New Business #12

COUNTY DEPARTMENT AGENDA REQUEST

Department:	Solid Waste Management	Presenter(s):	Vanessa Birrell
Meeting Date:	Thursday, February 27, 2014	Type of Request:	New Business

Wording for the Agenda:

Consideration of staff's recommendation to amend the contract with Jacobs Engineering Group, Inc, by approving Addendum #1 in an amount not to exceed $192,500.00, in order to complete required work for the Methane Remediation Plans for both the closed Northside and Southside landfills on First Manassas Mile Road.

Background/History/Details:

The Southside Landfill contains three closed, unlined, municipal solid waste (MSW) landfills; the Grady Avenue Landfill Phases I&II and the First Manassas Mile Road Sanitary Landfill. In addition to closed, unlined, municipal solid waste, the Northside Landfill also contains closed commercial and demolition fill areas. Groundwater and methane compliance monitoring began in the 1990s at both landfills. Since then passive and active gas venting systems have been installed to mitigate methane migrating outside the permit boundaries as required by Georgia Solid Waste Management Regulations.

On December 9, 2013, staff received a Notice of Deficiency for two parameter wells that measured methane concentrations above the regulatory limit (5% methane by volume.) When this regulatory limit is exceeded, as per Georgia Solid Waste Environmental Regulations, the County must submit a Methane Remediation Plan detailing corrective measures to be implemented and a time frame for implementation. Two plans must be submitted to EPD by March 1, 2014 for their approval. Since each violation occurs under a separate permit, two separate plans must be submitted.

Work needed to address this Notice of Deficiency is the design and installation of two methane extraction systems. One system will replace a long-time inoperable system at the Northside methane monitoring well (MW) location MW-20. The second system on the Southside will upgrade the passive system installed at MW-11 to an active vacuum system. Passive methane extraction wells installed at this location in 2011 were designed to easily convert to an active vapor extraction system.

What action are you seeking from the Board of Commissioners?

Approval of staff's recommendation to amend the contract with Jacobs Engineering Group, Inc, by approving Addendum #1 in an amount not to exceed $192,500.00, in order to complete required work for the Methane Remediation Plans for both the closed Northside and Southside landfills on First Manassas Mile Road.

If this item requires funding, please describe:

Funding of $192,500.00 is available from the Floodplain Mapping project fund 232OC.

Has this issue come before the Commissioners in the past?	Yes	If so, when?	Thursday, September 29, 2011
Do you need audio-visual for the presentation?	No	Back-up Material Submitted?	Yes

STAFF USE ONLY

Approved by Finance	Yes	Reviewed by Legal	
Approved by Purchasing	Yes	Approved by County Clerk	Yes
Administrator's Approval			

Staff Notes:

Fayette County

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Date: February 17, 2014

To: Ted Burgess, Purchasing Director
Steve Rapson, County Manager

From: Vanessa Birrell
Environmental Management Director

SUBJECT: Authorization for Additional Professional Environmental and Engineering Services under Contract #P764, Task 6.

The Georgia EPD issued a Notice of Deficiency to Fayette County on December 9, 2013 for methane concentrations in MW-11 (Southside Landfill) and MW-20 (Northside Landfill) over regulatory thresholds. The Notice requires Fayette County to submit a mitigation plan for EPD's approval by January 29, 2014.

In 2011, at the direction of the County to install least expensive mitigation, a passive venting system was installed around MW-11. As the December 4, 2013 NOD states, this system accounted for methane exceedences dropping considerably, however readings continue to hover around the 5% Lower Explosive Limit of methane. Jacobs' engineering design took into account the possibility of having to upgrade this system at minimal cost in the future, and thus designed a system that could be converted to active system at minimal cost.

Fayette County was required to respond to the EPD with a mitigation plan that included a milestone schedule for installation of remediation measures by or on January 29, 2014. Due to on-going contract negotiations Fayette County asked for and was granted an extension of our response to March 1, 2014. If Fayette County fails to respond within this time EPD will issue Notice of Violation with a response time of 15 days. This issuance is the precursor to a Consent Order. A Consent Order requires signatures of both the State and County to perform agreed-upon mitigation with financial penalties assigned.

