

RESOLUTION NO. _____

A RESOLUTION AUTHORIZING THE ADMINISTRATOR OF THE DEPARTMENT OF PUBLIC WORKS TO ENTER INTO AN AGREEMENT WITH CTI ENGINEERS, INC. (WITH SCS ENGINEERS AS SUB) FOR PROFESSIONAL SERVICES RELATIVE TO CONTRACT NO. C-13-001-101, SUMMIT LANDFILL DEFICIENCY RECOMMENDATIONS AND REPAIRS, FOR A TOTAL AMOUNT NOT TO EXCEED THREE HUNDRED FIFTY THOUSAND DOLLARS (\$350,000.00).

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF CHATTANOOGA, it is hereby authorizing the Administrator of the Department of Public Works to enter into an agreement with CTI Engineers, Inc. (with SCS Engineers as sub) for professional services relative to Contract No. C-13-001-101, Summit Landfill Deficiency Recommendations and Repairs, for a total amount not to exceed \$350,000.00.

ADOPTED: _____, 2013.

/mms

City of Chattanooga



Resolution Request Form

(This form is only required for resolutions requiring expenditure of City funds)

Date: June 27, 2013

Preparer: William C. Payne

Department: Public Works - Engineering

Brief Description of Purpose for Resolution:

Resolution Number (if approved by Council): _____

A City Council Action is requested to authorize the Administrator of the Public Works Department to enter into an agreement with CTI Engineers, Inc. (with SCS Engineers as sub) for professional services relative to Contract No. C-13-001-101, Summit Landfill Deficiency Recommendations & Repairs for a total amount not to exceed 350,000.

Name of Vendor/Contractor/Grant, etc.	CTI Engineer, Inc.	New Contract/Project? (Yes or No)	Yes
Total project cost \$	350,000.00	Funds Budgeted? (YES or NO)	Yes
Total City of Chattanooga Portion \$	0	Provide Fund	6020
City Amount Funded \$	350,000.00	Provide Cost Center	K50105
New City Funding Required \$	N/A	Proposed Funding Source if not budgeted	N/A
City's Match Percentage %	N/A	Grant Period (if applicable)	N/A

List all other funding sources and amount for each contributor.

Amount(s)	Grantor(s)

Agency Grant Number _____
 CFDA Number if known _____

Other comments: (Include contingency amount, contractor, and other information useful in preparing resolution)
 Solid Waste Capital Budget

Approved by: DESIGNATED OFFICIAL/ADMINISTRATOR

Reviewed by: FINANCE OFFICE
 Please submit completed form to @budget, City Attorney and City Finance Officer



1122 RIVERFRONT PARKWAY
 CHATTANOOGA, TN 37402
 PHONE: 423.267.7613
 FAX: 423/267.0603
 www.ctiengr.com

LETTER OF TRANSMITTAL

TO: City of Chattanooga Department of Public Works
 Development Resource Center
 1250 Market Street, 2nd Floor
 Chattanooga, Tennessee 37402

Date: November 19, 2013	Account No. CP13030
Attention: Jim Luebbering, P.E.	
Regarding: Engineering Agreement - City Landfills	

WE ARE SENDING YOU Attached Under Separate Cover Via _____
 Report(s) Drawings Contracts Shop Drawings Specifications
 Copy of Letter Change Order Forms _____

Copies	Description
7	Engineering Agreement - Landfill Deficiency Recommendations and Repairs

THESE ARE TRANSMITTED

- | | | |
|---|--|--|
| <input type="checkbox"/> For Your Approval | <input type="checkbox"/> Sign, Date, Return | <input type="checkbox"/> Reviewed |
| <input type="checkbox"/> As Requested | <input type="checkbox"/> Sign, Date, Forward | <input type="checkbox"/> Exceptions as Noted |
| <input type="checkbox"/> For Your Information | <input type="checkbox"/> For Review, Comment | <input type="checkbox"/> Revise and Resubmit |
| | <input checked="" type="checkbox"/> For Your Use | <input type="checkbox"/> Rejected |

REMARKS

If you have any questions, please do not hesitate to contact me.

COPY TO: CTI Files

SIGNED 

IF ENCLOSURES ARE NOT AS NOTED, PLEASE NOTIFY US AT ONCE!



CITY OF CHATTANOOGA
STANDARD AGREEMENT FOR ENGINEERING SERVICES

THIS AGREEMENT, is between the City of Chattanooga, Tennessee, a municipal corporation in the state of Tennessee, hereinafter called Owner, and

Consolidated Technologies, Inc., dba CTI Engineers, Inc.,

Hereinafter called Engineer.

The Owner wishes to employ the Engineer to perform professional engineering services for C-13-001-101, Professional Services for Landfill Deficiency Recommendations and Repairs, hereinafter called Project.

