



September 9, 2015

Mr. Zi-Qiang Chen, PhD, Environmental Engineer  
North Carolina Department of Environment and Natural Resources  
Division of Waste Management, Pre-Regulatory Landfill Unit  
1646 Mail Service Center  
Raleigh, North Carolina 27699-1646

Reference: **TASK ORDER 808DP-16 WORK PLAN AND COST PROPOSAL**  
**Textural Control for Aiding Remedial Action Design**  
**Falls Dump**  
2731 Forbes Road, Gastonia, Gaston County, NC  
ID # NONCD0000808  
State Contract # N13001S  
ESP Project No. E6-BN12.608.006

Dear Mr. Zi-Qiang:

ESP Associates, P.A. (ESP) is pleased to provide the attached cost proposal for Task Order 808DP-16 for textural control activities for aiding remedial action design at the Falls Dump (State ID # NONCD0000808). This proposal was developed in accordance with the scope of work requested by the NCDENR Pre-Regulatory Landfill Unit via a letter dated August 31, 2015, and follow-up telephone conversations with NCDENR. All sampling activities will be performed in general accordance with ESP's *Standard Operating Procedures and Quality Assurance Manual*, including field instrument calibration and sampling equipment decontamination. Driller bids for the proposed field effort are attached to the cost proposal. A detail of proposed laboratory analysis is also attached to the cost proposal.

Eddie Rogers will be ESP's staff geologist and Nora Zirps will be ESP's project engineer. Quality control oversight will be provided by ESP's senior manager, Chris Ward. In addition to the staff geologist, a technician will also be on-site to assist in marking soil boring locations, collection and shipping of waste zone samples, and performing sampling equipment decontamination. Drilling services will be provided by a driller licensed in the State of North Carolina. Sample analytical services will be provided by a North Carolina certified laboratory. All staff, including contractor personnel, engaged in intrusive field activities at the site will comply with OSHA required health and safety training for hazardous waste sites.

ESP will take photographs of the site (general site area and at each drilling location) before and after the field effort to document potential impact to the property as a result of the field effort. Photographs will also be taken to document any restoration efforts and noteworthy observations during the field effort.

### **Subtask A: Work Plan and Cost Proposal Preparation**

This letter represents ESP's work plan for the textural control activities at the Falls Dump. Preparation of this work plan involved the following activities:

- Communications with NCDENR to discuss and clarify the scope of work.
- Development of the work plan text.
- Preparation of request for proposals to secure driller bids.
- Review of driller bids.
- Obtaining laboratory pricing and detection limits.
- Development of a proposed field schedule (see Figure 1).
- Preparation of the associated cost proposal.

### **Subtask B: Waste Zone Sampling and Analysis**

A maximum of 22 soil borings (designated SB-61 through SB-82) will be advanced to a depth of approximately 2 feet (ft) into the waste, or a maximum of 15 ft below ground surface (bgs) if waste is not encountered, to collect waste zone samples for laboratory analysis. The approximate locations of the first 11 soil borings (designated SB-61 through SB-71) are depicted on Figure 2. Subsequent soil borings will be advanced 15 to 30 ft horizontally from the initial soil borings in the directions indicated on Figure 2. Each soil boring will be advanced using a track-mounted Geoprobe® drill rig (e.g., Geoprobe 7822DT or equivalent) equipped with 4¼-inch inner diameter (ID) hollow stem augers (HSAs).

To the extent possible, drill cuttings will be logged and visually classified to identify soil types in general accordance with the Unified Soil Classification System and to describe encountered waste. In addition, drill cuttings will be field screened with a photoionization detector (PID) for total volatile organic compounds (VOCs).

At each soil boring location where waste is encountered, a waste zone sample will be collected from the drill cuttings for laboratory analysis.

