

SCOPE OF WORKS

Three Year Monitoring Program - Groundwater and Landfill Gas Monitoring at Trap Gully Landfill

RFQ # Q-2122-CS-65

Annexure 1

Section 1 Scope of Works

1.1 Overview of Project Objectives

To monitor, assess and report on ground water, surface water, leachate, and landfill gas at Trap Gully Landfill. Monitoring over a three-year period to commence in August 2022 and continue at three monthly intervals until May 2025 a total of 12 site visits.

1.2 Background

To ensure groundwater, surface water, leachate and landfill gas monitoring is undertaken to achieve compliance with relevant legislation, Environmental Authority conditions and in accordance with relevant policies, procedures, and guidelines.

The Department of Environment and Science (DES) has issued Environmental Authority (EA) EPPR00818213 for the environmentally relevant activities associated with the Trap Gully Landfill operation. Conditions WT4.9 – W4.11 relate specifically to groundwater monitoring, and the landfill gas monitoring is captured under Conditions A4.4 – A4.6.

1.3 Function to be performed

Monitoring of groundwater, landfill gas, surface water and leachate over a 3-year period at Trap Gully Landfill. Including, 12 quarterly site monitoring events, data analysis, reporting and presentation of results.

The monitoring methodology, analysis and reporting of monitoring results should build on the previous monitoring program outlined in the Annexures attached.

In addition to the Department of Environment and Science and Environmental Authority and conditions the future monitoring program is to be guided by historical sampling data, previous recommendations, and monitoring reports.

BSC reserves the option to extend the engagement for a further twelve (12) months, at Council's discretion, upon the contractor fulfilling expectations and successfully meeting established outputs.

Additionally, BSC reserves the option to cease the agreement if the outputs and outcome requirements are not met. Any adjustment required to the pricing over the three-year period will be as per CPI.

1.4 Specification of Works to be carried out

1. Groundwater

Groundwater monitoring is to be conducted in accordance with the conditions of EA EPPR00818213 and Table WT4.9 - Groundwater Monitoring Parameters.

Note: All annual monitoring parameters are to be sampled and monitored quarterly.

Monitoring is to be conducted at the following bore locations:

- Monitoring Bore B0001
- Monitoring Bore B0002
- Monitoring Bore B0003
- Monitoring Bore B0006

All samples are to be collected in accordance with the DES (June 2018) 'Monitoring and Sampling Manual: *Environmental Protection (Water) Policy 2009*' (or latest version) and analysed by a NATA accredited laboratory. Personnel conducting the sampling must be trained and competent to undertake the sampling.

All bore caps are to be replaced and locked at the completion of sampling.

Monitoring results and trend graphs based on previous sampling data are to be provided to BSC in Microsoft Excel format.

Results are to include:

- columns showing relevant Queensland Water Quality Guidelines, ANZECC trigger values, and a developed reference water quality threshold for the site (if applicable);
- Temporal trending and graphs relating to trigger values with comments on key trends;
- groundwater level, precipitation and cumulative rainfall departure (as appropriate) graph;
- field results, including a description of the weather conditions on the day of monitoring;
- GPS coordinates for each bore location;
- comments on observations made at the time of monitoring (particularly anything that may have influenced groundwater quality, any abnormalities, access issues, or suggestions for improvement);
- interpretation of the groundwater quality results explaining issues/potential causes of any exceedence, anomalies, potential extent of contamination and whether it could move beyond site boundaries etc.; and
- summary and recommendations.

Monitoring results are to be received within four (4) weeks of the monitoring event.

Note: when reporting groundwater levels prior to sampling, please ensure the reference point is noted in the monitoring report (historically top of the bore casing)

2. Landfill Gas Monitoring

Landfill gas monitoring is to be conducted in accordance with conditions of EA EPPR00818213 and previous studies and reports.

Surface Gas Monitoring

Monitoring of potential migration of landfill gases through the landfill capping shall use both visual methods (such as vegetation die back after a cover is established) and a walkover sampling 50 mm above the surface.

All buildings and enclosed or partially enclosed buildings should also be sampled for methane concentrations. Ambient air monitoring should be undertaken on the landfill cells and downwind of the cells (approximately 50-100m from the cells) using a Portable Landfill Gas Analyser.

Subsurface Gas Monitoring

The subsurface monitoring shall be conducted at the six LFG gas bore locations:

- Monitoring Bore GB0001
- Monitoring Bore GB0002
- Monitoring Bore GB0003
- Monitoring Bore GB0004
- Monitoring Bore GB0005
- Monitoring Bore GB0006

Ideally, sampling should be timed to correspond with falling barometric pressures in order to obtain the most accurate LFG flow readings. The subsurface monitoring is to be undertaken using a Portable Landfill Gas Analyser in accordance with manufactures instructions at each bore.

Parameters to be recorded must include:

- Atmospheric pressure
- Flow rate
- CH₄ (%)
- CO₂ (%)
- O₂ (%)
- CO (ppm)
- H₂S (ppm)
- Balance Gases (%)

All bore caps are to be replaced and locked at the completion of sampling.