In consideration of the provisions contained in this Agreement, the Owner and Engineer agree to the following:

1. **EFFECTIVE DATE**
 The effective date of this Agreement shall be _____, 20_____.
2. **GOVERNING LAW**
 This Agreement shall be governed by the laws of the State of Tennessee and the codes of the City of Chattanooga.
3. **SERVICES TO BE PERFORMED BY ENGINEER**
 Engineer shall perform the Services described in Attachment A, Scope of Services, in accordance with applicable sections of the City of Chattanooga Design and Construction Standards in effect on the date of this agreement.
4. **COMPENSATION**
 Owner shall pay Engineer in accordance with the Attachment B, Compensation.
5. **OWNER'S RESPONSIBILITIES**
 Owner shall be responsible for all matters described in Attachment C, Owner's Responsibilities.
6. **SUPPLEMENTAL AGREEMENTS**
 The provisions set forth in Attachment D, Supplemental Agreements, shall be incorporated into this Agreement
7. **PROJECT SCHEDULE**
 The provisions set forth in the Attachment E, Project Schedule, shall be incorporated into this Agreement.
8. **RATE SCHEDULE**
 The Engineer shall provide a schedule of standard hourly rates for all employees to be used in the performance of all contracts with a cost-not-to-exceed basis. This schedule shall be incorporated into the agreement as Attachment F.
9. **INVOICING**
 The Engineer will use the format established in Attachment G, Standard Invoice, for all invoices submitted for services on the Project.



10. STANDARD OF CARE

Engineer shall exercise the same degree of care, skill, and diligence in the performance of Services as is ordinarily possessed and exercised by a professional engineer under similar circumstances in the same area of practice. Engineer makes no warranty or guarantee, either expressed or implied, as part of this agreement.

11. INDEMNIFICATION

Engineer hereby agrees to fully indemnify and hold harmless Owner and any of its departments, divisions, agencies, officers, employees and elected officials from all loss, damage, cost, or expenses specifically including attorneys' fees and other expenses of litigation incurred by or on behalf of the Owner and any of its officers, employees or elected officials arising out of Engineer's actual negligent performance of Services under this Agreement, including errors or omissions.

Owner hereby agrees to fully indemnify and hold harmless Engineer and any of its officers, employees, or designated agents from all loss, damage, cost, or expenses specifically including attorneys' fees and other expenses of litigation incurred by or on behalf of the Engineer and any of its officers, employees or designated agents arising out of Owner's negligence to the extent provided by the Tennessee Governmental Tort Liability Act, T.C.A. 29-20-201 et seq.

12. INSURANCE

Engineer shall purchase and maintain during the life of this Agreement, insurance coverage which will satisfactorily insure him against claims and liabilities which arise because of the execution of this Agreement, with the minimum insurance coverages as follows:

- a. Commercial General Liability Insurance, with a limit of \$1,000,000 for each occurrence and \$2,000,000 in the general aggregate.
- b. Automobile Liability Insurance, with a limit of \$1,000,000 for each accident, combined single limit for bodily injury and property damage.
- c. Worker's Compensation Insurance and Employer's Liability Insurance, in accordance with statutory requirements, with a limit of \$500,000 for each accident.
- d. Professional Liability Insurance, with a limit of \$1,000,000 for each claim and aggregate.

Prior to issuance of the Notice to Proceed by Owner, Engineer shall have on file with Owner certificates of insurance acceptable to Owner. Said certificates of insurance shall be filed with Owner in January of each year or may be submitted with each agreement. Upon completion of all Services, obligations, and duties provided for in this Agreement, or if this Agreement is terminated for any reason, the terms and conditions of this section shall survive.

Notwithstanding any other provision of the Agreement, Owner waives any claim against Engineer and, to the maximum extent permitted by law, agrees to defend, indemnify, and hold Engineer harmless from any claim, liability, and/or defense costs for injury or loss arising from Engineer's discovery of unanticipated hazardous materials or suspected hazardous materials, including, but not limited to, any costs created by delay of the project and any cost associated with possible reduction of the property value.

13. LIMITATIONS OF RESPONSIBILITY

Engineer shall not be responsible for: (1) construction means, methods, techniques, sequences, procedures, or safety precautions and programs in connection with the Project, (2) the failure of any contractor, subcontractor, vendor, or other Project participant, not under contract to Engineer,



to fulfill contractual responsibilities to the Owner or to comply with federal, state or local laws, regulations, and codes; or (3) procuring permits, certificates, and licenses required for any construction unless such responsibilities are specifically assigned to Engineer in Attachment A, Scope of Services.

14. OPINIONS OF COST AND SCHEDULE

Since Engineer has no control over the cost of labor, materials, or equipment furnished by others, or over the resources provided by others to meet Project construction schedules, Engineer's opinion of probable construction costs and of construction schedules shall be made on the basis of experience and qualifications as a professional engineer. Engineer does not guarantee that costs will not vary from Engineer's cost estimates or that actual construction schedules will not vary from Engineer's projected schedules.

