180.00
Disposables (Tubing, Gloves, Ropes etc)	1	each	\$ 400.00	\$ 400.00
			subtotal	\$ 1,835.10
Reporting (1 event)				
Senior Professional	4	\$/hr	\$ 120.00	\$ 480.00
Registered Professional	8	\$/hr	\$ 105.00	\$ 840.00
Project Professional	70	\$/hr	\$ 95.00	\$ 6,650.00
CAD Operator	12	\$/hr	\$ 62.00	\$ 744.00
Administration	4	\$/hr	\$ 41.00	\$ 164.00
			subtotal	\$ 8,878.00
			Total	\$ 13,968.10

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK IX

15A NCAC 13B .0545

Assessment of Corrective Measures

(Report, Public Notice, Public Meeting)

ACM Report	Qty	Unit	\$/Unit	Total
Senior Professional	36	\$/hr	\$ 120.00	\$ 4,320.00
Registered Professional	260	\$/hr	\$ 105.00	\$ 27,300.00
Project Professional	260	\$/hr	\$ 95.00	\$ 24,700.00
CAD Operator	80	\$/hr	\$ 62.00	\$ 4,960.00
Administration	20	\$/hr	\$ 41.00	\$ 820.00
			subtotal	\$62,100.00
Public Notice				
Senior Professional	8	\$/hr	\$ 120.00	\$ 960.00
Registered Professional	32	\$/hr	\$ 105.00	\$ 3,360.00
Administration	20	\$/hr	\$ 41.00	\$ 820.00
Estimated Advertisement Costs	1	each	\$ 1,500.00	\$ 1,500.00
			subtotal	\$ 6,640.00
Public Meeting				
Senior Professional	16	\$/hr	\$ 120.00	\$ 1,920.00
Registered Professional	40	\$/hr	\$ 105.00	\$ 4,200.00
			subtotal	\$ 6,120.00
 Total				\$74,860.00

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK X

15A NCAC 13B .0545

Selection of Remedy

Permit Modification	Qty	Unit	\$/Unit	Total
Senior Professional	4	\$/hr	\$ 120.00	\$ 480.00
Registered Professional	36	\$/hr	\$ 105.00	\$ 3,780.00
Administration	12	\$/hr	\$ 41.00	\$ 492.00
			subtotal	\$ 4,752.00
Permit Modification Fee				
Estimated Fee	1	each	\$ 15,000.00	\$ 15,000.00
			subtotal	\$ 15,000.00
			Total	\$ 19,752.00

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK XI

15A NCAC 13B .0545

Corrective Action Plan Submittal, Approval, and Implementation

CAP Report		Unit	\$/Unit		Total
Senior Professional	80	\$/hr	\$ 120.00	\$	38,400.00
Registered Professional	320	\$/hr	\$ 105.00	\$	33,600.00
Project Professional	320	\$/hr	\$ 95.00	\$	7,600.00
CAD Operator	80	\$/hr	\$ 62.00	\$	2,480.00
Administration	40	\$/hr	\$ 41.00	\$	1,640.00
			subtotal	\$	83,720.00

CAP Implementation (MNA)

Field Work

Technician	240	hours	\$66.00	\$	15,840.00
Mileage	800	miles	\$0.52	\$	416.00
Water Level Probe	12	days	\$30.00	\$	360.00
Multi-parameter meter with flow cell (Hydrolab)	12	days	\$125.00	\$	1,500.00
Hydrolab Calibration Consumables	12	each	\$90.00	\$	1,080.00
Turbidity Meter	12	days	\$35.00	\$	420.00
Gator Rental	12	weeks	\$140.00	\$	1,680.00
Bladder Pump (including controls)	12	days	\$135.00	\$	1,620.00
Disposable Bladders (pack of 10)	8	each	\$115.00	\$	920.00
Dedicated Tubing (1 time expense)	1	each	\$4,500.00	\$	4,500.00
			subtotal	\$	28,336.00

Analytical

Nitrate	18	each	\$17.25	\$	310.50
Iron	18	each	\$13.80	\$	248.40
Sulfate	18	each	\$19.55	\$	351.90
Sulfide	18	each	\$17.25	\$	310.50
Methane, Ethane, Ethene, CO2	18	each	\$126.50	\$	2,277.00
TOC/BOD/COD	18	each	\$126.50	\$	2,277.00
Alkalinity	18	each	\$17.25	\$	310.50
Chloride	18	each	\$17.25	\$	310.50
Volatile Fatty Acids	18	each	\$126.50	\$	2,277.00
			subtotal	\$	8,673.30

Reporting and MNA Screening Model

Senior Professional	200	\$/hr	\$ 120.00	\$	72,000.00
Registered Professional	600	\$/hr	\$ 105.00	\$	46,200.00
Project Professional	440	\$/hr	\$ 95.00	\$	15,200.00
CAD Operator	160	\$/hr	\$ 62.00	\$	5,952.00
Administration	96	\$/hr	\$ 41.00	\$	3,936.00
			subtotal	\$	143,288.00

MNA Effectiveness Sampling and Reporting

Field Work

Technician Time (2 techs)	3600	hours	\$66.00	\$	237,600.00
Mileage	15000	miles	\$0.52	\$	7,800.00
Water Level Probe	180	days	\$30.00	\$	5,400.00
Multi-parameter meter with flow cell (Hydrolab)	180	days	\$125.00	\$	22,500.00
Hydrolab Calibration Consumables	60	each	\$90.00	\$	5,400.00
Turbidity Meter	180	days	\$35.00	\$	6,300.00
Gator Rental	60	weeks	\$140.00	\$	8,400.00