A subset of the waste zone samples (one from each Site parcel except the primary Site parcel [Parcel Identification No. 3543-43-8083]) will be analyzed for the following parameters per the scope of work and Appendix B of the NCDENR *Guidelines for Addressing Pre-Regulatory Landfills and Dumps*:

- Target compound list (TCL) VOCs by SW-846 Method 8260B;
- 1,4-Dioxane by SW-846 Method 8260SIM;
- TCL semivolatile organic compounds (SVOCs) by SW-846 Method 8270D-LL;
- Target analyte list (TAL) metals by SW-846 Method 6020A (i.e., antimony, arsenic, beryllium, cadmium, chromium, copper, iron, lead, manganese, nickel, selenium, silver, thallium, and zinc);
- Mercury by SW-846 Method 7471B;
- Ammonia by EPA Method 350.1;
- Sulfate and nitrate by SW-846 Method 9056A; and
- Asbestos by EPA/600/R-93/116 with milling if no discernible suspect asbestos-containing waste material is encountered, or EPA/600/R-93/116 without milling if discernible suspect asbestos-containing waste material is encountered and a suitable sample can be collected.

VOC and SVOC analysis will not include tentatively identified compounds (TICs) per direction of NCDENR.

The remaining waste zone samples will be analyzed for the following parameters per the scope of work:

- Lead and thallium by SW-846 Method 6020A; and
- Asbestos by EPA/600/R-93/116 with milling if no discernible suspect asbestos-containing waste material is encountered, or EPA/600/R-93/116 without milling if discernible suspect asbestos-containing waste material is encountered and a suitable sample can be collected.

The following field quality control (QC) samples will be collected:

- One set of volatile trip blanks (TCL VOCs and/or 1,4-dioxane) in each cooler containing samples to be analyzed for these volatile parameters.
- One duplicate waste zone sample for each day of the field effort (a total of 4 duplicate waste zone samples estimated) to be analyzed for the parameters listed above.
- One equipment rinsate blank (approximately one per 20 waste zone samples collected) from the decontaminated stainless steel bowl used to homogenize the waste zone samples to be analyzed for the parameters listed above (excluding asbestos).

The following field preparation activities are also included in this subtask:

- Estimation of proposed soil boring location global positioning system (GPS) coordinates;
- Contacting the North Carolina One-Call Center (811) to mark utilities;
- Development of site-specific boring logs and waste zone sampling forms; and

- Procuring the necessary equipment, materials, and supplies.

Boring locations will be staked and/or flagged, and the boring locations will be recorded using a GPS unit. Coordinates will be recorded in State Plane Coordinate System using the North American Datum of 1983 (NAD83) and the World Geodetic System of 1984 (WGS84) in decimal degrees to the seventh order. Stakes and flags will be left in place at the end of the field effort.

The following documentation will be compiled or prepared following completion of the field effort:

- Copies of field logbook, field boring logs, waste zone sampling forms, and field instrument calibration forms;
- Photographs;
- Electronically-produced boring logs for each soil boring;
- A table of GPS coordinates for the soil boring locations;
- Laboratory analytical reports for waste zone samples and associated field QC samples;
- A soil boring location map based on the GPS coordinates;
- A table of waste zone sample analytical results listing only compounds detected in one or more samples, and indicating detections above preliminary soil remediation goals (PSRGs); and
- A waste zone sample concentration map showing detections above PSRGs.

### **Subtask C: Investigative Derived Waste (IDW)**

Soil borings will be abandoned by backfilling with the drill cuttings removed from that boring, followed by grouting or hydrated bentonite (pellets or chips) to reach the ground surface, if necessary. In the event that groundwater is encountered in a borehole, the borehole will be initially backfilled using bentonite pellets or chips to the top of the water table, and then drill cuttings will be used to backfill the remainder of the borehole. Drill cuttings will be temporarily stored on plastic sheeting (or equivalent). Soil cuttings and waste material cuttings will be segregated such that the waste material cuttings can be returned to the borehole first. Using this approach, any excess material remaining after backfilling is complete will represent cover soil that can be spread on the waste disposal area in a location that is not covered by grass.

Decontamination water will be discharged to the surface of the waste disposal area. Used personal protective equipment (PPE), plastic sheeting, and other disposable sampling materials will be disposed offsite at an appropriate location (e.g., a municipal landfill).

If waste cuttings exhibit properties of potentially contaminated material based on PID readings and/or visual observation, the NCDENR project manager will be contacted for direction. The driller's bid includes the cost of one 55-gallon drum and a wooden pallet in the event residual waste cuttings require containerization. The cost proposal includes the cost of one waste

characterization sample (TCLP plus characteristics). While the sample is being analyzed, the drum will be staged on a wooden pallet within a secured self-standing temporary chain-link fence (to be located per NCDENR's direction).

