

Runaway Bay Sports Super Centre

Pool Refurbishment and Sports Medicine Roof Replacement

April 2014



Runaway Bay Sports Centre

Pool refurbishment and Sports Medicine roof replacement

Scope of Works

Pool refurbishment

Electrical - Isolations

- Access electrical switchboard and isolate lighting circuit / power as necessary for all works to be affected in and around indoor pool.
- Disconnect existing lighting and power as necessary to replace purlins and roof sheet.
- Isolate Pool filtration and electrical system

Poolside and adjacent exterior - Isolations

- Remove from site all areas of carpet around pool in readiness for epoxy coating
- Remove from site existing pool fencing. Make good all existing fixing holes
- Allow for all necessary pre-emptive measures to enable the removal and safe storage on site of existing aluminium window frames
- Remove pool seating as required to execute the works. To be stored in an adjacent location to be advised

Structure

- Execute and replace lower section of all columns in accordance with Cardno Scope of Work document dated May 2013. Replace columns in sequence as identified. Associated documents are as follows;
 - A11015 - SK1
 - A11015 - SK2
 - A11015 - SK3
 - A11015 - SK4
 - A11015 - SK5
- Allow for all temporary support requirements to enable removal of windows and columns as required
- Protect the new column sections by shop application of a super durable thermoplastic powder coating as specified by Inspec
- Protect the on site weld of the replacement column to the existing column with a protective coating as specified by Inspec
- Undertake spot repair of failed sections of hot dip galvanising in all other locations by providing a protective coating system as specified by InSpec
- Remove and replace all RHS purlins with new steel RHS purlins to match existing sizes. Size 200 * 100 * 4 RHS. Exclude roof purlin assessment work identified in point 4 on Cardno drawing SK5 Replacement Purlins. Replacement purlins to be treated as follows;
Abrasive Blast Clean to AS1627.4 Class 2.5

Apply prime coat of Dulux Zincode 402 to DFT of 75um.
Apply intermediate coat of Dulux Duremax GPE to a DFT of 125um.
Apply top coat of Dulux Weathermax HBR to a DFT of 100 um.
Colour: White

- Execute replacement of columns in accordance with Cardno scope of work (Replacement Column Layout Plan) and

Roofing

- Disconnect, protect and store for reuse all solar heating components
- Disconnect, remove and store Cardiff Air unit. Return unit to Sports facility for their use.
- Demolish and remove from site existing roof sheets and flashings
- Replace roofing including flashings with 125mm Bondor Solar Span or approved equal. Allow for all fixings, expansion joints, flashings, cappings, barge and materials in accordance with manufacturer's instructions
- Reinstall solar heating system to roof, test and commission

Poolside and adjacent exterior – New Works

- Apply high solid coloured epoxy coating with anti-slip media and protective UV resistant polyurethane topcoat to all existing exposed concrete pool surround surfaces. Remove all existing carpet, glue etc and prepare all surfaces prior to application. Achieve and certify slip rating to comply with statutory classification requirements
- Install new stainless steel, semi- frameless glass pool fencing to comply with statutory requirements. Provide matching glass gates with compliant hardware as required. Fixings into existing slab as per structural engineers requirements.
- Remove sections of corrosion from four existing door frames. Repair and rebuild door frames as per documents
- Remove section of corrosion from bottom of stair stringer to mezzanine floor. Repair and protect as per documents
- Reinstall pool seating to existing location

Swimming Pool - Refurbishment

- Pump contents of pool – approx 240,000lt
- Acid Wash all tiled areas and regrout all coping tiles to perimeter of pool
- Allow to replace broken tiles within pool where required – Allow to supply 5m2 of replacement tiles including installation
- Renew expansion joint within the pool
- Replace broken steps at north - eastern location of pool. Powdercoat finish. Achieve and certify slip rating to comply with statutory classification requirements
- Fill pool, chemical balance and re-commission filtration equipment

Electrical – New Works

- Reinstall and connect existing lighting and power as necessary following replacement of purlins and roof sheet.
- Install new cabling and reconnect existing lighting on columns and trusses.
- Reconnect existing pool filtration and electrical system

- Test and commission in accordance with Australian Standards
- Provide certification of all electrical installations as required by the building certifier
- BAS or approved contractor to assess and report on the bonding (earthing) of the pool including any new fencing

Warranties and Manuals

- Upon completion of works provide completion certificates (Form 16's) to enable issuance of Certificate of Classification by building certifier.
- All warranties and maintenance procedures to be provided in bound, A4 binders with subcontract contact lists

Cleaning upon Completion

- Contractor is required to clean all affected spaces including toilets and changing facilities prior to the occupation of the centre by the end user

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Sport Medicine roofing replacement

Electrical - Isolations

- Access electrical switchboard and isolate lighting circuit / power as necessary for all works to be affected within building
- Disconnect existing lighting and power as necessary to replace roof sheets

Structure

- Review and repair RHS purlins where corrosion is evident. Undertake spot repair of failed sections of hot dip galvanising by providing a protective coating system as specified by InSpec

Roofing

- Demolish and remove from site existing roof sheets and flashings
- Replace roofing including flashings with 125mm Bondor Solar Span or approved equal. Allow for all fixings, expansion joints, flashings, cappings, barges and materials in accordance with manufacturer's instructions

Electrical – New Works

- Reconnect electrical services and connections in accordance with Australian Standards
- Test and commission electrical services in accordance with Australian Standards
- Provide certification of all electrical installations as required by the building certifier

Warranties and Manuals

- Upon completion of works provide completion certificates (Form 16's) to enable issuance of Certificate of Classification by building certifier
- All warranties and maintenance procedures to be provided in bound, A4 binders with subcontract contact lists

Cleaning upon Completion

- Contractor is required to clean all affected spaces prior to the occupation of the centre by the end user

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RWS/eg
QUOTE NO. 15215

12 August 2011

EMAIL TO: megan.vanwanrooy@deta.qld.gov.au

Department of Education & Training
Attn – Ms Megan Van Wanrooy
PO Box 557
ROBINA QLD 4226

Dear Ms Van Wanrooy,

RE: RUNAWAY BAY SPORTS CENTRE
CNR SPORTS DRIVE & MORAJA AVENUE
RUNAWAY BAY

We refer to your request and our subsequent discussions and a number of site inspections relative to water entry occurring into various areas at the above complex.