Bladder Pump (including controls)	180	days	\$135.00	\$	24,300.00
Disposable Bladders (pack of 10)	120	each	\$115.00	\$	13,800.00
			subtotal	\$	331,500.00

Analytical (40 events)

Appendix II - Volatiles	720	each	\$115.00	\$	82,800.00
Appendix II - Semi Volatiles	720	each	\$195.50	\$	140,760.00
Appendix II - Metals	720	each	\$103.50	\$	74,520.00
Nitrate	720	each	\$17.25	\$	12,420.00
Iron	720	each	\$13.80	\$	9,936.00
Sulfate	720	each	\$19.55	\$	14,076.00
Sulfide	720	each	\$17.25	\$	12,420.00
Methane, Ethane, Ethene, CO2	720	each	\$126.50	\$	91,080.00
TOC/BOD/COD	720	each	\$126.50	\$	91,080.00
Alkalinity	720	each	\$17.25	\$	12,420.00
Chloride	720	each	\$17.25	\$	12,420.00
Volatile Fatty Acids	720	each	\$126.50	\$	91,080.00
			subtotal	\$	645,012.00

Corrective Action Evaluation Report (6 reports, 1 report every 5 years)

Senior Professional	250	\$/hr	\$	120.00	\$	30,000.00
Registered Professional	600	\$/hr	\$	105.00	\$	63,000.00
Project Professional	500	\$/hr	\$	95.00	\$	47,500.00
CAD Operator	160	\$/hr	\$	62.00	\$	9,920.00
Administration	100	\$/hr	\$	41.00	\$	4,100.00
				subtotal	\$	154,520.00

Contingency \$ 176,000.00

Total \$ 1,571,049.30

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK XII

15A NCAC 13B .0545

Installation of Additional Monitoring Wells to Monitor Effectiveness of Selected Remedy

Installation of 3 Performance Wells and 3 Sentinel Wells

Drilling Services	Qty	Unit	\$/Unit	Total
Drill Rig Mobilization	1	each	\$ 490.00	\$ 490.00
Soil Test Boring	300	foot	\$ 9.00	\$ 2,700.00
Installation of Type II Monitor Well	300	foot	\$ 25.00	\$ 7,500.00
Above Grade Protective Casing	6	each	\$ 175.00	\$ 1,050.00
Steam Cleaner	7	day	\$ 130.00	\$ 910.00
Grout Plant	3	day	\$ 91.00	\$ 273.00
Non-drilling time (water hauling, decon, etc.)	4	hours	\$ 110.00	\$ 440.00
			subtotal	\$ 13,363.00

Drilling Oversight

Project Professional	70	hours	\$ 95.00	\$ 6,650.00
Mileage	260	miles	\$ 0.52	\$ 135.20
Water Level Meter	3	days	\$ 30.00	\$ 90.00
			subtotal	\$ 6,875.20

Well Development and Slug Testing

Project Professional	40	hours	\$ 95.00	\$ 3,800.00
Mileage	260	miles	\$ 0.52	\$ 135.20
Water Level Meter	3	days	\$ 25.00	\$ 75.00
Pressure Transducer and Data Logger	3	days	\$ 40.00	\$ 120.00
Battery Operated Well Pump	3	days	\$ 20.00	\$ 60.00
			subtotal	\$ 4,190.20

Soil Laboratory Classification (for porosity estimates)

Atterburg Limits	6	each	\$ 68.00	\$ 408.00
Grain Size with Hydrometer	6	each	\$ 99.00	\$ 594.00
Specific Gravity	6	each	\$ 47.00	\$ 282.00
			subtotal	\$ 1,284.00

Well Survey

Project Professional	10	hours	\$ 95.00	\$ 950.00
Subcontracted Survey	1	each	\$ 2,000.00	\$ 2,000.00
			subtotal	\$ 2,950.00

Boring Logs, Well Logs, and Estimation of Groundwater Flow

Registered Professional	20	hours	\$ 105.00	\$ 2,100.00
Project Professional	60	hours	\$ 95.00	\$ 5,700.00
CAD Operator	16	hours	\$ 62.00	\$ 992.00
Administration	8	hours	\$ 41.00	\$ 328.00
			subtotal	\$ 9,120.00

Total \$ 37,782.40

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK XIII

15A NCAC 13B .0545

Maintenance and Repair of Additional Monitoring Wells

Repair of Protective Covers

Drilling Services

Repair of Protective Cover

Qty	Unit	\$/Unit	Total
4	each	\$ 2,000.00	\$ 8,000.00
		subtotal	\$ 8,000.00
		Total	\$ 8,000.00

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK XIV

15A NCAC 13B .0545

Sampling and Analysis of Additional Monitoring Wells

This item is included in Task XI

Total \$ -

Corrective Action Estimate of Probable Cost (2012 Dollars)

TASK XV

15A NCAC 13B .0545

Corrective Action Remedy is Complete

Project Professional	Qty	Unit	\$/Unit	Total
Senior Professional	36	\$/hr	\$ 120.00	\$ 4,320.00
Registered Professional	60	\$/hr	\$ 105.00	\$ 6,300.00
Project Professional	60	\$/hr	\$ 95.00	\$ 5,700.00
CAD Operator	40	\$/hr	\$ 62.00	\$ 2,480.00
			subtotal	\$18,800.00
			Total	\$18,800.00