

Scope of Services Compaction Testing, Soils Investigations, Drilling and Well Construction

SCHEDULE A

- (1) The Contractor shall provide qualified personnel to test and inspect the quality and placement of fill materials on the projects specified by the Engineer within eighteen (18) hours of notice. Tests and inspections shall include, but not be limited to, laboratory compaction tests, field density tests, moisture content determinations, percent compaction, types and gradations of the materials, and placement of the fill materials. The Contractor shall have control of and responsibility for the fill material, being empowered to reject any fill material failing to be suitable for the area placed, either for reasons of compaction or quality of materials.
- (2) The Contractor shall provide qualified personnel to provide on-site soil investigations to inventory the existing soil conditions and determine the general suitability of the soils encountered for the intended purposes. These investigations may be made by means of test pits, soil borings performed by hand augers or machine drills, or by continuous tube sampling with a three (3) inch diameter tube. The method will be determined by the City and the Contractor acting in conjunction based on the existing field conditions for the location being investigated. These investigations shall include, but not be limited to, soil classifications and boring logs, groundwater conditions, and those laboratory tests required to determine the suitability of the materials encountered for the intended purposes.
- (3) The Contractor shall provide qualified personnel and equipment to perform exploratory borings and to install groundwater, leachate, and gas monitoring wells. Services shall include but not be limited to, soil boring, well drilling, sediment/bedrock sampling, field and laboratory analyses, well installation, well development, and borehole/well abandonment. Boring/well locations, depths, and dimensions will be determined by the City. Proposed drilling locations could exist within areas exhibiting contamination (e.g., landfills and LUST sites). All well installation and abandonment activities shall be conducted per Ch. NR 141 of the Wisconsin Administrative Code. The Contractor shall be responsible for contacting the Digger's Hotline "One Call" system in advance of drilling at a proposed site to verify the location of underground utilities. Under the City's direction, the contractor shall remove and dispose of all drill cuttings and shall be responsible for site restoration.
- (4) The Contractor shall provide qualified personnel to obtain and analyze creek or lake sediment cores. The sediment cores shall be taken where directed by the City Engineer. "Shallow water sediment cores" shall include water five (5) feet deep or less. "Deep water sediment cores" shall include water greater than five (5) feet deep. The sediment cores shall have a minimum diameter of 10 cm. Core depths shall be determined for each specific site depending on the actual sediment depth. Cores shall be divided as directed by the City Engineer and each division (i.e., 12" increment, halves, thirds, etc.) shall be analyzed independently and shall constitute a lab analysis. These samples shall be analyzed for any combination of the constituents listed on the following page. Elutriate[TLCP] testing may be required for all chemicals listed. A second column has been provided for listing of prices for elutriate testing. Payments for each analysis being the sum of listed prices for all constituents analyzed. Tests performed on these cores shall be in compliance with Ch. NR 149 of the Wisconsin Administration code.
- (5) The Contractor shall provide field and laboratory testing facilities required to perform the tests and inspections.

- (6) The Contractor shall make those inspections and perform those tests at those locations and at those times as directed by the City Engineer.
- (7) The Contractor shall invoice the City Engineer on a monthly basis for services performed. A separate invoice shall be submitted for each project for which services were performed on, and the invoice shall describe the project name and City contract numbering, the date the services were performed, the hours for each of the Contractor's employees and their respective rates, and the number and description of reimbursable test.

Such payments shall be full compensation for services rendered and for all labor, materials, supplies, equipment and incidentals necessary to complete the services rendered.

There shall be no charge for mileage to and from projects other than drill rig mobilization.

- (8) The Contractor shall provide the services described in this contract at the following rates:

(a) General.

Laboratory Technician	\$ no charge	per Hour
Field Technician	\$29-51.00	per Hour
Field Engineer	\$64-78.00	per Hour
Professional Engineer	\$86-99.00	per Hour

Note: The above rates apply to the position and services performed regardless of the status of classification of the person performing the services.

- (b) Equipment for Compaction Testing

\$9.00

 per Field Density Test

(c) Soil Investigations and Monitoring Well/Probe Installations.