15. REUSE OF DOCUMENTS

All documents, including, but not limited to calculations, drawings, specifications, and computer software prepared by Engineer pursuant to the Agreement are instruments of service in respect to the Project. They are not intended or represented to be suitable for reuse by Owner or others on extensions of the Project or on any other project. Any reuse without prior written verification or adaptation by Engineer for the specific purpose intended will be at Owner's sole risk and without liability or legal exposure to Engineer. Any verification or adaptation requested by Owner shall entitle Engineer to compensation at rates to be agreed upon by Owner and Engineer.

16. OWNERSHIP OF DOCUMENTS AND INTELLECTUAL PROPERTY

Except as otherwise provided herein, engineering documents, calculations, drawings, specifications, and other documents prepared by Engineer as part of the Services shall become and be the sole property of Owner. However, both Owner and Engineer shall have the unrestricted right to their use. Engineer shall retain its rights in its standard drawing details, specifications, databases, computer software, and other proprietary property protected under the copyright laws of the United States. Rights to intellectual property developed, utilized, or modified in the performance of services shall remain the property of Engineer.

17. RECORDS RETENTION AND AUDIT PROVISION

The term "Engineer" is used interchangeably to describe signatories to contracts, grants, and agreements with the City and applies to reflect the relationship with the City (Engineer, Contractor, Licensee, Supplier, Vendor, Consultant, Grant Recipient, etc.).

- a. All records relating in any manner whatsoever to the Project, or any designated portion thereof, which are in the possession of the Engineer or the Engineer's consultants, shall be made available for inspection and copying upon written request to the Owner. Additionally, said records shall be made available, upon request by the Owner, to any state, federal or other regulatory authorities and any such authority may review, inspect and copy such records. Said records include, but are not limited to, all plans, specifications, submittals, correspondence, minutes, memoranda, tape recordings, videos, or other writings or things which document the Project, its design and its construction. Said records expressly include those documents reflecting the time expended by the Engineer and its personnel to perform the obligations of this Agreement and the records of expenses incurred by the Engineer in its performance under said Agreement. The Engineer shall maintain and protect these records for no less than seven (7) years after the completion of the Project, or for any longer period of time as may be required by applicable law, good engineering practice, and upon notice during the pendency of any claims or litigation arising from the Project.



- b. The Owner or its assign may audit all financial and related records (including digital) associated with the terms of the contract or agreement including timesheets, reimbursable out of pocket expenses, materials, goods, and equipment claimed by the Engineer. The Owner may further audit any of Engineer's records to conduct performance audits (to identify waste and abuse or to determine efficiency and effectiveness of the contract or agreement) or to identify conflicts of interest.
- c. The Engineer shall at all times during the term of the contract or agreement and for a period of seven years after the end of the contract, keep and maintain records of the work performed pursuant to this Contract or Agreement. This shall include proper records of quotations, contracts, correspondence, invoices, vouchers, timesheets, and other documents that support actions taken by the Engineer. Documents shall be maintained by the Engineer, which are necessary to clearly reflect all work and actions taken. All such records shall be maintained in accordance with generally accepted accounting principles. The Engineer shall at its own expense make such records available for inspection and audit (including copies and extracts of records as required) by the Owner at all reasonable times and without prior notice.
- d. The obligations of this Section shall be explicitly included in any subcontracts or agreements formed between the Engineer and any subcontractors or suppliers of goods or services to the extent that those subcontracts or agreements relate to fulfillment of the Engineer's obligations to the Owner.
- e. Costs of any audits conducted under the authority of this section and not addressed elsewhere will be borne by the Owner unless the audit identifies significant findings that would benefit the Owner. The Engineer shall reimburse the Owner for the total costs of an audit that identifies significant findings that would benefit the Owner.
- f. This Section shall not be construed to limit, revoke, or abridge any other rights, powers, or obligations relating to audit which the Owner may have by Federal, State, or Municipal law, whether those rights, powers, or obligations are express or implied.

18. TERMINATION

This Agreement may be terminated by either party upon written notice in the event of substantial failure by the other party to perform in accordance with the terms of this Agreement. The nonperforming party shall have fifteen calendar days from the date of the termination notice to cure or to submit a plan for cure acceptable to the other party. Owner may terminate or suspend performance of this Agreement for Owner's convenience upon written notice to Engineer. If termination or suspension is for Owner's convenience, Owner shall pay Engineer for all Services performed prior to the date of the termination notice. Upon restart, an adjustment acceptable to Owner and Engineer shall be made to Engineer's compensation.

