

CAPITAL PROJECT APPROVAL DETAILS

POLE HOLE LANDFILL SITE - PROPOSED WORKS

1. Site Investigation

GGS would propose to drill approximately 8 No. boreholes using cable percussive drilling techniques to approximately 10-20m depth depending on ground conditions. These boreholes would be placed in locations to be agreed with East Hertfordshire District Council. It is recommended that the following provisions are included: site container, water bowser, welfare facilities, heras fencing and extra mobilisation for additional casing. However it should be noted that if ground conditions are difficult then a different drilling technique may need to be used which will incur extra costs or settle for less locations.

The drilling works will be completed by a specialist sub-contractor and GGS will be on site to provide full-time supervision. GGS and our sub-contractors would require full and unhindered access during our site works and an area for short term storage of the above mentioned provisions. We would anticipate that all 8 No. holes will be completed within a two to three week period using two cable percussive rigs given suitable conditions. The boreholes will be logged and installed with ground gas monitoring wells with gas twin valved rubber bungs and lockable steel flush headworks. It is assumed that all arisings will be clean natural drift deposits, and where contaminated waste materials are found, this will incur addition disposal costs. GGS will provide borehole logs which will be prepared in accordance with BS EN ISO 14655-1:2002. In addition, environmental data will also be recorded.

It is also assumed that East Hertfordshire District Council will provide GGS with details of any services present on the site, or in the vicinity of proposed exploration locations including location plans. We have not included for services searches as part of these proposals and can be conducted at additional cost. However GGS will perform a CAT scan at the location prior to drilling.

Where the above requirements are not met or caused by actions beyond our control, GGS may recharge reasonable time and expenses fees for failed visits, re-visits or for standing time.

On completion of the site investigation GGS would propose to complete a site topographic survey including surveying in the borehole positions which will be populated accurately on a plan and GGS would produce cross sectional drawings of the site and adjacent areas of interest.

2. Surface Emissions Survey

GGS propose to carry out a Flame Ionisation Detection Survey coupled with GPS data logging capabilities across the landfill along transects with a spacing of 15m. GGS will be using a Gas-Tec MkV portable low level (ppm) hydrocarbon detector. This equipment also has GPS capabilities which allow for position determination plus full data, event and location logging.

3. Gas Sampling

GGS propose to take gas samples from boreholes using either a passive or active sampling technique. Laboratories used for analysis will be MCERTS accredited where available. The laboratory analysis should include bulk gas suite, C1 – C7 suite and suite of volatile organic compounds (TO15 List) with Tentatively Identified Compounds TICs.

4. Ground-Gas Monitoring

GGS will provide the following hourly GGS GasClam® factual data;

- bulk gases; methane (CH₄), carbon dioxide (CO₂) & oxygen (O₂),
- trace gases; hydrogen sulphide (H₂S), carbon monoxide (CO) & total volatile organic compounds (TVOC), and
- atmospheric pressure, borehole pressure & temperature.

Spot monitoring of each monitoring location using a GFM430 / GFM435 instrument will be carried out by GGS during each site visit. Monitoring and recording of borehole flow rate, CH₄, CO₂, O₂, H₂S, CO, atmospheric pressure, water level and base dips will be carried out.

Borehole purge and recovery tests (GGS PRT®) will be carried out prior to the deployment of each GasClam instrument on the initial visit to provide an indication of recovery time for ground gas ingress into the standpipe. This can provide a very useful indication of ground gas flux and recharge.

5. Reporting

GGS will provide a detailed risk assessment interpretive report in line with available current ground-gas risk assessment guidance including CIRIA C665, BS8485 and the Ground Gas Handbook. Following a 'Lines-of Evidence' approach, several assessment tools will be used. These will include bulk gas variability, environmental correlations (pressure, temperature, groundwater), concentration duration curves, purge and recovery profiles along with standard generic screening assessment. The risk assessment findings will be used to provide a recommendations and possible remedial mitigation options if required.

Cerys Williams

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