If the laboratory results indicate the waste is hazardous, the costs for off-site disposal or additional laboratory analysis are not included in the cost estimate. However, if the waste analysis indicates the waste is non-hazardous, the cost of a return trip to spread the waste cuttings on the waste disposal area or other area as directed by the NCDENR project manager is included in the cost estimate. During this subsequent trip, the waste drum and fencing will be removed from the site.

#### **Subtask D: Report Compilation**

ESP will prepare a report to be titled "Remedial Investigation – Textural Control for Aiding Remedial Action Design," for electronic submittal in pdf format, as follows:

- Objective of the textural control activities;
- Soil boring summary to include dates, drilling and waste zone sampling procedures, lithology, and soil boring abandonment procedures;
- Waste zone sample exceedances above PSRGs (i.e., contaminants of concern);
- QC sample assessment;
- Tables (as defined above under Subtask B);
- Figures (as defined above under Subtask B); and
- Appendices (as appropriate):
  - GPS coordinates (not surveyed coordinates),
  - Photographs (as directed by NCDENR),
  - Electronically-produced boring logs,
  - Field notes including logbook, field boring logs, waste zone sampling forms, and field instrument calibration forms, and
  - Laboratory analytical reports.

#### **Subtask E: Project Management**

The following activities are included in this subtask:

- Procurement and coordination of subcontractors (laboratories and driller);
- Providing project management and technical support to the field sampling team;
- Providing project management and communication with NCDENR; and
- Invoicing and administrative tasks.

If the attached Cost Proposal is satisfactory, please acknowledge with a written notice to proceed. All work will be performed in accordance with State Contract # N13001S. Should you have any questions or require additional information, please do not hesitate to contact me at (336) 232-5213.

Sincerely,  
**ESP Associates, P.A.**



Nora A. Zirps, PE  
Senior Project Engineer



Christopher J. Ward, PG  
Program Manager

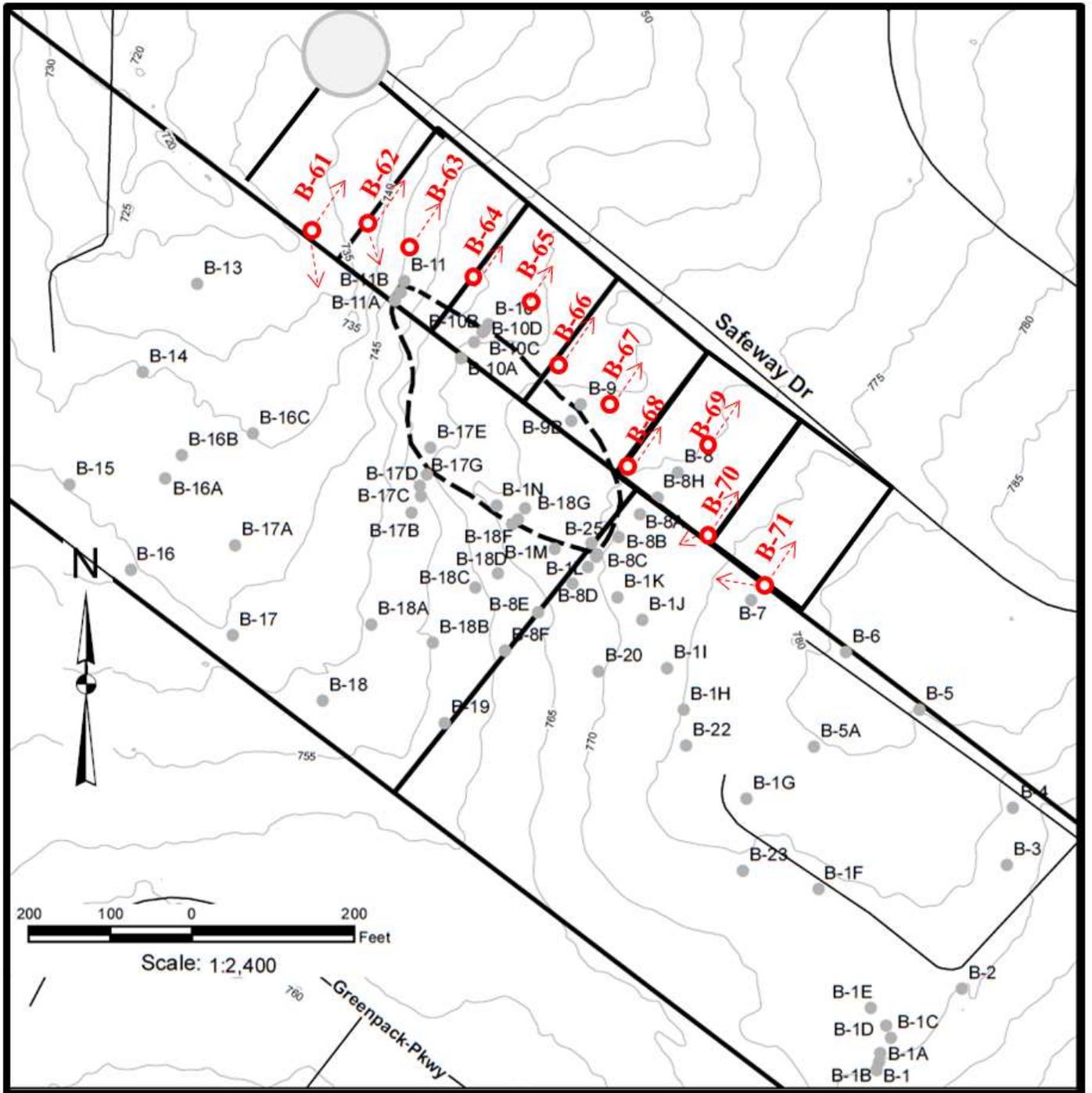
Attachments:

- Figure 1 – Proposed Field Schedule
- Figure 2 – Proposed Initial Soil Boring Locations Map
- Cost Proposal – Task Order 808DP-16
- Laboratory Analysis Detail
- Driller Proposals

NAZ/CJW/BFW/mb

**Figure 1**  
**Proposed Field Schedule - Task Order 808DP-16**  
**Falls Dump - ID # NONCD0000808**

| Field Schedule | Subtask  | ESP On-site Staff |                  | Others On-site |
|----------------|--|-------------------|------------------|----------------|
|                |  | Staff Level       | Technician Level |                |
| Week 1 - Day 1 | B - Mobilize drill rig and field crew. Locate and flag initial soil boring locations, and record GPS coordinates. Advance soil borings. Collect and ship waste zone samples. | 1                 | 1                | Drillers       |
| Week 1 - Day 2 | B - Advance soil borings. Collect and ship waste zone samples.   | 1                 | 1                | Drillers       |
| Week 1 - Day 3 | B - Advance soil borings. Collect and ship waste zone samples.   | 1                 | 1                | Drillers       |
| Week 1 - Day 4 | B - Advance soil borings. Collect and ship waste zone samples. Record GPS coordinates for additional soil borings. Demobilize drill rig and field crew.                      | 1                 | 1                | Drillers       |



**Borings & potential subsequent boring directions (at 15' to 30' spacing)**

Figure 2  
 Proposed Initial Soil Boring Locations Map - Task Order 808DP-16  
 Falls Dump - ID# NONCD0000808

**Subtask A - Work Plan and Cost Proposal Preparation**

**Labor**

|                         |             |          |            |
|-------------------------|-------------|----------|------------|
| Senior                  | \$116 /hr x | 1 hrs =  | \$116.00   |
| Project                 | \$100 /hr x | 13 hrs = | \$1,300.00 |
| Staff                   | \$85 /hr x  | 1 hrs =  | \$85.00    |
| Word Processor/Clerical | \$49 /hr x  | 1 hrs =  | \$49.00    |

**Subtotal - Subtask A \$1,550.00**

**Subtask B - Waste Zone Sampling and Analysis**

**Labor**

|                              |            |          |            |
|------------------------------|------------|----------|------------|
| Staff (Field and prep.)      | \$85 /hr x | 45 hrs = | \$3,825.00 |
| Staff (Office)               | \$85 /hr x | 29 hrs = | \$2,465.00 |
| Technician (Field and prep.) | \$70 /hr x | 45 hrs = | \$3,150.00 |
| Draftsperson/CAD             | \$65 /hr x | 20 hrs = | \$1,300.00 |
| Word Processor/Clerical      | \$49 /hr x | 4 hrs =  | \$196.00   |