Our report along with details of our findings as well as recommendations for rectification and quotations are detailed below.

Photographic details referring to issues involved are attached.

The three areas referred to separately are the Sports Walk, the Dining Hall and Sports Medicine.

SPORTS WALK

Water entry is occurring even in light rain and dew conditions along the steel beam below the box gutter for the full length of approximately 30 lineal metres.

At the junction of the box gutter and the louvered wall, what appears to be a galvanised flashing detail is installed. The flashing on the horizontal section falls back from the box gutter toward the internal areas and it appears that the overlap joints have never been sealed correctly or if previously sealed, the sealant has failed.

This detail extending for the full length and exacerbated at the overlap joints is responsible for the water entry and the onset of heavy rust and early corrosion on the top of the beam.



The box gutter itself although in sound condition structurally, is affected by light to heavy rust in isolated areas and although not contributing to the immediate issues, if left unattended in this manner will finally rot out.

Where the louvered butt joints occur, the previously installed foam or sealant has failed or weathered and although generally not a contributor to the current situation may become so if left in this manner.

In the light of the above details we would recommend the following be carried out.

- Set up an exclusion zone beneath the box gutter in question.
- Access the area internally from a small scissor lift.
- Remove the existing flashing detail.
- Wire brush to clean the top of the steel beam.
- Apply a protective coating of Resene 167 primer.
- Apply two coats of white enamel.
- The above three coat system should provide ongoing protection to these areas.
- Supply and install a new .55 white COLORBOND flashing detail fitted to extend behind the base louvre and continue on an angle toward the box gutter including turning into the box gutter.
- The above flashing detail will ensure that moisture which reaches the angle is discharged toward the box gutter rather than accumulate on the horizontal section of the angle as presently occurring.
- The joints of the angle will be well sealed with construction sealant followed by DUROMASTIC ACS-2 including fibreglass reinforcement approx. 75mm wide centrally placed over each of the lap joints.
- Seal the joints in the bottom fin.
- Reseal the butt joints of the louvres.
- Clean out the box guttering and prime with a heavy application of anticorrosive sealer.

- Seal the lap joints and sumps of the box guttering with DUROMASTIC membrane including fibreglass reinforcement.
- Finally apply two applications of DUROMASTIC membrane to the complete length of the guttering including both sides.

Quotations

Our quotations covering the above work are as follows:

Quotation 1 – Complete waterproofing work as specified

\$12,370.00
PLUS 10% GST \$ 1,237.00
\$13,607.00

Quotation 2 – Access equipment

\$1,200.00
PLUS 10% GST \$ 120.00
\$1,320.00

Sundry considerations

We also took opportunity to inspect the remainder of this roofing and the following issues were noted.

1. A number of the penetrations are built across the pans of the sheeting, causing a severe buildup of water behind the penetration and if left unattended will finally cause water entry.
2. The centre cross lap joint is poorly sealed and possibly not correctly underflashed. In heavy and consistent rain conditions these details may be causing water entry at some point in the complex as moisture entering the sidelaps and unable to exit at the endlaps due to the sealant already in place is likely to build up and track toward the box gutter and from there internally.

We advise that further waterproofing works may be required relative to the items referred to immediately above, but these issues should await the rectification of the main waterproofing issues referred to initially.

DINING HALL

The leaks pointed out into the above area were limited to an area over the table tennis tables only.

We understand the roofing profile to be a Trimdek COLORBOND sheet, screw-fixed and the ceiling an insulated panel type.

Where the ceiling sheets butt join, there is evidence throughout the area of possible moisture buildup but the area over the table tennis tables is the only section considered in our following report.

The roof sheeting remains in sound condition, but serious issues relate to the endlaps which have been partially sealed and water entry occurring over the sidelaps above these areas will accumulate at this point and track internally at the butt joints of the ceiling sheeting.

We therefore recommend that the following work be carried out, **specifically limited to the leaks over the table tennis tables only.**

- To an area approx. 3 lineal metres either side of the tables, clean the endlaps and sidelaps of the roof sheeting.
- Reseal the endlap correctly including removal of surplus sealant.
- Prime the sidelaps extending from the apron flashing at the top of the roof to approx. 2 lineal metres beyond the leaks over the tables.
- Apply DUROMASTIC AC membrane including fibreglass reinforcement over all laps within the area in question.
- The membrane system will be built up with three additional coats of DUROMASTIC AC to provide an elastic barrier able to withstand repeated cycles of movement.
- As both the sidelaps and the endlap in question within the area referred to will be sealed in this manner, water entry would be prevented.

Quotation

Our quotation for carrying out this work is:

\$8,430.00
PLUS 10% GST \$ 843.00
\$9,273.00

SPORTS MEDICINE

The roofing to this area was noted to be of a similar construction to that over the Dining Hall, being a COLORBOND Trimdek with the insulated type sheeting.

The reported water entry is occurring in a line along the butt joint of the ceiling sheeting and this equates to a similar situation to that of the Dining Hall where the end lap has been partially sealed, but the sidelaps left open, indicating that moisture exceeding the sidelaps and being unable to exit at the endlaps due to being sealed, it builds up and enters internally.

We would therefore recommend that the following work be carried out.