SCOPE OF WORK

Jacobs Engineering Group Inc. proposes a not-to-exceed amount of $192,500 to perform work under Task 4 (detailed scopes attached) at both the north and south side landfills necessary to comply with the referenced Notice of Deficiency:

Design and Pre-Construction Coordination/Logistics:	$31,000
System Installation:	
Jacobs' Professional Services	$28,500
Driller/Installer	$49,000
Surveyor	$5,000
ODCs	$23,000
Reporting for Northside and Southside Landfills:	$30,000
System Startup and O&M (6-months	$26,000
Total	**$192,500**

Staff recommends that the additional work of design and installation of methane gas extraction systems be authorized in order to meet requirements of the Notice of Deficiency and continue Fayette County's compliant status with Georgia solid waste management regulations.

Cc: Phil Mallon, Public Works Division Director

Exhibit A

Scope of Work

January 13, 2014

Fayette County Methane Remediation Installation

Northside and Southside Landfills

Background

The Fayette County Board of Commissioners (Fayette County) owns and maintains two landfills located along 1st Manassas Mile Road; the 1st Manassas Mile Road Northside Landfill (Northside Landfill), which consists of a closed, unlined, municipal solid waste (MSW) landfill and the 1st Manassas Mile Road Southside Landfill (Southside Landfill), which consists of two closed, unlined, municipal solid waste (MSW) landfills. Compliance monitoring at the Northside Landfill has detected intermittent but recurring methane concentrations above the regulatory limit (5% methane by volume) in monitoring location MM-20, which is located along the eastern boundary of the landfill. A limited active gas extraction system was installed in this area approximately 10 years ago but has not been operational in several years.

Compliance monitoring at the Southside Landfill has detected intermittent but recurring methane concentrations above the regulatory limit in monitoring location MM-11, which is located along the northern boundary of the landfill on the west end. An enhanced passive gas venting system was installed in this area in late 2011 and has succeeded in significantly decreasing the methane levels in MM-11. However, methane levels have plateaued around the regulatory limit.

On December 15, 2013, Fayette County received a Notice of Deficiency (NOD) for both the Northside Landfill and Southside Landfill from the Georgia Environmental Protection Division (EPD). This NOD required that Fayette County submit an updated Methane Remediation Plan (MRP) for both landfills within 45 days of receipt.

Jacobs is currently working on preparation of updated MRPs for both landfills. The updated MRP for the Northside Landfill proposes the installation of a new limited active gas extraction system in the vicinity of MM-20, and the updated MRP for the Southside Landfill proposes the conversion of a portion of the enhanced passive venting system to active extraction. Jacobs plans to submit the updated MRPs to EPD on or before January 29, 2014.

Fayette County has requested that Jacobs provide a scope and cost to implement the proposed updated MRPs for both landfills. The proposed remediation for the Northside Landfill includes the design and installation of a new limited gas extraction system in the area of MM-20 that will

extend approximately 450 feet along the eastern property boundary in the vicinity of MM-20. An estimated 10 new extraction wells will be installed at a spacing of approximately 50 feet with each well extending to groundwater or top of rock, whichever is encountered first. All extraction wells will be connected via wellheads to a buried header pipe leading to a blower that will apply vacuum to the system and intercept the methane that is currently migrating toward the property boundary. The methane will be vented to the atmosphere above the breathing zone. The system will be configured such that individual wells can be isolated if desired to fine tune the methane interception. The proposed updated MRP for the Northside Landfill also includes the decommissioning of two existing nonfunctioning extraction systems.

The proposed remediation for the Southside Landfill includes the construction of a new limited gas extraction system at MM-11 that involves converting eight of the existing enhanced passive vents to active extraction wells. The final system will extend approximately 200 feet along the northern property boundary in the vicinity of MM-11. All converted extraction wells will be connected via wellheads to a buried header pipe leading to a blower that will apply vacuum to the system and intercept the methane that is currently migrating toward the property boundary. The methane will be vented to the atmosphere above the breathing zone. The system will be configured such that individual wells can be isolated in order to fine tune the methane interception.