**Equipment**

|                |             |          |          |
|----------------|-------------|----------|----------|
| PID            | \$125 /day  | 4 days = | \$500.00 |
| GPS Unit       | \$120 /day  | 2 days = | \$240.00 |
| GPS Unit - Tax | \$8.40 /day | 2 days = | \$16.80  |

**Expendables and Reimbursables**

|   |               |             |            |
|---|---------------|-------------|------------|
| Mileage                                     | \$0.555 /mile | 240 miles = | \$133.20   |
| Field Expendables                           | \$30 /day     | 4 days =    | \$120.00   |
| Drilling (see attached bids)                | \$6,700 /unit | 1 unit =    | \$6,700.00 |
| Laboratory (see attached detail)            | \$5,703 /unit | 1 unit =    | \$5,703.00 |
| Laboratory - Asbestos (see attached detail) | \$1,560 /unit | 1 unit =    | \$1,560.00 |

**Subtotal - Subtask B \$25,909.00**

**Subtask C - Investigative Derived Waste (IDW)**

**Labor**

|            |            |          |          |
|------------|------------|----------|----------|
| Staff      | \$85 /hr x | 10 hrs = | \$850.00 |
| Technician | \$70 /hr x | 10 hrs = | \$700.00 |

**Expendables and Reimbursables**

|  |               |            |          |
|--|---------------|------------|----------|
| Mileage                                  | \$0.555 /mile | 50 miles = | \$27.75  |
| Field Expendables                        | \$30 /day     | 1 day =    | \$30.00  |
| Laboratory (waste - see attached detail) | \$380 /unit   | 1 unit =   | \$380.00 |
| Chain-link Fence Enclosure               | \$500 /unit   | 1 unit =   | \$500.00 |

**Subtotal - Subtask C \$2,487.75**

**Subtask D - Report Compilation**

**Labor**

|                         |             |         |          |
|-------------------------|-------------|---------|----------|
| Senior                  | \$116 /hr x | 1 hrs = | \$116.00 |
| Project                 | \$100 /hr x | 5 hrs = | \$500.00 |
| Staff                   | \$85 /hr x  | 6 hrs = | \$510.00 |
| Draftsperson/CAD        | \$65 /hr x  | 3 hrs = | \$195.00 |
| Word Processor/Clerical | \$49 /hr x  | 2 hrs = | \$98.00  |

**Subtotal - Subtask D \$1,419.00**

**Subtask E - Project Management**

**Labor**

|                         |             |          |            |
|-------------------------|-------------|----------|------------|
| Senior                  | \$116 /hr x | 2 hrs =  | \$232.00   |
| Project                 | \$100 /hr x | 20 hrs = | \$2,000.00 |
| Word Processor/Clerical | \$49 /hr x  | 2 hrs =  | \$98.00    |

**Subtotal - Subtask E \$2,330.00**

**Total - Task 808DP-16 \$33,695.75**

**Falls Dump - Task Order 808DP-16 - Laboratory Analysis Detail**

**Waste Zone Samples - 7 samples, plus 4 duplicates, 1 rinsate blank (see below), and 5 trip blanks (see below)**

| Method                 | Analytes   | No. of Samples | Unit Price | Total Cost        |
|------------------------|--|----------------|------------|-------------------|
| SW-846 Method 8260B    | TCL VOCs   | 11             | \$60.00    | \$660.00          |
| SW-846 Method 8260SIM  | 1,4-Dioxane  | 11             | \$90.00    | \$990.00          |
| SW-846 Method 8270D_LL | TCL SVOCs  | 11             | \$145.00   | \$1,595.00        |
| SW-846 Method 6020A    | Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Se, Ag, Tl, Zn | 11             | \$85.00    | \$935.00          |
| SW-846 Method 7471B    | Mercury  | 11             | \$20.00    | \$220.00          |
| EPA Method 350.1       | Ammonia  | 11             | \$20.00    | \$220.00          |
| SW-846 Method 9056A    | Nitrate and Sulfate                                    | 11             | \$24.00    | \$264.00          |
| <b>Sub Total \$</b>    |  |                |            | <b>\$4,884.00</b> |