- To the roof area over the reported leaks only, prime the sidelaps extending from the top of the roof to approx. 3 lineal metres beyond the overlap joint.
- Clean surplus sealant from the overlap joint and ensure the sheeting is pinned correctly.
- Seal all overlaps and endlap in question with the DUROMASTIC AC membrane system including fibreglass reinforcement and three coats of membrane as previously specified.

Quotation

Our quotation for carrying out this work is:

\$8,120.00
PLUS 10% GST \$ 812.00
\$8,932.00

NOTES APPLICABLE TO OUR SUBMISSION

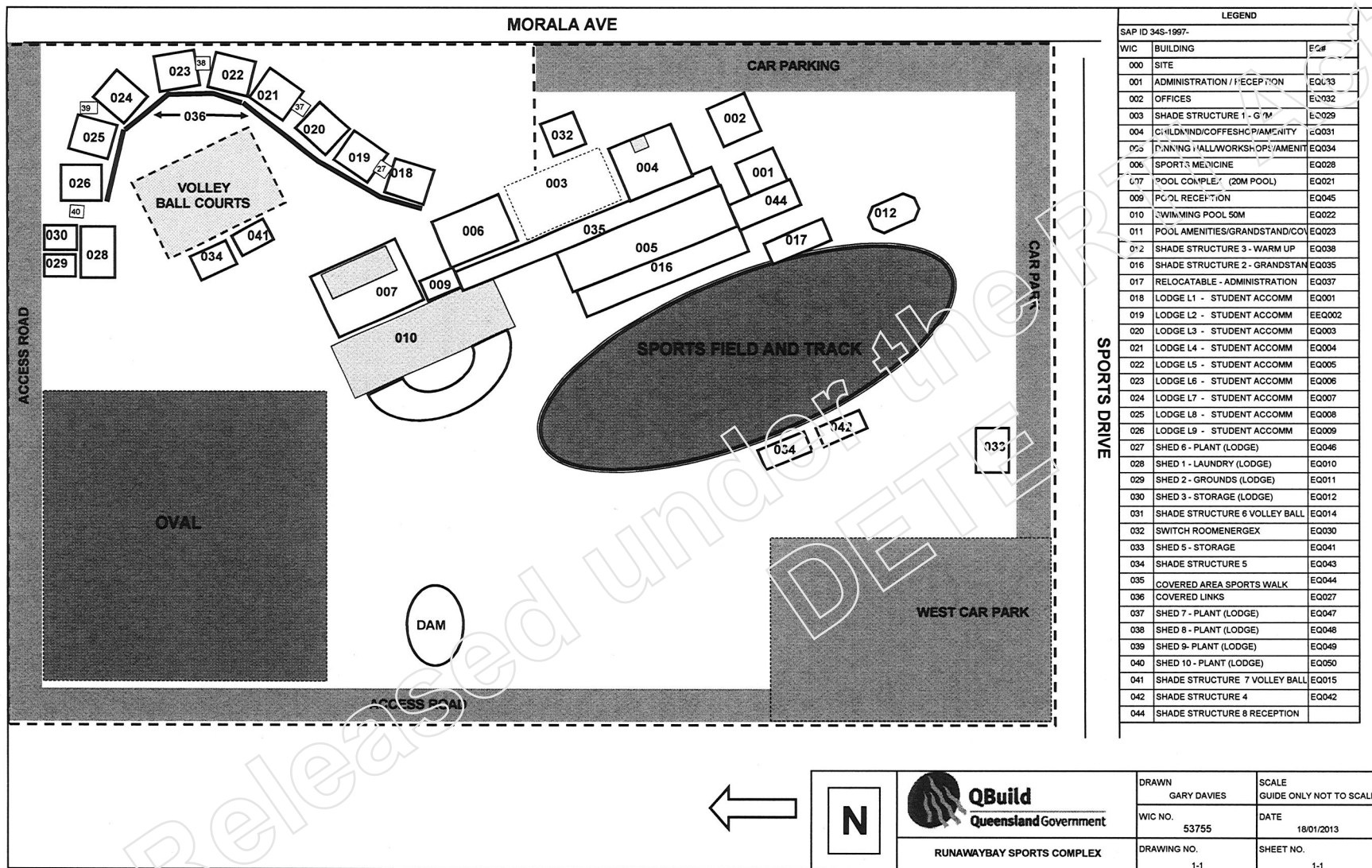
1. All work in normal weekday working hours 7.00am to 3.30pm.
2. Access to the areas is via ladders tied off, except for the access to the box gutter to the Sports Hall which will involve a small scissor lift.
3. Continuous access to the areas is required.
4. Whilst working adjacent the perimeter of any roof and within 2 lineal metres, harnesses will be used attached to safety lines fixed to structural members of the roofing. In this regard, no allowance is included or necessary for edge protection as the majority of the work is well away from the perimeter.
5. Photographic details are attached.

We trust that the above is clear and assure you of our cooperation in performance of the work subject to our contract conditions set out on the reverse side of page one and await your further advice.

Yours Faithfully,
ROOF & BUILDING SERVICE (QLD.) PTY LTD

Regards,
Ross Sanderson

tel (07) 3268 5566 > fax (07) 3868 4138 > email ross@roofandbuildingservice.com.au
address PO Box 426, Hamilton Central, Queensland 4007



Pages 13 through 83 redacted for the following reasons:

s.68(4)(c) – subject to copyright

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24 September 2013

Frank Beeson
Chief Engineer
Runaway Bay Sport and Leadership Excellence Centre
Cnr Sports Dr & Morala Ave
RUNAWAY BAY QLD 4216

Our ref: 41/26317/452195
Your ref:

Dear Frank,

Landfill Gas Monitoring September 2013 Monitoring Event

1 Introduction

GHD was commissioned by The Runaway Bay Sport and Leadership Excellence Centre (RBSLEC) to undertake a round of landfill gas monitoring at the former landfill site, now operating as the RBSLEC, located at the corner of Morala Avenue and Sports Drive, RUNAWAY BAY, Queensland (hereafter referred to as the site).

