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MEMORANDUM

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TO: Nicholas Dezelan, City of Greenfield, Indiana

FROM: Al Stong, Commonwealth Engineers, Inc

DATE: 12-12-22

SUBJECT: WWTP Improvements Project;
Construction Cost Savings
WWTP Site Material Disposal / Davis Road Burn Dump Site

It was identified that the excess dirt generated under the previous excavation project and currently on site can be disposed of through grade actuation of the Davis Road Burn Dump site as long as the Indiana Department of Environmental Management (IDEM) Office of Land Quality (OLQ) prescribed requirements are achieved. Per the as-built information on the Excavation Project, 12,907 cubic yards of soil is currently on-site requiring final placement / disposal. At a landfill disposal cost of \$22.20/ton, landfill tipping fees would total approximately \$400,000. If the City opts to dispose of this material on the Davis Road Burn Dump site, not only would an approximate \$400,000 cost avoidance but also closure plan requirements for the Davis Road Burn Dump site could be delineated and largely achieved.

The *Soil, Groundwater, and Waste Management Plan and Addendum Approval letters (June 2021)* delineates content requirement for Closure and Operation and Maintenance of the WWTP Closed Open Dump site. As part of the professional services provided by SME, the *Environmental Investigation Summary Report (January 2022)* was created and submitted to IDEM OLQ to address these requirements. IDEM responded in April 2022 requesting:

1. Additional information to establish the waste boundary at the WWTP site,
2. Clarification for the planned landfill cover at the WWTP site,
3. Identification of the planned groundwater well network for future monitoring at the WWTP site,
&
4. Additional information on the Davis Road Burn Dump site.

Additional services are required to accommodate the above. The following Table summarizes the additional activities and costs with a more detailed summary and accounting of same following the Table. Given the dependency of this work on situational outcomes with IDEM OLQ, it is prudent to include an as needed contingency budget.

Description	Cost
Waste Boundary Delineation (WWTP Site)	\$26,545
Landfill Cover Coordination	\$5845
Development of Groundwater Monitoring Plan (WWTP Site)	\$9,870
Davis Road Burn Area Support	\$55,200
Subtotal	\$97,460.00
Contingency (10%)	\$9,500
Total	\$106,960

WWTP Closed Open Dump Site

Under the previously performed **Excavation and Regrading Project**, Commonwealth contracted with SME to aid in (among other things), construction engineering, resident project representation,

Activity	Contract	Spent	Remaining
Closure Plan	\$9,087.61	\$3,418.75	\$5,668.86
Restrictive Covenant Assistance	\$8,500.00	-	\$8,500.00

project documentation, closure plan assembly, and restrictive covenant assistance. Outstanding balances yet to be incurred for SME services as contracted by Commonwealth are as follows:

Work remaining with respect to the WWTP Closed Open Dump Site includes:

- A. Additional Waste Boundary Delineation
- B. Landfill Cover Coordination
- C. Development of a Groundwater Monitoring Plan

Waste Boundary Delineation

A proposed waste boundary was presented to IDEM OLQ in March 2022. Since that time, IDEM OLQ has requested additional confirmations along the northern and eastern edges before approving the boundary. To provide IDEM OLQ with this information SME will direct the City in excavating test pits (one per 200 linear feet) to a minimum depth of 5 feet or a depth in which waste becomes visible – whichever is shallower. The location will be recorded via GPS and the pits will be monitored for methane and photo-ionizable vapors. The excavation will be photographed and described. Upon completion, the location of the pits will be mapped and the measured waste boundaries will be drawn on a plan sheet and submitted to IDEM OLQ. The cost associated with this service is presented as follows:

Description	Fee	O&P (15%)	Total
Waste Boundary Sampling and Documentation	\$22,000	\$3,300	\$25,300
Supporting ACAD/Dwg Assembly	\$540	\$0	\$540
Project Coordination	\$705	\$0	\$705
Total	\$23,245.00	\$3,300.00	\$26,545.00

Landfill Cover Coordination

Once the area is fully delineated, it will be required covered to minimize the surface water that percolates through the waste, thus mitigating leachate generation. The cover is required to consist of two (2) feet of clay with an additional 6-inches of topsoil or an alternate impervious surface (such as asphalt, concrete, etc.). Currently, the majority of the delineated waste boundary is addressed by an impervious surface as part of the WWTP site design. However, once the waste boundary delineation is performed, the extent of the Closed Open Dump may increase resulting in the need to direct additional efforts and measures to provide a complete cover.