Drilling Rig Mobilization		
Truck Mounted	\$290.00	Each
Track Mounted	\$330.00	Each
Fuel Surcharge (fuel above \$4/gal)	9.00	% of mobilization
Equipment Decontamination (when required)	\$200.00	Day
Standard Soil Borings (ASTM D 1586)		
0' – 10' No Bentonite Backfill	\$13.00	V.F.
0' – 20' Bentonite Backfill	\$16.00	V.F.
20' – 40' Bentonite Backfill	\$17.00	V.F.
Casing for Rotary Drilling	\$7.00	V.F.
Additional Split Spoon Sample	\$25.00	V.F.
Machine Auger Borings		
No Bentonite Backfill	\$10.50	V.F.
Bentonite Backfill	\$14.00	V.F.
Rotary Wash Drill Casing	\$7.00	V.F.

Asphalt Patch Borehole	\$25.00	Each
Concrete Patch Borehole	\$30.00	Each
Continuous Tube Sampling, 3" Tube	\$130.00	Five Ft. of Depth
	\$260.00	Ten Ft. of Depth
Drill Concrete Pavement in Excess of 4" Thickness	\$50.00	Test Hole
Direct Push Sampling		
0' - 20' Depth	\$11.50	L.F.
20' - 40' Depth	\$11.50	L.F.
Water Sample Collection (peristaltic)	\$40.00	Each
Shallow Water Sediment Cores	\$300.00	V.F.
Deep Water Sediment Cores:		
5'-10' Depth	\$375.00	V.F.
10'-20' Depth	\$450.00	V.F.
20'-30' Depth	\$500.00	V.F.
Monitoring Well/Probe Installation		
Boring (2.25" I.D. Auger), 0' - 40' Depth	\$13.00	L.F.
Boring (3.25" I.D. Auger), 0' - 40' Depth	\$14.50	L.F.
Boring (6.25" I.D. Auger), 0' - 40' Depth	\$17.50	L.F.
Boring (6.25" I.D. Auger), 40' - 80' Depth	\$20.00	L.F.
Boring (6.25" I.D. Auger), 80' - 120' Depth	\$26.50	L.F.
Boring (8.25" I.D. Auger), 0' - 40' Depth	\$32.50	L.F.
Generator	\$60.00	Day
Rock Drilling - Air Rotary (6-inch dia.)	\$33.00	L.F.
Air Compressor - Air Rotary (750 cfm)	\$375.00	Day
Rock Drilling - Casing/Mud (6-inch dia.)	\$30.00	L.F.
1.0 Inch Schedule 40 PVC Well Casing, incl. installation and backfill	\$16.00	L.F.
2.5 Inch Schedule 40 PVC Well Casing, incl. installation and backfill	\$16.00	L.F.
2.5 Inch Schedule 80 PVC Well Casing, incl. installation and backfill	\$20.00	L.F.
6.0 Inch Schedule 80 PVC Well Casing, incl. installation and backfill	\$48.00	L.F.
Sand and Bentonite (Various Gradation)	\$11.00	Bag
Protective Casing (6" Aluminum) (w/ cap)	\$200.00	Each
Protective Casing (10" Steel) (w/ cap)	\$250.00	Each
Protective Casing (PVC Flush Mount)	\$70.00	Each
Well Development	\$75.00	Hour
Water Haul	\$120.00	Each
Soil Classification and WDNR Logs	\$11.00	Each
Hydraulic Conductivity Testing (Well Slug Test)	\$165.00	Hour
Rock Coring	\$48.00	L.F.
Well Repair Crew (incl. Standby)	\$175.00	Hour

Well Repair Parts (fill in the % charge)	\$5.00	Cost plus %
--	--------	-------------

(d) Laboratory Tests

Atterberg Limits	\$55.00	per Set
Wash and Dry Sieve Analysis	\$50.00	Each
Unconfined Compressive Strength	\$50.00	Each
Wet and Dry Densities	\$25.00	Each
Loss on Ignition	\$30.00	Each
Natural Moisture Content	\$4.00	Each
Particle size distribution by hydrometer (with curve)	\$99.00	per Sample
Hydraulic conductivity by falling head method	\$175.00	per Sample
Hydraulic conductivity by ASTM D 5084	\$400.00	per Sample
Optimum Moisture/Maximum Density Test Curve (Check Point Curve)		
Clay Soils	\$50.00	per Sample
Granular Soils	\$50.00	per Sample
Optimum Moisture/Maximum Density Test Curve (3-point Proctor)		
Clay soils	\$150.00	per Sample
Granular soils	\$150.00	per Sample