This round of monitoring was conducted on 11 September 2013 and incorporated structure locations nominated within the Landfill Gas Monitoring Map (Brisbane City Council, 2001) and associated site Sketch. A copy of these site maps is provided as Attachments 1 and 2.

GHD has conducted landfill gas monitoring at the request of the RBSLEC since 2007. The previous landfill gas monitoring event was conducted by GHD in May 2013.

This letter is subject to and should be read in conjunction with the limitations detailed in Section 7.

2 Methodology

The landfill gas monitoring was undertaken on 11 September 2013 by a suitably qualified Environmental Scientist using two calibrated portable field measurement units (an Eagle Gas meter and a GA2000 landfill gas meter) to obtain instantaneous measurements of the methane, oxygen, carbon monoxide and hydrogen sulphide concentrations. Calibration certificates for this equipment are included as Attachment 2.

This assessment included monitoring 137 structures locations (including subsurface electrical pits, light poles, stormwater pits and some site buildings). These locations were located across the site and were identified from the site map provided as Attachment 1. Surface emission monitoring and monitoring within all site buildings was not conducted under this scope of work. 4 soil atmosphere gas wells for the site were not able to be located along the eastern boundary of the site (Morala Avenue).

Measurements were collected by placing a length of tubing (connected to the meter) within the structure and noting the range of measurements over a 1 minute period (or until a peak reading was achieved). In line with previous monitoring rounds conducted at the site, a trigger level of 12,500 ppm methane (1.25%



v/v or 25% of the LEL of methane) was adopted for this monitoring round (from the subsurface guideline value from *Environmental Guidelines: Solid Waste Landfills* (NSW EPA, 1996). Results tables for this round are provided in Attachment 3.

3 Results

Results tables for this round are provided in Attachment 4:

- Table 1 - General Observations;
- Table 2 – Boundary Soil Atmosphere Gas Wells Results;
- Table 3 – Sub-Surface Structure Emission Results

Concentrations of carbon monoxide and hydrogen sulphide at all locations monitored were as follows:

- Carbon monoxide (CO): 0 ppm; and
- Hydrogen sulphide (H₂S): 0 ppm.

Oxygen levels ranged from 15.8 % v/v to 20.9 %v/v at all locations monitored.

It should be understood that the instrument used to complete the monitoring is not methane specific, rather it monitors for a range of hydrocarbons and other easily flammable components (collectively referred to as “flammable gas”). It is common practice in the waste industry to monitor for flammable gas at landfill sites and use the results as a proxy for methane emissions. It should therefore be understood that the “methane” results detailed below are essentially indicative of “flammable gas”.

Methane levels less than the adopted trigger level (12,500 ppm methane) were detected within all structure locations included in this round of monitoring, however a number of other service pit locations identified methane concentrations greater than 1000 ppm during the 11 September monitoring round indicating that methane is entering and accumulating within these structures at levels that require on-going monitoring. This included:

- E3 (an electrical pit located north west of the beach volley ball courts) at 1850 ppm methane;
- E24 left and right (electrical pits located within the roundabout at the southern boundary entrance of the site) at 1650 ppm and 1400 ppm respectively;
- E25 (an electrical pit located in the northern end of the west car park) at 3,900 ppm methane;
- E31 (an electrical pit located in centre of the west car park) at 6,500 ppm methane.

4 Quality Assurance / Quality Control Procedures

In order to have confidence in the landfill gas monitoring data generated during the landfill gas monitoring rounds, suitable quality assurance and quality control procedures were used. The quality assurance and quality control procedures used during the September 2013 monitoring round included the following:

- The monitoring equipment used was calibrated prior to its use on-site and was verified in the field prior to use each day and during the completion of the monitoring by monitoring personnel.



Instrument specifications and calibration certificates for the monitoring instrumentation are included in Attachment 4;

- Monitoring was conducted by a suitably experienced environmental scientist with reference to the Site Based Management Plan and the *Environmental Guidelines: Solid Waste Landfills* (NSW EPA, 1996).

5 Conclusions

Based on the results of the 11 September 2013 monitoring round, the following conclusions are made:

- The Site continues to generate landfill gas containing methane;
- Monitoring of site structures was not exhaustive and was limited to those locations detailed within Section 2 and included within the attached results tables (the four gas wells located along Morala Avenue were unable to be monitored as they were not able to be located due to grass coverage);
- All nominated structure monitoring locations able to be accessed on 11 September 2013 were less than the relevant adopted trigger level (12,500 ppm methane) during this round of monitoring. However methane concentration was greater than 1000 ppm within several electrical pits locations across the site and should be scrutinised in future monitoring rounds.

6 Recommendations

Based on the conclusions in Section 5 above, it is recommended that:

1. Quarterly landfill gas monitoring be scheduled for all site locations to continue assessing trends in methane levels for the site.
2. The barricading placed around electrical pit E3 following the detection of elevated methane concentrations within that structure in April 2013 may be removed as the methane level does not appear to have increased since the May monitoring event. This location should however continue to be regularly monitored to confirm methane is not accumulating at levels greater than the adopted trigger level.

7 Limitations and Quantifications of Letter

This letter has been prepared by GHD for Runaway Bay Sport and Leadership Excellence Centre and may only be used and relied on by Runaway Bay Sport and Leadership Excellence Centre for the purpose agreed between GHD and the Runaway Bay Sport and Leadership Excellence Centre as set out in section 1 of this Report.

GHD otherwise disclaims responsibility to any person other than Runaway Bay Sport and Leadership Excellence Centre arising in connection with this letter. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this letter were limited to those specifically detailed in the letter and are subject to the scope limitations set out in the letter.