The details of the scope of work are defined below with the associated assumptions provided at the end of this document.

Health and Safety

Prior to conducting any field activities, Jacobs will update the existing Health and Safety Plan, which will be used throughout the duration of the work. No confined-space entry will be performed.

MRP Fieldwork

Installation of Limited Gas Extraction System at MM-20 (Northside Landfill)

Jacobs proposes to perform the following items as part of the installation of a limited active gas extraction system at MM-20:

- Conduct an initial site visit to walk the project area with County representatives in order to collect data for preliminary design (to be combined with initial site visit for Southside Landfill).
- Perform preliminary design in order to facilitate a preconstruction meeting.

- Conduct a preconstruction meeting at the Northside Landfill with representatives of the County, Jacobs, and Jacobs' system installation subcontractor to discuss logistical issues and gather information for the final system design (to be combined with preconstruction meeting for Southside Landfill).

- Design the header, wellheads, blower, knockout pot and sump configuration to allow for gas flow and condensate collection. The design effort will also include the development of recommendations for the electrical connections, which will be performed by a licensed electrician contracted directly with the County.

- Provide one day of professional oversight and construction services during the decommissioning of the existing non-functional extraction system at MM-20, as well as the non-functional extraction system at nearby MM-14. All above-grade components will be removed and the existing extraction wells will be abandoned by first filling the 2-inch pipes with bentonite and hydrating in stages, and then cutting and capping the wells at ground surface. All removed system components will be staged in one central location and Fayette County will be responsible for proper disposal.

- Provide nine days of professional oversight and construction services during the installation of the new limited gas extraction system at MM-20. For the purposes of this document, Jacobs has made assumptions about the final design of the active extraction components of the system. This scope and cost are based on those assumptions, and may change after the final design is completed. We assume that the new well installation and implementation of active extraction will be accomplished as follows:

  - Jacobs will install an estimated 10 new extraction wells. The wells will be installed in a manner such that the total number of new wells could be less than 10 if it is determined during well installation that the extent of methane does not extend the full distance assumed in this proposal. However, if the number of wells increases during final design or construction, Jacobs will obtain approval from Fayette County before installing more than 10 new wells. For costing purposes, Jacobs assumes the wells will extend 40 feet below ground surface and will be spaced approximately 50 feet apart. The extraction wells will be installed as follows:

    - Extraction well borings will be advanced utilizing 4.25-inch inside diameter hollow stem augers (HSA), which will yield an approximate 8-inch borehole.

    - The boreholes will be advanced until groundwater or top-of-rock is encountered. If groundwater is encountered first, the borehole will be advanced approximately 3 to 5 feet beyond the first occurrence of groundwater.

- Wells will be constructed using 2-inch diameter, ASTM NSF-rated, flush-threaded, Schedule 40 PVC riser pipe and 0.020-inch (or bigger), machine slotted PVC screen.
- Screened intervals will extend from approximately 10 feet below ground surface (BGS) to the bottom of each borehole.
- Extraction well screens will be surrounded with #7 pea gravel (or similar material) from the bottom of the boring to 0.5 feet above the top of the screen. A 0.5 foot layer of sand will be placed above the gravel pack. Bentonite pellets (or chips) will be placed above the sand layer to a depth of 0.5 feet BGS and hydrated. The remaining 0.5 feet will be backfilled with clean onsite soil.
- An active well head with an adjustable 2-inch ball valve for vacuum control and sample ports for gas monitoring will be installed on top of each extraction well.