19. DELAY IN PERFORMANCE

Neither Owner nor Engineer shall be considered in default of the Agreement for delays in performance caused by circumstances beyond the reasonable control of the nonconforming party. For purposes of this Agreement, such circumstances include abnormal weather conditions; floods; earthquakes; fire; epidemics; war, riots, or other civil disturbances; sabotage; judicial restraint; discovery of unanticipated hazardous wastes; and inability to procure permits, licenses, or authorizations from any local, state, or federal agency for any of the supplies, materials, accesses, or services required to be provided by either Owner or Engineer under this Agreement. Should such circumstances occur, the nonconforming party shall, within a reasonable time of being prevented from performing, give written notice to the other party describing the circumstances preventing continued performance and the efforts being made to resume performance of the



Agreement. If the Engineer is delayed in the performance of the services for more than 365 calendar days, either by the Owner or circumstances beyond his control, an equitable adjustment to the contract amount can be made to compensate for additional costs incurred.

For delays in performance by Engineer, as set forth in Attachment E, Project Schedule, caused by circumstances which are within its control, such delays shall be documented on the Engineer's Project Performance Evaluation form. Said form shall be completed at the conclusion of Project and acknowledged by both Owner and Engineer. Completed form shall be retained by Owner for a period of seven years and reviewed prior to consultant selection for City projects. In the event Engineer is delayed in the performance of Services because of delays caused by Owner, Engineer shall have no claim against Owner for damages or contract adjustment other than an extension of time.

20. HAZARDOUS MATERIALS

Hazardous materials may exist at a site where there is no reason to believe they could or should be present. The Owner and Engineer agree that the discovery of unanticipated hazardous materials constitutes a changed condition mandating a renegotiation of the scope of work or termination of services. Owner and Engineer also agree that the discovery of unanticipated hazardous materials may make it necessary for the Engineer to take immediate measures to protect health and safety. Owner agrees to compensate Engineer for any equipment decontamination or other costs incident to the discovery of unanticipated hazardous materials.

Engineer agrees to notify Owner when unanticipated hazardous materials or suspected hazardous materials are encountered. Owner agrees to make any disclosures required by law to the appropriate governing agencies, and agrees to hold Engineer harmless for any and all consequences of disclosures made by Engineer which are required by governing law. In the event the project site is not owned by Owner, the Owner agrees to inform the property owner of the discovery of unanticipated hazardous materials or suspected hazardous materials.

21. COMMUNICATIONS

Any communication required by this Agreement shall be made in writing to the address specified below:

Engineer: Consolidated Technologies, Inc., dba CTI Engineers, Inc., J. Taylor Stein, P.E.
1122 Riverfront Parkway
Contact Phone: 423.267.7613 Fax Number: 423.267-0603
Email Address: tstein@ctiengr.com

Owner: City of Chattanooga
Department of Public Works
Engineering Division
Suite 2100, Development Resource Center
1250 Market Street
Chattanooga, TN 37402
(423) 643- 6033

Nothing contained in the Article shall be construed to restrict the transmission of routine communications between representatives of Engineer and Owner.

22. WAIVER

A waiver by either Owner or Engineer of any breach of this Agreement shall be in writing. Such a waiver shall not affect the waiving party's rights with respect to any other or further breach.



23. DISPUTE RESOLUTION

Claims, disputes or other matters in question between the parties to this Agreement arising out of or relating to this Agreement or breach thereof shall be subject to mediation in Chattanooga, Tennessee, in accordance with the following provisions:

- a. The mediation shall be conducted by a mediator mutually acceptable to both parties.
- b. The parties agree to share equally in the expenses of mediations.
- c. Such mediation may include the Engineer or any other person or entity who may be affected by the subject matter of the dispute.
- d. Unless the parties agree otherwise, mediation shall be a condition precedent to the exercise of any legal remedy other than a proceeding seeking an immediate injunction or restraining order to protect the rights of a party pending litigation. Notwithstanding the issuance of an injunction or restraining order or the refusal of a court to issue such an order, the dispute shall continue to be subject to mediation.

24. SEVERABILITY

The invalidity, illegality, or unenforceability of any provision of this Agreement or the occurrence of any event rendering any portion or provision of this Agreement void shall in no way affect the validity or enforceability of any other portion or provision of this Agreement. Any void provision shall be deemed severed from this Agreement, and the balance of this Agreement shall be construed and enforced as if this Agreement did not contain the particular portion or provision held to be void. The parties further agree to amend this Agreement to replace any stricken provision with a valid provision that comes as close as possible to the intent of the stricken provision. The provisions of this Article shall not prevent this entire Agreement from being void should a provision which is of the essence of this Agreement be determined void.

25. INTEGRATION

This Agreement represents the entire and integrated agreement between Owner and Engineer. All prior and contemporaneous communications, representations, and agreements by Engineer, whether oral or written, relating to the subject matter of this Agreement, as set forth in Attachment D, Supplemental Agreements, are hereby incorporated into and shall become a part of this Agreement.

26. SUCCESSORS AND ASSIGNS

Owner and Engineer each binds itself and its directors, officers, partners, successors, executors, administrators, assigns, and legal representatives to the other party of this Agreement and to the directors, officers, partners, successors, executors, administrators, assigns, and legal representatives of such other party in respect to all provisions of this Agreement.