The opinions, conclusions and any recommendations in this letter are based on conditions encountered and information reviewed at the date of preparation of the letter. GHD has no responsibility or obligation to update this letter to account for events or changes occurring subsequent to the date that the letter was prepared.

The opinions, conclusions and any recommendations in this letter are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points. Investigations undertaken in respect of this letter are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this letter.

Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of this letter. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this letter if the site conditions change.

If you have any questions or require any further details, please don't hesitate to contact Adam Major or myself.

Yours sincerely,

Report Prepared By:

Approved for Issue

Belinda Oberia

Adam Major

Environmental Scientist
(07) 3316 3954

Principle Environmental Engineer
(07) 3316 3587

GHD Pty Ltd

GHD Pty Ltd

Attachment 1: Site Map of Landfill Gas Monitoring Locations

Attachment 2: Site sketch of additional service pits monitored



Attachment 3: Tables of results

Table 1. General Weather Conditions and Site Observations

Table 2. Boundary Soil Atmosphere Gas Monitoring Wells

Table 3. Sub-surface Structure Emissions.

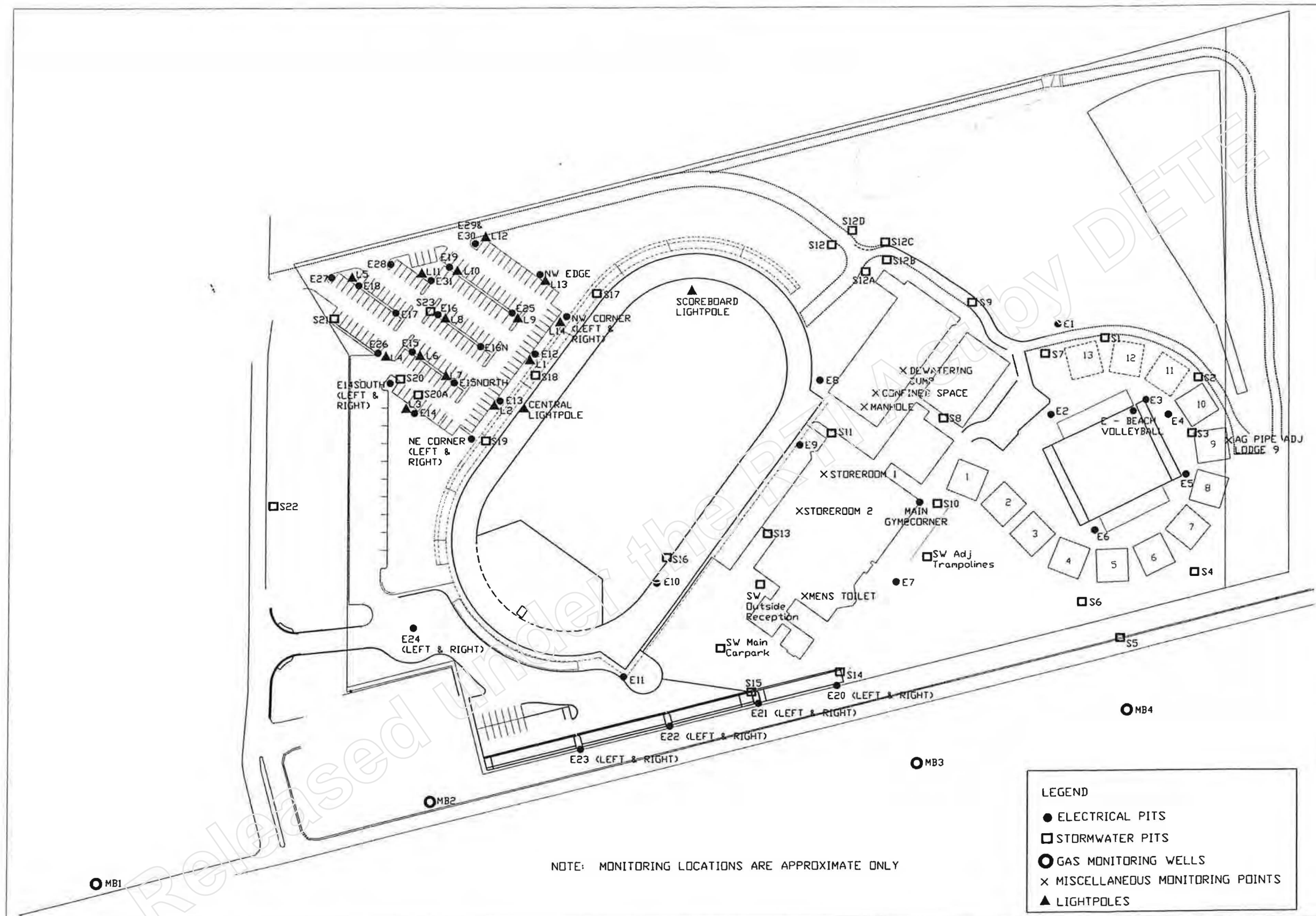
Attachment 3: Calibration Certificates and Specification Sheet for Landfill Gas Meters

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Attachment 1: Site Map of Landfill Gas Monitoring Locations