Monitoring results and trend graphs are to be provided to BSC in Microsoft Excel format. Results are to be quality checked prior to being sent through. Results are to include:

- columns showing a comparison of results to the lower explosive limit of the BSC Landfill Gas Monitoring Plan

- Temporal trending and graphs relating to trigger values with comments on key trends;
- groundwater level, precipitation, and cumulative rainfall departure (as appropriate) graph.
- field results, including a description of the weather conditions on the day of monitoring.
- GPS coordinates for each bore location;
- comments on observations made at the time of monitoring (particularly anything of influence on gas migration, any abnormalities, access issues, or suggestions for improvement);
- interpretation of the gas results explaining issues/potential causes of any exceedence, anomalies, potential extent of contamination and whether it could move beyond site boundaries etc.; and
- recommendations.

Monitoring results are to be received within four (4) weeks of the monitoring event.

An annual landfill gas summary report in pdf format is to accompany the Excel spreadsheet for the November round of monitoring to provide context, describe the site, methodology used and consolidate findings.

3. Landfill Leachate Monitoring

Leachate samples are to be collected annually from the two (2) leachate collection tanks (wells) LT1 & LT2.

Landfill leachate is to be sampled annually for the following parameters, including Temperature, pH, EC, DO, Turbidity (NTU), SS, Colour, TDS, Redox / ORP and Ammonia (as N).

Monitoring results are to be received within four (4) weeks of the monitoring event.

4. Landfill Surface Water Monitoring

Surface water sample are to be collected annually from the two (2) main sedimentation dam(s) and tested based on conditions of EA EPPR00818213 and Table WT4.1-Surface water release limits.

Note: All annual monitoring parameters are to be sampled and monitored quarterly.

Monitoring results are to be received within four (4) weeks of the monitoring event.

5. Monitoring results and reports

Monitoring results and reports are to be sent by email to waste.admin@banana.qld.gov.au

1.5 Insurances

The successful respondent and any subcontractor(s) will be required to effect and maintain insurance policies in the following sums:

- (a) Public liability insurance in the sum of at least \$10,000,000 in respect of any one occurrence and for an unlimited number of claims
- (b) Workers' compensation or personal accident insurance cover as required by law (whichever may apply)
- (c) Professional indemnity insurance in the sum of at least \$10,000,000 in respect of any one occurrence and for an unlimited number of claims

1.6 Resources Supplied by Banana Shire Council

Banana Shire Council to provide advice and site access.

1.7 Defect Period/Warranty

N/A.

1.8 Delivery Dates or Delivery Period

The monitoring data and reporting is to be provided within 4 weeks of each monitoring event.

1.9 Delivery Address or Work Location

Trap Gully Landfill, 142 Forestry Rd, Biloela. Approximately 15Km east of Biloela, QLD.

1.10 Working Hours

Work on site is to be conducted in accordance with the requirements of the *Environmental Protection (Noise) Policy 2019* (Qld).

1.11 Environmental Requirements

The Contractor shall observe and comply with the provisions of the following legislation:

- *Aboriginal Cultural Heritage Act 2003*
- *Biosecurity Act 2014*
- *Environmental Protection Act 1994*
- *Environmental Protection and Biodiversity Conservation Act 1999*
- *Fisheries Act 1994*
- *Native Title Act 1993*
- *Nature Conservation Act 1992*
- *Vegetation Management Act 1999*
- *Waste Reduction and Recycling Act 2011*
- *Water Act 2000*

Other local, state and federal legislation, codes of practice and guidelines may apply and it is the responsibility of the contractor to understand their obligations.

1.12 Reporting Requirements following acceptance

The Contractor must provide written reports for approval as follows;

- Any proposed changes to scope of works.
- Any proposed changes to initial quotation.
- Anticipated changes to start or completion date.
- Anticipated arrival on site / start date.
- Any delay in submission of monitoring data.

Work on the project is to be suspended pending written approval of any changes.

1.13 Site Meeting Requirements following acceptance

Site meetings or inspections are not required.

1.14 Post Completion Support

N/A.

1.15 The Contractor must comply with the following BSC Policies in the completion of the works:

- Environmental Sustainability Policy;
- Code of Conduct;
- Drug and Alcohol Policy;
- Procurement Policy; and
- Work Health and Safety Policy.
- Complete copies of these policies are available to the public on the BSC website at the following address: <https://www.banana.qld.gov.au>

1.16 Standards

The Contractor must comply with the following standards in the completion of the works: *Workplace Health and Safety Regulations 2011* (Qld)

- This scope of works
- Council Policies (specific to the job)
- Capricorn Municipal Development Guidelines (CDMG) if appropriate.

Section 2 Work Health & Safety Requirements

2.1 BSC Inductions

The Contractor/Service Provider employees (and sub-contractors personnel if applicable) are required to:

- Complete all nominated training and inductions directed by BSC prior to mobilisation to site; and
- Maintain current and accurate information relating to licences, tickets and qualifications.

Section 3 Acceptance and Commencement

3.1 Following Acceptance of Quotation

Provide WHS details to Council required under Section 2 of this Scope of Works.

3.2 Prior to Commencement

Provide Council with 2 days notice of intention to commence works by email to waste.admin@banana.qld.gov.au.

Council will provide key or access code to waste facilities.