**Waste Zone Samples - 22 samples, plus 4 duplicates**

| Method                          | Analytes | No. of Samples | Unit Price | Total Cost        |
|---------------------------------|----------|----------------|------------|-------------------|
| EPA/600/R-93/116 with Milling * | Asbestos | 26             | \$60.00    | \$1,560.00        |
| <b>Sub Total \$</b>             |          |                |            | <b>\$1,560.00</b> |

\* If suspect asbestos-containing waste material is discernible in the drill cuttings, a sample of that material will be collected and analyzed using the indicated method without milling at a unit price of \$5.00.

**Waste Zone Samples - 15 samples**

| Method              | Analytes | No. of Samples | Unit Price | Total Cost      |
|---------------------|----------|----------------|------------|-----------------|
| SW-846 Method 6020A | Pb, Tl   | 15             | \$25.00    | \$375.00        |
| <b>Sub Total \$</b> |          |                |            | <b>\$375.00</b> |

**Rinsate Blanks**

| Method                   | Analytes   | No. of Samples | Unit Price | Total Cost      |
|--------------------------|--|----------------|------------|-----------------|
| SW-846 Method 8260B      | TCL VOCs   | 1              | \$60.00    | \$60.00         |
| SW-846 Method 8260SIM    | 1,4-Dioxane  | 1              | \$90.00    | \$90.00         |
| SW-846 Method 8270D - LL | TCL SVOCs  | 1              | \$145.00   | \$145.00        |
| SW-846 Method 3030/6020A | Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Se, Ag, Tl, Zn | 1              | \$85.00    | \$85.00         |
| SW-846 Method 7470A      | Mercury  | 1              | \$20.00    | \$20.00         |
| EPA Method 350.1         | Ammonia  | 1              | \$20.00    | \$20.00         |
| SW-846 Method 300.0      | Nitrate and Sulfate                                    | 1              | \$24.00    | \$24.00         |
| <b>Sub Total \$</b>      |  |                |            | <b>\$444.00</b> |

**Trip Blanks**

| Method                | Analytes    | No. of Samples | Unit Price        | Total Cost        |
|-----------------------|-------------|----------------|-------------------|-------------------|
| SW-846 Method 8260B   | TCL VOCs    | 5              | no cost to client | no cost to client |
| SW-846 Method 8260SIM | 1,4-Dioxane | 5              | no cost to client | no cost to client |
| <b>Total \$</b>       |             |                |                   | <b>\$7,263.00</b> |

**Waste Characterization**

| Method                    | Analytes                              | Number of Samp | Unit Price | Total Cost      |
|---------------------------|---------------------------------------|----------------|------------|-----------------|
| SW-846 1311               | TCLP Extraction                       | 1              | \$30.00    | \$30.00         |
| SW-846 1311               | ZHE Extraction                        | 1              | \$30.00    | \$30.00         |
| SW-846 Method 8260B       | TCLP VOC Analysis                     | 1              | \$60.00    | \$60.00         |
| SW-846 Method 8270D       | TCLP SVOC Analysis                    | 1              | \$125.00   | \$125.00        |
| SW-846 Method 6010C/7470A | TCLP Metals Analysis                  | 1              | \$60.00    | \$60.00         |
| various                   | Ignitability, Corrosivity, Reactivity | 1              | \$75.00    | \$75.00         |
| <b>Sub Total \$</b>       |                                       |                |            | <b>\$380.00</b> |