27. ASSIGNMENT

Neither Owner nor Engineer shall assign any rights or duties under this Agreement without the prior written consent of the other party. Unless otherwise stated in the written consent to an assignment, no assignment will release or discharge the assignor from any obligation under this Agreement. Nothing contained in this Article shall prevent Engineer from employing independent consultants, associates, and subcontractors to assist in the performance of the Services; however, other agreements to the contrary notwithstanding, in the event Engineer employs independent consultants, associates, and subcontractors to assist in performance of the Services, Engineer shall be solely responsible for the negligent performance of the independent consultants, associates, and subcontractors so employed.



CITY OF CHATTANOOGA
STANDARD AGREEMENT FOR ENGINEERING SERVICES

SOP 2003-9
 Date of Issue 10-16-03
 Rev. 12-14-10

28. **THIRD PARTY RIGHTS**

Nothing in this Agreement shall be construed to give any rights or benefits to anyone other than Owner and Engineer.

29. **RELATIONSHIP OF PARTIES**

Nothing contained herein shall be construed to hold or to make the Owner a partner, joint venturer, or associate of Engineer, nor shall either party be deemed the agent of the other, it being expressly understood and agreed that the relationship between the parties is and shall at all times remain contractual as provided by the terms and conditions of this Agreement.

30. **NON-DISCLOSURE**

Engineer agrees not to disclose or to permit disclosure of any information designated by the Owner as confidential, except to the engineer's employees and subcontractors who require such information to perform the services specified in this agreement.

31. **NON-DISCRIMINATION**

Engineer agrees to comply with all federal, state, and local non-discrimination laws and regulations. Engineer agrees not to discriminate against any participant in this Agreement on the basis of race, color, religion, sex, age or national origin. Engineer further agrees to comply with all federal, state and local laws regarding treatment and accommodations for individuals with disabilities.

32. **DRUG FREE WORKFORCE**

Engineer certifies that it will provide a drug-free workplace and agrees to comply with the applicable requirements of the Drug-Free Workplace Act of 1988.

33. **FEDERAL OR STATE FUNDING**

In the event that the Project is funded in whole or in part by Federal or State grants, Engineer agrees to abide by all applicable Federal and State laws, regulations, grant conditions and procedures.

IN WITNESS WHEREOF, Owner and Engineer have executed this Agreement.

Allen D. Stephens 11-19-13 _____
 Allen D. Stephens, P.E., Date Administrator of Public Works Date
 Executive Vice President
 Consolidated Technologies, Inc. dba
 CTI Engineers, Inc.

 Director of Purchasing Date

Reviewed by City Attorney Office _____
 Initial Date



ATTACHMENT A

Owner: City of Chattanooga, Tennessee

Engineer: Consolidated Technologies, Inc., dba CTI Engineers, Inc.
Project Number & Name: C-13-001-101
Professional Services for Landfill Deficiency
Recommendations and Repairs

SCOPE OF SERVICES

I. BASIC SERVICES

The project is specifically defined as: Professional consulting and/or engineering services related to planning, surveying, environmental monitoring, design, construction, permitting, and similar work necessary to maintain regulatory compliance at the City's active and inactive municipal solid waste landfills. Management systems to be addressed include but are not limited to leachate, gas, storm water, and groundwater.

The Engineer agrees to provide the following services:

I. RECONNAISSANCE AND ASSESSMENT

- A. Collect and analyze a limited number of samples for assessment of contaminants.
- B. Provide recommendations to the City related to decision-making regarding management and future cleanup actions. These recommendations will be based on monitoring and analysis of groundwater, surface water, and/or leachate.
- C. Evaluate the performance of previously installed and maintained landfill containment systems.
- D. Recommend detailed improvements to manage the restoration and improvement of mechanical and physical landfill control systems.
- E. Conduct sufficient analysis to determine the source of and recommended remediation for recurring maintenance and operating problems.
- F. Investigate reducing facility closure and post-closure care costs; prepare budgets and identifying immediate and future repairs; prepare cost estimates and/or modifications for landfill component upgrades, repairs, replacements.
- G. Provide deliverables for an assessment of landfill, including leachate, gas, groundwater, storm water, and other management systems:
 - 1. Assessing problem areas
 - 2. Creating a landfill site map
 - 3. Evaluating the process used to monitor and adjust landfill systems
 - 4. Evaluating the performance of previously installed facilities.

II. LANDFILL O&M PLANS AND REGULATORY ASSESSMENT

- A. Prepare short- and long-term system management plans.
- B. Review applicable post-closure requirements for the landfill systems.



- C. Provide technical support for regular and corrective maintenance activities at the landfill including routine monitoring of landfill systems.
- D. Prepare landfill O&M manuals, SOP's, and guidance documents for systems and elements, as appropriate.
- E. Prepare operator guidance and instructions for response to leachate breaches, mechanical failures, and/or other similar types of events.
- F. Conduct studies of landfill areas with respect to current TDEC municipal solid waste landfill requirements.
- G. Investigate low-maintenance cover systems to minimize infiltration of precipitation.