- Jacobs will excavate a minimum 12-inch deep header pipe trench in the location determined by Jacobs during design of the system. The trench will be constructed to slope (minimum 2%) with the natural site grade toward the south. A condensate sump (provided by Jacobs) will be placed at the low point in the header, between the last extraction well and the blower, to capture and collect liquid that condenses in the header. A condensate knockout pot (provided by Jacobs) will be installed between the sump and the blower in order to remove remaining entrained liquid from the gas before it passes through the blower. Jacobs will excavate a pit for the sump and place the sump in the excavated pit.
- Jacobs will install the header in the base of the trench. Jacobs assumes that the header will consist of approximately 450 linear feet of 4-inch diameter Schedule 40 PVC pipe. A 4-inch tee with a 4x2 reducer will be installed in the header at each extraction well location. Flexible pipe will connect each extraction well to the header.
- Jacobs will install an additional 4-inch tee with a 4x2 reducer in the header at the halfway point between each extraction well. Each additional tee will be stubbed and capped above grade to allow for future expansion to the system without re-excavating the header.
- Jacobs will backfill over and around the header pipe and sump using the excavated material.
- Jacobs will connect the header pipe to an electric blower and the condensate knockout pot and sump (all to be provided by Jacobs). The blower will be placed under a shed roof on a pad (concrete or wood) constructed by Jacobs.

- Power was previously established at the MM-20 location as part of the installation of the existing non-functioning remediation system. Fayette County will contract directly with a licensed electrician to make all the necessary electrical connections to the blower. All costs associated with establishing power to the limited extraction system will be paid directly by Fayette County.
- Fayette County will be responsible for collection and disposal of condensate captured by the knockout pot and sump. Jacobs will work with the County to develop a frequency for collection and disposal.

Conversion to Active Gas Extraction at MM-11 (Southside Landfill)

Jacobs proposes to perform the following items as part of the conversion to active gas extraction at MM-11:

- Conduct an initial site visit to walk the project area with County representatives in order to collect data for preliminary design (to be combined with initial site visit for Northside Landfill).
- Perform preliminary design in order to facilitate a preconstruction meeting.
- Conduct a preconstruction meeting at the Southside Landfill with representatives of the County, Jacobs, and Jacobs' system installation subcontractor to discuss logistical issues and gather information for the final system design (to be combined with the preconstruction meeting for the Northside Landfill).
- Design the header, wellheads, blower, knockout pot and sump configuration to allow for gas flow and condensate collection. The design effort will also include the development of recommendations for the electrical connections, which will be performed by a licensed electrician contracted directly with the County.
- Provide three days of professional oversight and construction services during the conversion of a portion of the existing enhanced passive venting system to active gas extraction. For the purposes of this document, Jacobs has made assumptions about the final design of the active extraction components of the system. This scope and cost are based on those assumptions, and may change after the final design is completed. We assume that the conversion to active extraction will be accomplished as follows:
  - Jacobs will convert eight of the existing enhanced passive vents (MV-1, MV-3, MV-5, MV-7, MV-9, MV-10, MV-12, and MV-13) to active extraction wells by cutting off the existing passive wellheads and installing active wellheads with an adjustable 2-inch

ball valve for vacuum control and sample ports for gas monitoring on each wellhead. Jacobs will also install a 4-foot diameter plastic well skirt around each converted well. The skirt will be clamped and sealed to the well pipe and a minimum 6 inches of dirt placed over the well skirt.

- Jacobs will excavate a minimum 12-inch deep header pipe trench in the location determined by Jacobs during design of the system. The trench will be constructed to slope (minimum 2%) with the natural site grade toward the east. A condensate sump (provided by Jacobs) will be placed at the low point in the header, between the last extraction well and the blower, to capture and collect liquid that condenses in the header. A condensate knockout pot (provided by Jacobs) will be installed between the sump and the blower in order to remove any remaining entrained liquid from the gas before it passes through the blower. Jacobs will excavate a pit for the sump and place the sump in the excavated pit.
- Jacobs will install the header in the base of the trench. Jacobs assumes that the header will consist of approximately 200 linear feet of 4-inch diameter Schedule 40 PVC pipe. A 4-inch tee with a 4x2 reducer will be installed in the header at each extraction well location. Flexible pipe will connect each extraction well to the header.
- Jacobs will backfill over and around the header pipe and sump using the excavated material.
- Jacobs will connect the header pipe to an electric blower and the condensate knockout pot and sump (all to be provided by Jacobs). The blower will be placed under a shed roof on a pad (concrete or wood) constructed by Jacobs.
- Fayette County will coordinate directly with Georgia Power and will contract directly with a licensed electrician to provide electric power and the required electrical connections to the blower. All costs associated with establishing power to the limited extraction system will be paid directly by Fayette County.
- Jacobs will cut and cap the remaining five enhanced passive vents: MV-2, MV-4, MV-6, MV-8, and MV-11.
- Fayette County will be responsible for collection and disposal of condensate captured by the knockout pot and sump. Jacobs will work with the County to develop a frequency for collection and disposal.