IDEM OLQ expectations for this project are being developed as the project progresses. Although IDEM has regulatory requirements for regulated landfills, they have been willing to consider more practical (and economical) approaches for the Closed Open Dump. Therefore, there are still unresolved IDEM OLQ requirements regarding the cap / cover. The cost associated with this service is presented as follows:

Description	Fee	O&P (15%)	Total
Landfill Cover Coordination	\$4,000	\$600	\$4,600
Supporting ACAD/Dwg Assembly	\$540	\$0	\$540
Project Coordination	\$705	\$0	\$705
Total	\$5,245.00	\$600.00	\$5,845.00

Development of Groundwater Monitoring Plan

Based on the initial groundwater analytical findings, SME took the approach of encouraging IDEM OLQ to forgo groundwater monitoring requirements. Unfortunately, IDEM OLQ has made clear their expectations for long-term monitoring. These services, therefore, were not originally included in SME's scope of work with Commonwealth and correspondingly Commonwealth's scope of work with the City of Greenfield.

A groundwater monitoring plan is required prepared and will include details on well placement, construction, monitoring frequency and duration, and monitoring parameters. The plan will be aggressive in nature to minimize the number of wells placed, sampling frequency, and sampling parameters, therefore, it is anticipated that additional time to coordinate with IDEM OLQ (back and forth negotiations) will be needed. The cost associated with the required Groundwater Monitoring Plan is presented as follows:

Description	Fee	O&P (15%)	Total
Groundwater Monitoring Plan	\$7,500	\$1,125	\$8,625
Supporting ACAD/Dwg Assembly	\$540	\$0	\$540
Project Coordination	\$705	\$0	\$705
Total	\$8,745.00	\$1,125.00	\$9,870.00

Davis Road Burn Area Support

IDEM OLQ has notified City of Greenfield that they are aware of another former dump adjacent to the southeast of the WWTP Closed Open Dump Site; 400 E Davis Rd, Greenfield, Indiana.

Due to the past use of this site, IDEM OLQ is requiring an assessment of the area to characterize the extents of the waste and verification of cover construction. IDEM OLQ is also requiring the development of a Closure Plan for this site that details the final cover and potential migration of contaminants.

An opportunity exists to utilize the material currently stored on the WWTP Closed Open Dump Site and generated from the previous Excavation and Regrading Project as cover/cap for the Davis Road Burn Area site. Similar to the WWTP Closed Open Dump Site, SME will direct the City of Greenfield in excavating test pits and perform work activities required to delineate the waste boundary. Commonwealth will mobilize our survey crew (estimated required for 1-day) to gather supplemental information on boundary, structures, contours, etc. This is anticipated required to augment existing information on file from previous Commonwealth site delineation / survey activities. The existing grade, physical improvements (buildings, etc.) and dump site extents will be illustrated.

The intent of the grade actuation is to effectuate a complete transfer of the “clean” and “dirty” piles of soil from the WWTP Closed Open Dump Site to the Davis Road Burn Area in a manner that is acceptable to IDEM OLQ and maximize use of this material for “capping” purposes.

Existing surface, actuated grades and cross-sections will be developed to illustrate the work required. These plan sheets will then be provided to IDEM OLQ with a request for approval. Once approved, these plan sheets will be provided to the Contractor and cost adjusting change order solicited for the performance of the work.

As for the Closure Plan, content requirements include:

1. Historic information:
 - a. Ownership, waste streams, waste sources, permit numbers, groundwater sampling information, boring logs, compliance history, date of last waste disposal, waste boundaries.
2. Current information:
 - a. Topographic maps, current groundwater sampling information, current landfill/dump cover information, groundwater flow direction, location and logs of drinking water wells within a quarter mile of the site boundaries.
3. A map depicting the waste boundaries:
 - a. A combination of historical records, regulatory records, and physical observations made during field activities will be required to demonstrate the waste boundary.
 - i. Waste boundaries must comply with IDEM’s waste boundary setback requirements
4. Future proposed use information:
 - a. A post-closure use plan and long-term stewardship plan
 - i. Landfill gas monitoring plan
 1. Identification of landfill contents
 2. Generation of conceptual site model
 - ii. Groundwater monitoring plan
 1. Installation of permanent groundwater monitoring wells
 2. Sampling of groundwater monitoring wells at specified frequency
 3. Generation of quarterly/semi-annual reports to document groundwater sampling results
 - b. Regrading plan
 - i. Evaluation of existing cover

- ii. Generation of final cover certification report for IDEM approval (including cover thickness, material type, slopes, etc.)
- c. Stormwater and erosion control measures
- d. Cover installation QA/QC and cover QC in accordance with (329 IAC 10-2-38 and 329 IAC 10-2-39)

A formal request for closure can be submitted to IDEM once all aspects of the Closure Plan have been met and approved and the required time statute has been met. The cost associated with the Davis Road Burn Area support activities are presented below.

Description	Fee	O&P (15%)	Total
Waste Boundary Delineation and Closure Plan	\$32,000	\$4,800	\$36,800
Site Supplemental Survey (1-day; 10hrs)	\$4,000	\$0	\$4,000
ACAD – Plan & Sections (40-hrs)	\$6,000	\$0	\$6,000
Project Coordination	\$1,500	\$0	\$1,500
Optional Site Observation (3-incidents)	\$6,000	\$900	\$6,900
Total	\$49,500.00	\$5,700.00	\$55,200.00