III. ENGINEERING DESIGN AND STUDIES

- A. Provide engineering assistance in connection with monitoring well and/or gas probe installation.
- B. Prepare engineering drawings and specifications suitable for bidding and constructing landfill improvements/modifications.
- C. Prepare water balance reports to estimate inflow and outflow components including precipitation, infiltration, groundwater flow, and leachate extraction.
- D. Prepare site conceptual models identifying primary pathways for subsurface contaminant movement beneath and adjacent to landfills and likely receptors.
- E. Provide analysis and design relating to new and existing horizontal landfill gas collection trenches and the start-up and repair of landfill gas flare systems.

IV. MEETING ATTENDANCE / PRESENTATIONS

- A. Attend and support meetings with City staff as necessary to report project status, review plans, and make field investigations and critical decisions.
- B. Attend public meetings or presentations to boards, committees, and/or City Council as requested by the Department of Public Works.
- C. Assist the City with making presentations at public hearings or meetings as a liaison with applicable State and/or Federal regulatory agencies.

V. SERVICES SPECIFIC TO GAS MANAGEMENT

- A. Obtain Background Information
 - 1. Meet with City personnel and will reconnoiter the landfill site. Photographs will be taken and sketches will be made during the reconnaissance.
 - 2. Obtain the following information from the City:
 - a. Topography for the entire landfill and adjoining land.
 - b. Design documents related to the landfill gas system.
 - c. Copies of any air quality permits and/or equipment specifications so that the limitations within those permits/equipment specifications can be used to determine federally enforceable limitations/emissions for the related sources.
 - d. CADD files on the landfill gas collection system.
 - e. Past reports evaluating on the landfill gas system including landfill gas quantity estimates.



3. Review landfill gas monitoring results/background information. Monitor each landfill gas extraction well for typical wellfield parameters: available vacuum, applied vacuum, differential pressure, flowing gas temperature, flowing gas quality (oxygen, carbon dioxide, methane and balance gas); work closely with the City's landfill gas staff and City outside contractors, if any.
 4. Collect a round of depth to liquid measurements from the individual landfill gas extraction wells. An initial review will be conducted of the pneumatic pumps being utilized to dewater the landfill gas extraction wells.
 5. Attempt to identify which pumps are functioning and which pumps are in need of repair.
 6. Prepare a written report summarizing the observed conditions of the landfill gas extraction system as well as the results of the historical wellfield data analysis. Recommendations for improved landfill gas management will be included in the follow-up summary letter or memorandum report to the City.
- B. Evaluate the Gas System Design
1. Determine whether the existing design can adequately address the City's needs without significant changes in vacuum distribution, pipe head loss, adverse velocities, and/or adverse condensate drainage.
 2. Identify necessary changes to the header pipe size/location to accommodate adequate vacuum distribution, pressure loss, velocities, and condensate drainage.
 3. Provide a summary report of our findings and conclusions on the design.
- C. Gas Recovery Estimate
1. Provide an estimate of landfill gas recovery for the entire site based on potential generation with thorough well field coverage and operations unrelated to the actual conditions of the landfill gas collection system. Estimating landfill gas recovery will highlight whether or not the existing system is designed and or operated to appropriately collect landfill gas.
 2. Estimate under the design conditions and under the actual as-built conditions; prepare the landfill gas recovery estimates by performing the following tasks:
 - a. Determine the current in-place volume of waste/soil based on historic information.
 - b. Establish the peak gas generation.
 - c. Determine the historic average annual flow (at 50% methane) of the existing system based on collected flow and methane data from recent years.
 - d. Provide an assessment of landfill gas collection system coverage.
 - e. Calibrate the gas recovery model to reflect historic gas recovery.
 - f. Model gas generation/recovery showing potential generation, projected recovery, and historical recovery including a gas generation graph and tabulated values.
 3. To the extent that information can be provided on the waste types, quantities, and year of disposal, incorporate this information into the model and estimates.
 4. If an assessment has been recently conducted, eliminate this task and use that assessment or conduct a comparison of prior assessments.
 5. Summarize the results of the landfill gas recovery estimates and present in an interim report to the City.



D. Evaluate the As-Built Gas System

1. Conduct pipe flow model analyses to assess the as-built system relative to such criteria as pipe sizes, grades, vacuum, and flow rates. This task will use the existing operations data on the wellfield and blower-flare unit to compare the actual operations against the modeled capacity.
2. Designate optimum parametric values for maximum flows, friction loss, and pipe grades for these analyses.
3. Prepare summary letter of findings and recommendations on repairs, modification, and changes to the existing system.