Surveying

Jacobs will coordinate with a Georgia Licensed Land Surveyor to obtain horizontal and vertical locations of the new extraction wells, header pipe, sump, knockout pot, and blower pad for both systems (MM-11 and MM-20). The survey data will be used to prepare the final installation reports.

System Startup

Jacobs will provide field and office support during startup of both limited active extraction systems (MM-11 and MM-20). Jacobs assumes a one-day field effort following all electrical connections to perform the system startups.

Operation and Maintenance

Jacobs will provide system operation and maintenance (O&M) services for both limited active extraction systems (MM-11 and MM-20) for six months following system startup. As part of these services, Jacobs will prepare an O&M Plan for the systems, which will be followed during each O&M visit. During the first month, Jacobs will perform two O&M site visits to balance the systems. Jacobs will then make monthly site visits for the next five months. During each visit, Jacobs will balance the systems, which involve checking vacuum and methane levels in each extraction well and at the blowers, and monitoring for balance gases in order to identify possible excessive atmospheric air intrusion. Adjustments to the systems will be made as necessary as part of each site visit. Jacobs will also check the liquid level in the sumps and knockout pots and will confirm that the systems appear to be functioning properly. Each O&M event will consist of a one-day field effort.

Reporting

Following the installation of the limited active extraction systems (MM-11 and MM-20), Jacobs will prepare a letter report for each system documenting the installation. Jacobs will also prepare and submit permit minor modifications that will document the system installations. The installation reports and permit minor modifications will be stamped and signed by a Georgia-registered P.E. or P.G. and will include as-built survey data, boring and construction logs (converted construction logs for the MM-11 system), and plan drawings for the extraction systems.

After six months of monitoring data has been collected, Jacobs will provide a letter report to EPD for each system (MM-11 and MM-20) that evaluates the effectiveness of the remedial measures. If additional remedial measures are needed based on the results of the performance

monitoring data, those measures will be designed and installed under a future scope of work and budget.

Project Schedule

Activity	*Schedule*
Conduct site visit	Within 2 weeks of receiving notice to proceed (NTP)
Begin preliminary design	Within 1 week of receiving NTP
Conduct preconstruction meeting	Within 2 weeks following the site visit
Complete final design and order system hard parts (blower, knockout pot, and sump)	Within 8 weeks of preconstruction meeting (hard parts will be ordered within 3 weeks of initiating final design and it is anticipated they will take 4-5 weeks to be delivered)
Complete field work (e.g. well drilling and system installation)	14 business days following delivery of all hard parts
System startup (1-day effort)	Within 4-6 weeks of completing field work (assumes electrical connections have been completed)
Complete survey	Within 2-4 weeks of system startup
Begin operation and maintenance	2 weeks following system startup

Jacobs will finalize the schedule for system installation field activities with the subcontractor once the delivery schedule for the blowers, knockout pots, and sumps are confirmed. The blowers, knockout pots, and sumps will be delivered to the Northside Landfill. Survey will be coordinated and scheduled following the completion of all electrical connections (assume survey data will be available within 2-4 weeks following completion of survey field work).

A draft copy of the installation reports (electronic only) will be provided to the County within four weeks of system startup and receipt of survey data. Jacobs anticipates two weeks to receive comments/edits from the County on the draft reports. The final reports (electronic and three hard copies) will be prepared and submitted within one week of receipt of the County's comments on the draft reports.