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Brisbane City Council

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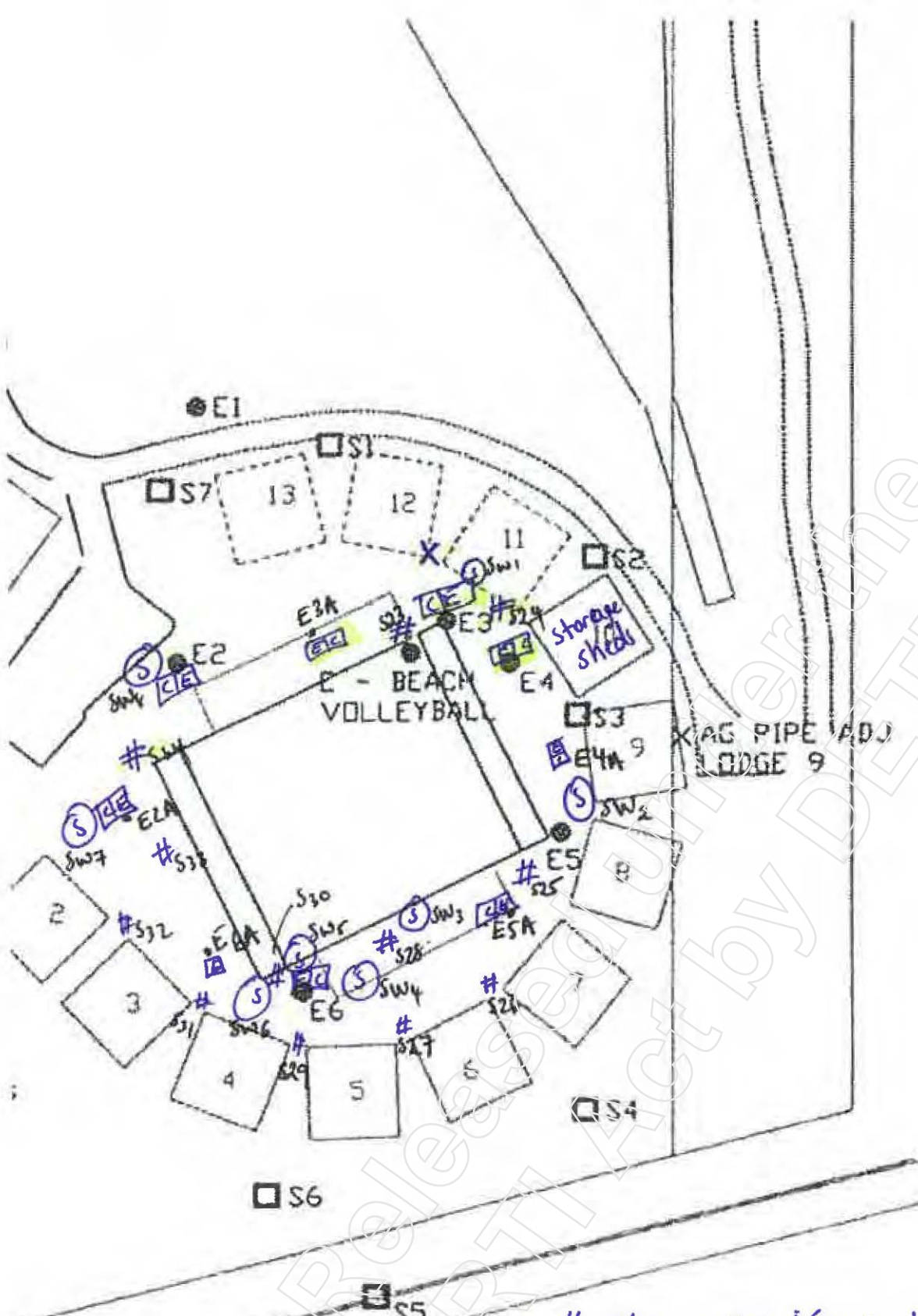


Issue	Description	Date	Drawn	Auth.	Issue	Description	Date	Drawn	Auth.	Project	Title	Design	Drawn	Checked	Authorised for Issue
A	PLAN OF MONITORING LOCATIONS	18.10.01								LAYOUT DRAWING SOURCED FROM EGIS CONSULTING AUSTRALIA	RUNAWAY BAY SPORTS SUPER CENTRE GAS MONITORING	LANDFILL GAS MONITORING LOCATIONS	LYP	MJ	MJ
B	UPDATE OF MON. LOCS	16.11.01													
												Reference no.			
													CDG30287516		
												Drawing no.		Sheet	Issue
													FIGURE 2	1	A



Attachment 2: Site sketch of additional service pits monitored

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- # = stormwater pit (grated)
- (S) = sewer manhole (unusable to open) (SW)
- [C] = communication pit
- [E] = Electrical pit
- (based on labelling of pit covers)
- X approx location of PVC pipe stickup (connection point) to E3.
- = "immediately adjacent" pits.

Map not to scale.
Indicative locations only.



Attachment 3: Tables of results

Table 1. General Weather Conditions and Site Observations

Table 2. Boundary Soil Atmosphere Gas Monitoring Wells

Table 3. Sub-surface Structure Emissions.

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Runaway Bay Former Landfill: Landfill Gas Monitoring for Runaway Bay Sport and Leadership Excellence Centre

TABLE 1: General Weather Conditions and Site Observations

Date	Atmospheric Pressure		Wind Speed (km/h)	Wind Direction (degrees)	Temp. (°C)	Weather Conditions		Rainfall Over Preceding Week (mm)	Comments	Initials
	(hPa)	Rising/Falling				Current	Preceding Week			
11-Sep-13	1008.2	Falling	17	45	26.8	Fine with 2/8 cloud cover and a NE breeze	Mostly fine	0.8	Full site	BO

Notes

Atmospheric pressure, wind speed/ direction, temperature and daily rainfall data to be obtained from the Bureau of Meteorology, Gold Coast Seaway Station (No 40764.)