PRICE ESTIMATE

CLIENT:ESP Associates-Greensboro, NC  
 PROJECT MANAGER:Nora Zirps  
 PROJECT NAME:Falls Dump-Gastonia, NC  
 DATE:9-4-15

| WORK DESCRIPTION   | AMOUNT               | QTY | TOTAL              |
|--|----------------------|-----|--------------------|
| <b>MOBILIZATION:</b>   |                      |     |                    |
| Travel   | \$ 350.00/event      | 1   | \$ 350.00          |
| <b>GEOPROBE:</b>   |                      |     |                    |
| Daily Rate-including all labor, steamcleaning, grout, water tank, grass seed and straw for repair of drill rig ruts, cleanup | \$1575.00/day        | 4   | \$ 6,300.00        |
| <b>GEOPROBE:</b>   |                      |     |                    |
| Half Day Rate-including all labor, steamcleaning, grout, water tank, cleanup   | \$ 787.00/per 1/2day |     | (if required)      |
| <b>MATERIALS:</b>  |                      |     |                    |
| 55 gallon drum with pallet   | \$ 50.00/each        | 1   | \$ 50.00           |
| <b>TOTAL COST ESTIMATE</b>   |                      |     | <b>\$ 6,700.00</b> |

**Geoprobe 7822**  
**Hollow Stem Augers-4-1/4" ID, 8" OD**  
**Water supply from our office in Statesville, NC**  
**Work hours per day-9**



**Drilling - Direct Push - Remediation Services**

9088 Northfield Drive

Fort Mill, South Carolina 29707

Phone: (803) 548-2180 / Fax: (803) 548-2181

www.saedacco.com

*Proposal*

ESP Associates, PA - Greensboro  
7204 West Friendly Avenue, Suite G  
Greensboro, NC 27410  
Phone: (336) 334-7724 / Fax:  
Email: nzirps@espassociates.com

RE: Falls Dump  
2731 Forbes Road  
Gastonia, North Carolina

ATTN: Nora Zirps

FROM: Pete Byer (pbyer@saedacco.com)

Project Date: 9/2/2015  
Last Revised Date: 9/2/2015  
Job Number: 20150902-1745

| Description / Unit | Quantity | Rate | Extension |
|--------------------|----------|------|-----------|
|--------------------|----------|------|-----------|

Scope of Work : DPT sampling and collection of soil samples from 22 soil borings with 4.25" ID hollow stem augers to a maximum depth of 15 feet BLS for waste assessment. SAEDACCO will use a Geoprobe 7822DT to complete this work and will supply water daily from our shop.

**TRAVEL:**

|                       |   |          |          |
|-----------------------|---|----------|----------|
| Mobilization, each    | 1 | \$350.00 | \$350.00 |
| Per Diem - 2-Man Crew | 0 | \$170.00 | \$0.00   |

**SOIL BORINGS / WELLS:**

|                               |     |         |          |
|-------------------------------|-----|---------|----------|
| Borehole Abandonment, per ft. | 330 | \$6.00  | Included |
| Teflon Macro Core Liners      | 0   | \$98.00 | \$0.00   |

**DECONTAMINATION:**

|                        |   |         |          |
|------------------------|---|---------|----------|
| Steam Cleaner, per day | 4 | \$75.00 | Included |
|------------------------|---|---------|----------|

**GEOPROBE SERVICES:**

|  |   |            |            |
|--|---|------------|------------|
| DPT Track Rig w/HSAs & 2-Man Crew, per 9 hr. day | 4 | \$1,700.00 | \$6,800.00 |
| DPT Track Rig w/HSAs & 2 Man Crew, per 5-hr. day | 0 | \$1,200.00 | \$0.00     |

**OTHER:**

|   |   |          |          |
|---|---|----------|----------|
| 55-Gallon Drums / Containment Labor, per drum | 0 | \$50.00  | \$0.00   |
| Site Restoration - Materials, lump sum        | 1 | \$150.00 | Included |

**Total Estimated Cost:** \$7,150.00

**Time Estimate - 4 Days**

**ACCEPTANCE:**

Name / Title: \_\_\_\_\_  
Date: \_\_\_\_\_  
P.O. Number: \_\_\_\_\_

**SAEDACCO:**

Name / Title: \_\_\_\_\_  
Date: \_\_\_\_\_

SAEDACCO is not liable for any damage to any underground property or utilities as long as the drilling is done at the location indicated by Client field representative and SAEDACCO has not been contracted to locate underground utilities and/or structures.

Monthly Invoices are due and payable on receipt in U.S. dollars. Invoices not paid within 30 days of date of invoice are subject to an interest charge of one and one-half percent (1.5%) on the outstanding balance for each month or portion thereof beyond the thirty day period.