A draft system effectiveness report (electronic copy only) for each system (MM-11 and MM-20) will be provided to the County for one round of review and comment within three weeks of completing the six-month performance monitoring periods. The final system effectiveness reports (electronic and three hard copies) will be prepared and submitted within one week of receiving comments from the County.

Cost Estimate

Jacobs proposes to perform the above scope of work for a maximum not to exceed amount of **$192,500** using the rate schedule provided below. Jacobs will not perform work beyond the proposed maximum without first receiving approval from the County. All other project charges (e.g., subcontractor, direct costs, etc.) will be invoiced without markup.

Hourly Rate Schedule

Classification	*Hourly Rate*
Principal	$150
Project Manager (Qualified PG/PE)	$120
Environmental Engineer	$100
Environmental Scientist	$75
Field Technician	$60

Assumptions

- Subsurface methane migration is difficult to predict; and therefore, Jacobs cannot guarantee the success of the proposed remedial measures. The proposed remedial measures described in this scope of work were developed to maximize effectiveness while attempting to control costs for the County. There is a possibility that additional remedial measures will be required in the future to fully address the methane migration issues at MM-11 and MM-20. Any required additional measures will be performed under a separate scope and budget.
- Jacobs assumes the updated MRPs being developed for the Northside Landfill (MM-20) and Southside Landfill (MM-11) will be approved by EPD without comments. If comments are issued by EPD, scope and budget revisions may be necessary.
- The scope and associated cost estimate developed by Jacobs for this methane remediation project are based on both systems (MM-11 and MM-20) being installed concurrently. If the County elects to not execute the scope for both systems

concurrently, Jacobs will provide the County a revised scope and budget to reflect the installation of one system.

- NTP for the purposes of the project schedule assumes that successful contracting has already occurred between the County and Jacobs prior to the County issuing NTP.
- One preconstruction meeting will be held prior to beginning the construction of the methane remediation systems. Two representatives from Jacobs and one representative from Jacobs' system installation subcontractor are anticipated to attend, along with representatives of Fayette County.
- The scope of work and estimated project budget described herein are based on assumptions that Jacobs has made about the final design of each system. If Jacobs determines during the actual design process that significant changes must be made to the design assumptions, additional costs may be incurred. Jacobs will notify the County if this occurs prior to completion of the design.
- Jacobs will monitor for explosive gases throughout the duration of the installation effort.
- This scope of work assumes that there are a total of eight existing non-functional extraction wells to be abandoned on the Northside Landfill and assumes they are an average of 20 feet deep. If Jacobs determines during abandonment that additional wells exist or that the wells are significantly deeper than assumed, Jacobs will contact the County to discuss any necessary additional charges.
- No more than 400 feet of drilling and well construction will be performed for the MM-20 system.
- If additional drilling and well construction is necessitated by the subsurface conditions, the County will be informed and verbal approval will be obtained before drilling beyond the estimated depths outline in this proposal. Additional drilling and well construction will be charged at approximately $12.00 per foot provided the additional drilling does not extend the project schedule. If the schedule is extended, additional subcontractor direct cost will also be incurred. Jacobs' time for additional drilling will be charged at our approved hourly rates.
- The decommissioning of the old non-functioning extraction systems and the installation of the new limited extraction system on the Northside Landfill will take 10 days to complete.
- The passive vent conversion and active system installation on the Southside Landfill will be completed in 3 working days.
- No more than eight existing enhanced passive vents will be converted to active extraction wells.
- No drilling within landfill footprint will be required.

- All drilling locations will be accessible by a track-mounted rig and any necessary clearing for access will be performed by Fayette County prior to mobilization of the drilling rig.
- Drilling equipment decontamination will not be necessary between drilling locations.
- A potable water supply will be available for use throughout the duration of the project.
- All investigation derived waste (IDW) will be staged at one central location and Fayette County will be responsible for the disposal of all IDW.
- Jacobs will respond to one round of comments by the County on both sets (MM-11 and MM-20) of draft reports.
- Any EPD comments received in response to either letter report submittals will be addressed under separate scope and budget.