Runaway Bay Former Landfill: Landfill Gas Monitoring for Runaway Bay Sport and Leadership Excellence Centre

TABLE 2: Boundary Soil Atmosphere Gas Monitoring Wells

Location	Parameter	Units	Sampling Date
			11-Sep-13
Boundary Wells			
MW1	CH ₄	% (v/v)	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
MW2	CH ₄	% (v/v)	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
MW3	CH ₄	% (v/v)	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
MW4	CH ₄	% (v/v)	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM

Notes:

Methane Trigger Level = 1.25 % v/v (Environmental Guidelines: Solid Waste Landfills, NSW EPA, 1996)

Shading indicates exceedance of trigger level

Bold indicates detection of methane

NM = location not monitored (restricted access or not located)

Runaway Bay Former Landfill: Landfill Gas Monitoring for Runaway Bay Sport and Leadership Excellence Centre
TABLE 3: Sub -Surface Structure Emissions

Location	Parameter	Units	11-Sep-13
E1	CH ₄	ppm	< 20
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E2	CH ₄	ppm	280
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
C2	CH ₄	ppm	180
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E2a	CH ₄	ppm	350
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
C2a	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E3	CH ₄	ppm	1850
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.0
C3	CH ₄	ppm	550
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E3a	CH ₄	ppm	530
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
C3a	CH ₄	ppm	330
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E4	CH ₄	ppm	410
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
C4	CH ₄	ppm	260
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
C4a	CH ₄	ppm	240
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E5a	CH ₄	ppm	230
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
C5a	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E6	CH ₄	ppm	370
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
C6	CH ₄	ppm	270
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E6a	CH ₄	ppm	230
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E7	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E8	CH ₄	ppm	60
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E9	CH ₄	ppm	60
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E9A	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9

Runaway Bay Former Landfill: Landfill Gas Monitoring for Runaway Bay Sport and Leadership Excellence Centre
TABLE 3: Sub -Surface Structure Emissions

Location	Parameter	Units	11-Sep-13
E10	CH ₄	ppm	160
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E10A	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E11	CH ₄	ppm	280
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E12	CH ₄	ppm	1200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E13	CH ₄	ppm	310
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E14	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
E14 South Left	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
E14 South Right	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
E15	CH ₄	ppm	310
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E15 North	CH ₄	ppm	850
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E16	CH ₄	ppm	310
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E16 North	CH ₄	ppm	270
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E17	CH ₄	ppm	450
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E18	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E19	CH ₄	ppm	310
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E20 Left	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E20 Right	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E21 Left	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E21 Right	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E22 Left	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
E22 Right	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
E23 Left	CH ₄	ppm	30
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E23 Right	CH ₄	ppm	30
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9

Runaway Bay SSC gas results, Ambient- Structures

25/09/2013

Runaway Bay Former Landfill: Landfill Gas Monitoring for Runaway Bay Sport and Leadership Excellence Centre
TABLE 3: Sub -Surface Structure Emissions

Location	Parameter	Units	11-Sep-13
E24 Left	CH ₄	ppm	1650
	H ₂ S	ppm	0
	O ₂	% (v/v)	15.8
E24 Right	CH ₄	ppm	1400
	H ₂ S	ppm	0
	O ₂	% (v/v)	16.5
E25	CH ₄	ppm	3900
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.1
E26	CH ₄	ppm	310
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E27	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E28	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
E29	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E30	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
E31	CH ₄	ppm	6500
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.7
West Car park NE Corner	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
West Car park Left NE Corner	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
West Car park Right NW Corner	CH ₄	ppm	850
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
West Car park NW Corner	CH ₄	ppm	270
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
West Car park NW Edge	CH ₄	ppm	270
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
Central Light Pole	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
Scoreboard light Pole	CH ₄	ppm	270
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
Ag pip adj Lodge 9	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
S1	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
S2	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
S3	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S4	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
S5	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S6	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S7	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9

Runaway Bay Former Landfill: Landfill Gas Monitoring for Runaway Bay Sport and Leadership Excellence Centre
TABLE 3: Sub -Surface Structure Emissions

Location	Parameter	Units	11-Sep-13
S8	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S9	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S10	CH ₄	ppm	120
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S11	CH ₄	ppm	60
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S12	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S12A	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S12B	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S12C	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S12D	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S13	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S14	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S15	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S16	CH ₄	ppm	160
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S17	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S18	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S19	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S20	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S20A	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S21	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S22	CH ₄	ppm	180
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S23	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S24	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S25	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S26	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9

Runaway Bay Former Landfill: Landfill Gas Monitoring for Runaway Bay Sport and Leadership Excellence Centre
TABLE 3: Sub -Surface Structure Emissions

Location	Parameter	Units	11-Sep-13
S27	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S28	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S29	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S30	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S31	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S32	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S33	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
S34	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
SW Outside reception	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
SW Main Carpark	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
SW Adjacent trampolines	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
Store Room 1	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
Store Room 2	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
Mens toilet main entrance	CH ₄	ppm	100
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
Electrical pit Beach Volleyball	CH ₄	ppm	240
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
Dewatering Sump	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
Confined Space	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
Manhole	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
L1	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
L2	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
L3	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
L4	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
L5	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
L6	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9

Runaway Bay Former Landfill: Landfill Gas Monitoring for Runaway Bay Sport and Leadership Excellence Centre
TABLE 3: Sub -Surface Structure Emissions

Location	Parameter	Units	11-Sep-13
L7	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
L8	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
L9	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
L10	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
L11	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
L12	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
L13	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
L14	CH ₄	ppm	210
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
Western Carpark	CH ₄	ppm	60
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
Central Stairs	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
Storage Containers western carpark	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
W-Beach Volleyball	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
Storage Containers behind lodges	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
Storage shed southern end track	CH ₄	ppm	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
SW1	CH ₄	ppm	240
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
SW2	CH ₄	ppm	240
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
SW3	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
SW4	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
SW5	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
SW6	CH ₄	ppm	200
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
SW7	CH ₄	ppm	240
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9
SW8	CH ₄	ppm	240
	H ₂ S	ppm	0
	O ₂	% (v/v)	20.9

Notes:

Methane Trigger Level = 1.25 % v/v or 12,500 ppm (Environmental Guidelines: Solid Waste Landfills, NSW EPA, 1996)

Shading indicates exceedance of trigger level.