(e) Sampling Equipment

2-inch diameter Shelby tubes, 30-inches long, with end caps	\$53.00	Each
2-inch diameter Shelby tubes, 36-inches long, with end caps	\$53.00	Each
3-inch diameter Shelby tubes, 12-inches long, with end caps	\$48.00	Each
3-inch diameter Shelby tubes, 18-inches long, with end caps	\$50.00	Each
3-inch diameter Shelby tubes, 24-inches long, with end caps	\$53.00	Each
3-inch diameter Shelby tubes, 30-inches long, with end caps	\$60.00	Each
3-inch diameter Shelby tubes, 36-inches long, with end caps	\$60.00	Each
Chipped bentonite, 50-pound bags	\$11.00	per Bag
Granular bentonite, 50-pound bags	\$11.00	per Bag

(f) Core/Soil Analysis (Lab costs exclusive of personnel). There shall be no additional charge for laboratory equipment required to perform the services rendered, other than those listed below. Prices below are for standard ten (10) working day turnaround. Premium charge for 24 hour turnaround shall increase the below cost by two times, premium charge for 2 to 3 working day turnaround shall increase the below cost by 1.75

times, premium charge for 4 to 5 working day turnaround shall increase the below cost by 1.3 times.

Chemical/Parameter	Minimum Limit of Detection to be provided for Soil Samples (mg/kg)	Soil Sample Test Cost	[TCLP] Elutriate Sample Test Cost	[TCLP] Elutriate Water
Metals				
Arsenic	0.39	\$13.00	\$70.00	\$13.00
Barium	5500	\$13.00	\$70.00	\$13.00
Cadmium	8	\$13.00	\$70.00	\$13.00
Total Chromium	0.5	\$13.00	70.00	\$13.00
Chromium Hexavalent	14	\$55.00	70.00	\$55.00
Chromium Trivalent	16000	\$60.00	70.00	\$13.00
Copper	2900	\$13.00	\$70.00	\$13.00
Cyanide	0.6	\$13.00	\$70.00	\$13.00
Iron	10	\$13.00	\$70.00	\$13.00
Lead	50	\$13.00	\$70.00	\$13.00
Manganese	0.5	\$13.00	\$70.00	\$13.00
Mercury	23	\$30.00	\$70.00	\$28.00
Nickel	1600	\$13.00	\$70.00	\$13.00
Selenium	390	\$13.00	\$70.00	\$13.00
Zinc	2300	\$13.00	\$70.00	\$13.00
Indicators				
Oil and Grease	---	\$66.00	70.00	\$66.00
NO ² , NO ³ , NH ³ -N, TKN	7800	66.00	70.00	\$104.00
Total Organic Carbon	250	\$66.00	70.00	\$55.00
Total P	1.6	66.00	70.00	\$28.00
Volatiles				
VOCs	---	\$83.00	70.00	\$83.00
PVOCs	---	\$33.00	70.00	\$33.00
DRO	---	\$38.00	70.00	\$38.00
GRO	---	\$31.00	70.00	\$31.00
Other				
PCBs (Include following)	See Below (mg/kg)	\$138.00	\$70.00	\$138.00
PCB-1016	5.5			
PCB-1221	1.6			
PCB-1232	1.6			
PCB-1242	1.6			
PCB-1248	1.6			
PCB-1254	1.6			
PCB-1260	1.6			

Chemical/Parameter	Minimum Limit of Detection to be provided for Soil Samples (mg/kg)	Soil Sample Test Cost	[TCLP] Elutriate Sample Test Cost	[TCLP] Elutriate Water
Pesticides (Include following)	See Below (mg/kg)	\$155.00	\$70.00	\$155.00
Aldrin	0.38			
Dieldrin	.04			
Endrin	23			
Heptachlor	.14			
Lindane	---			
Toxaphene	.58			
Trans-Chlordane	.49			
cis-Chlordane	.49			
o,p-DDT	1.9			
p,p-DDT	1.9			
o,p-DDD	1.9			
p,p-DDD	1.9			
o,p-DDE	1.9			
p,p-DDE	1.9			
PAHs (Include following)	See Below (ug/kg)	\$100.00	\$70.00	\$100.00
Dibenzo(a,h) anthracene	(1)			
Anthracene	(1)			
Benzo(a)pyrene	(1)			
Benzo(b)fluoranthene	(1)			
Benzo(g,h,i)perylene	(1)			
Benzo(k)fluoranthene	(1)			
Fluoranthene	(1)			
Indeno(1,2,3,c,d)pyrene	(1)			
Naphthalene	(1)			
Phenanthrene	(1)			
Pyrene	(1)			

(1) Detection Limits on PAH soils analysis will meet industry standard.