E. Design for Gas System Expansion/Rehabilitation

1. The preliminary assessment indicates that expansion of the gas system will be needed to meet the City's goal for regulatory requirements. The expansion components would likely include vertical extraction wells, horizontal extraction wells and associated connecting conveyance pipe including connections to existing system.
2. Prepare a design memorandum with attachments. This document will represent a schematic design of the system rehabilitation (i.e., a 15 percent design).
3. Meet with the City project team to present the design memorandum; reach agreement on the schematic design concepts; check site conditions as necessary; meet with the environmental regulatory staff to present the proposed designs and seek their comments and concurrence.
4. Determine an overall system expansion and integration of recommended changes. Among the factors to be considered are regulatory criteria, minimize surface emissions, differential settlement, and function in wet landfill environment (including pump accessibility).
5. Develop a final rehabilitation design and review it with the City. Provide and review with the City the following: construction design drawings, specifications, and cost estimate.

2. SUPPLEMENTAL SERVICES

Any work requested by the Owner that is not included in the Basic Services will be classified as Supplemental Services. Supplemental Services shall include, but are not limited to the following:

VI. MISCELLANEOUS AS-REQUESTED SERVICES

- A. Additional consulting and/or engineering services related to planning, surveying, environmental monitoring, design, construction, permitting, and similar work necessary to maintain regulatory compliance at other active and inactive municipal solid waste landfills owned by the City.

3. REIMBURSABLE EXPENSES:

Project specific reimbursable expenses and charges shall include the following:

- Out of town travel expenses.
- Report reproduction expenses.
- Plans and contract drawings.
- Subconsultant charges and expenses (SCS).
- Mileage expense for site visits to landfills.



ATTACHMENT B

Owner: City of Chattanooga, Tennessee

Engineer: Consolidated Technologies, Inc., dba CTI Engineers, Inc.
Project Number & Name: C-13-001-101
Professional Services for Landfill Deficiency
Recommendations and Repairs

COMPENSATION

For the services covered by this Agreement, the Owner agrees to pay the Engineer as follows:

- For the Basic Services described in Attachment A, on a cost plus basis with the total fee not to exceed \$305,700. Payments shall be made monthly in amounts which are consistent with the amount of engineering services provided, as determined by the Engineer.

Reconnaissance and Assessment	\$71,600
Landfill O&M Plans and Regulatory Assessment	\$42,000
Engineering Design and Studies	\$59,500
Meeting Attendance / Presentations	\$16,400
Services Specific to Gas Management	\$82,800

Subtotal \$272,300

- Compensation for Supplemental Services shall be made as defined below, when authorized in writing by the Owner. The maximum limit for each item of additional service shall be established individually and specifically agreed to by the Owner as stated below, unless the service is included in a subsequent agreement.

Miscellaneous As-Requested Services	\$33,400
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Subtotal \$33,400

Grand Total \$305,700

- Hourly rates for each classification as defined by the Engineer's rate schedule, see Attachment F. Overtime, when authorized by the Owner, will be billed at 1.5 times the rates listed (non-engineer time only).
- Reimbursable charges will be considered the amount of actual costs of project related expenses or charges times a markup of 10% (except for SCS subconsultant, which shall be 5%). Charges for use of computer equipment or software, local travel, local telephone, project photographs, miscellaneous supplies, and reproduction are not considered reimbursable charges. Allowable project-specific reimbursable expenses shall be outlined in Attachment A.
- The entire amount of each statement shall be due and payable 30 days after receipt by the Owner.
- The Engineer shall keep records on the basis of generally accepted accounting practice of costs and expenses which records shall be available for inspection at all reasonable times.
- Invoices shall be submitted using the Standard Invoice form, Attachment G.



ATTACHMENT C

Owner: City of Chattanooga, Tennessee

Engineer: Consolidated Technologies, Inc., dba CTI Engineers, Inc.
Project Number & Name: C-13-001-101
Professional Services for Landfill Deficiency
Recommendations and Repairs

OWNER'S RESPONSIBILITIES

The Owner will furnish, as required by the work and not at the expense of the Engineer, the following:

1. Make available to the Engineer the current City of Chattanooga Design and Construction Standards, all records, reports, maps, and other data pertinent to provision of the services required under this contract.
2. Examine all plans, specifications and other documents submitted by the Engineer and render decisions promptly to prevent delay to the Engineer.
3. Designate one City of Chattanooga employee as the Owner representative with respect to all services to be rendered under this agreement. This individual shall have the authority to transmit instructions, receive information and to interpret and define the Owner's policies and decisions pertinent to the Engineer's services.
4. Issue Notice(s) to Proceed to the Engineer for each phase of the design services.
5. Owner will grant or obtain free access to the project site for all equipment and personnel necessary for the Engineer to perform the work set forth in this Agreement. Owner will notify any and all possessors of the project site that Engineer has been granted free access to the site. Engineer will take reasonable precautions to minimize damage to the site.
6. Owner will acquire all lands, rights-of-way, and easements necessary for the construction of the project.
7. Owner will make a reasonable effort to evaluate if hazardous materials are on or near the project site, and will inform Engineer of findings relative to the possible presence of such materials.



ATTACHMENT D

Owner: Owner of Chattanooga, Tennessee

Engineer: Consolidated Technologies, Inc., dba CTI Engineers, Inc.
Project Number & Name: C-13-001-101
Professional Services for Landfill Deficiency
Recommendations and Repairs

SUPPLEMENTAL AGREEMENTS

Owner and Engineer agree that the following communications, representations, and agreements by Engineer relating to the subject matter of the Agreement are hereby incorporated into and shall become a part of the Agreement.

[All necessary items as Supplemental]



ATTACHMENT E

Owner: Owner of Chattanooga, Tennessee

Engineer: Consolidated Technologies, Inc., dba CTI Engineers, Inc.
Project Number & Name: C-13-001-101
Professional Services for Landfill Deficiency
Recommendations and Repairs

PROJECT SCHEDULE

Owner and Engineer recognize that time is of the essence of the Agreement and that Owner may suffer financial loss if the work is not completed within the times stipulated herein, plus any extensions thereof. Accordingly, Engineer will develop for this Agreement a preliminary schedule based on the schedule requirements specified in the Specific Scope of Work for this project and either provide it below or as Attachment E1.

A detailed schedule (project schedule) will be required as one of the Project Management deliverables as specified in the Specific Scope of Work for this project once the Agreement is executed. The Engineer will produce the project schedule using industry accepted scheduling software approved by the Owner.

It is understood and agreed that the Engineer shall start the performance of Services within 10 days of receipt of a written Notice to Proceed and shall complete the work in accordance with the contract times set forth herein.

A tentative project schedule will be provided upon assignment of defined project work tasks.



ATTACHMENT F

Owner: Owner of Chattanooga, Tennessee

Engineer: Consolidated Technologies, Inc., dba CTI Engineers, Inc.
Project Number & Name: C-13-001-101
Professional Services for Landfill Deficiency
Recommendations and Repairs

RATE SCHEDULE

CTI Personnel Classification	Hourly Rates through December 31 of		
	2013	2014	2015
Executive Engineer/Manager	\$192.00	\$197.75	\$203.70
Senior Project Engineer/Manager	165.75	170.75	175.90
Project Engineer/Manager	150.00	154.50	159.15
Senior Geologist	142.65	147.00	151.50
Architect	114.35	117.80	121.35
Engineer	121.70	125.35	129.10
Engineer Intern	90.20	92.90	95.70
Senior Drafter/Technician	88.10	90.75	93.50
Drafter/Technician	77.60	80.00	82.50
Senior Project Representative	83.90	86.50	89.10
Project Representative	60.85	62.75	64.65
Senior Administrative	82.85	85.35	87.90
Senior Clerical/Secretarial Support	66.00	68.00	70.00
Clerical/Secretarial Support	50.35	51.90	53.50



ATTACHMENT G

STANDARD INVOICE

Indicates MANDATORY Item

CONSULTANT LETTERHEAD

ATTN: City Project Manager
REF: Project Name
CODE: Consultant Project Number
PO: City Project Number in format S-02-001-101

Provided by City

INVOICE

TERMS: Net 25 days
DUE: 08/01/03

Must be Sequential Number

Invoice Number 5
Dated 07/07/03

City Project Manager
City Project Manager Title
City of Chattanooga
Engineering Division/DRC
1250 Market Street, Suite 2100
Chattanooga TN 37402

Invoice Must show BILLING Period.

For Professional Services from May 31 to June 27, 2003

This Breakdown must list each item of the Contract.

Consultant Project No.	Description	Fee	Basis	Percent Work to Date	Amount Billed	Previous Billed	This Invoice Billed
C03009-01	01 - Design	\$51,500.00	LS	55%	\$28,325.00	\$18,540.00	\$9,785.00
	02 - Survey	\$15,700.00	LS	0%	\$0.00	\$0.00	\$0.00
C03009-02	Barton Avenue and Brown Acres Golf Course Design	\$20,000.00	CP	12%	\$2,391.02	\$2,033.00	\$358.02
C03009-03	Permitting/Easement Assistance	\$5,000.00	CP	6%	\$291.08	\$0.00	\$291.08
C03009-04	Bidding/Construction Assistance	\$10,000.00	CP	0%	\$0.00	\$0.00	\$0.00
C03009-05	Misc. As-Requested Services	\$5,000.00	CP	7%	\$363.85	\$0.00	\$363.85
	Total Contract Amount	\$107,200.00			\$31,370.95	\$20,573.00	
	TOTAL THIS INVOICE						\$10,797.95

Must Match Contract Amount

Prior Invoices	\$20,573.00
This Invoice	\$10,797.95
Payments	-\$20,573.00
Balance on Account	\$10,797.95

- NOTE:
- There shall be only one invoice per contract per billing period.
 - Any necessary details should be attached as backup.