NM = location not monitored (restricted access or not located)

E = Electrical pit

S= Stormwater drain

Sw = Sewer manhole

L - Light pole



Attachment 3: Calibration Certificates and Specification Sheet for Landfill Gas Meters

Released under the
RTI Act by DETE

RENTALS

Equipment Report – Eagle Multi-Gas Monitor

This Gas Meter has been performance checked / calibrated* as follows:				
Gas Channel	Cal Value	Reading		Pass?
CH4 Check Only	0 % LEL	0.0	% LEL	<input checked="" type="checkbox"/>
	50 % LEL	50.	% LEL	<input checked="" type="checkbox"/>
O2 Check Only	0.0 % vol	0.0	% vol	<input checked="" type="checkbox"/>
	18.0 % vol	18.0	% vol	<input checked="" type="checkbox"/>
CO Check Only	100 ppm	99.	ppm	<input checked="" type="checkbox"/>
H2S Check Only	25.0 ppm	25.1	ppm	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Electrical Safety Tag attached (AS/NZS 3760)		Tag No: N/A	Valid to:
<input checked="" type="checkbox"/>	Alkaline Batteries	<input checked="" type="checkbox"/>	Inline Filter Check	<input checked="" type="checkbox"/> Cleaned
<input checked="" type="checkbox"/>	Low alarm set at 10% LEL (5,000ppm)	<input checked="" type="checkbox"/>	High alarm set at 50% LEL (25,000ppm)	<input checked="" type="checkbox"/> Battery Status: 6.1 v

* Calibration gas traceability information is available upon request.

 Date: 5/10/13 Checked by: Justin

 Signed: [Signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Eagle Multi Gas detector Ops check,
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Liquid Inhibiting Probe with In-Line Filter
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Strap
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Spare Alkaline Batteries Qty <u>2</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Operating Manual
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Quick Guide
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Case
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Battery Status <u>6.2v</u>
<input type="checkbox"/>	<input type="checkbox"/>	Check to confirm electrical safety (tag must be valid)

Processors Signature/ Initials _____

TFS Quote Reference		Condition on return
Customer Ref		
Equipment ID	EAGBB	
Equipment serial no.	E2A813	
Return Date & Time	/ /	

"We do more than give you great equipment... We give you great solutions!"

Phone: (Free Call) 1300 735 295		Environmental Assessment Technologies		Fax: (Free Call) 1800 675 123	
Melbourne Branch 5 Camberwell Drive, Scoresby 3179 Email: RentalsEnviroVIC@thermofisher.com	Sydney Branch Level 1, 4 Talevera Road, North Ryde 2113 Email: RentalsEnviroNSW@thermofisher.com	Adelaide Branch 27 Beulah Road, Norwood, South Australia 5067 Email: RentalsEnviroSA@thermofisher.com	Brisbane Branch Unit 25 Ross St Newstead 4006 Email: RentalsEnviroQLD@thermofisher.com	Perth Branch 121 Beringarra Ave Majega WA 6090 Email: RentalsEnviroWA@thermofisher.com	

RENTALS

Equipment Report - GEOTECHNICAL INSTRUMENTS GA2000

This Gas Meter has been performance checked / calibrated* as follows:

Calibration	Cal Value	Reading	Cal Value	Reading	Pass?
CH4	60% vol	60 %	0.00% vol	0.00 %	<input checked="" type="checkbox"/>
CH4 -check only	2.5%CH4	2.5 %			<input checked="" type="checkbox"/>
H2s	25ppm	25 ppm	0 ppm	0 ppm	<input checked="" type="checkbox"/>
O2	20.9% vol	20.9 %	0.00% vol	0.00 %	<input checked="" type="checkbox"/>
CO	100ppm	100 ppm	0 ppm	0 ppm	<input checked="" type="checkbox"/>
CO2	40% vol	40 %			<input checked="" type="checkbox"/>
Operations Check					
<input checked="" type="checkbox"/> Electrical Safety Tag attached (AS/NZS 3760)		Tag No:.....		Valid to:.....	
<input checked="" type="checkbox"/> Cleaned/checked		<input checked="" type="checkbox"/> In line Filter Check		<input checked="" type="checkbox"/> Battery Status @ 100%	

* Calibration gas traceability information is available upon request.

Date: 2018/1/13 Checked by: Justin

Signed: [Signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sampling Probe with In-Line Filter
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1m of Sampling Tube
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Strap
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Battery Charger and AC/DC Power Supply
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Operating Quick Guide behind foam on lid of case
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Manual behind foam on lid of case
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Spare In-line Filters Qty (2)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry case
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Data Cable and Software CD or Diskette
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Instrument Battery Status @ 100 %
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Well cap Quick connect fitting

☐ Check to confirm electrical safety (tag must be valid)

☒ Processors Signature/
 Initials

TFS Quote Reference	Condition on return
Customer Ref	
Equipment ID	GA2000BE
Equipment serial no.	12665/10
Return Date	/ /
Return Time	

"We do more than give you great equipment... We give you great solutions!"

Phone: (Free Call) 1300 735 295		Environmental Assessment Technologies		Fax: (Free Call) 1800 675 123	
Melbourne Branch 5 Caroline Drive, Scoresby 3179 Email: RentalsEnviroVIC@thermofisher.com	Sydney Branch Level 1, 4 Talavera Road, North Ryde 2113 Email: RentalsEnviroNSW@thermofisher.com	Adelaide Branch 27 Seadish Road, Norwood, South Australia 5007 Email: RentalsEnviroSA@thermofisher.com	Brisbane Branch Unit 25 Ross St Newstead 4006 Email: RentalsEnviroQLD@thermofisher.com	Perth Branch 121 Beringarra Ave Maitland WA 6000 Email: RentalsEnviroWA@thermofisher.com	

School Maintenance Investment Program (SMIP)



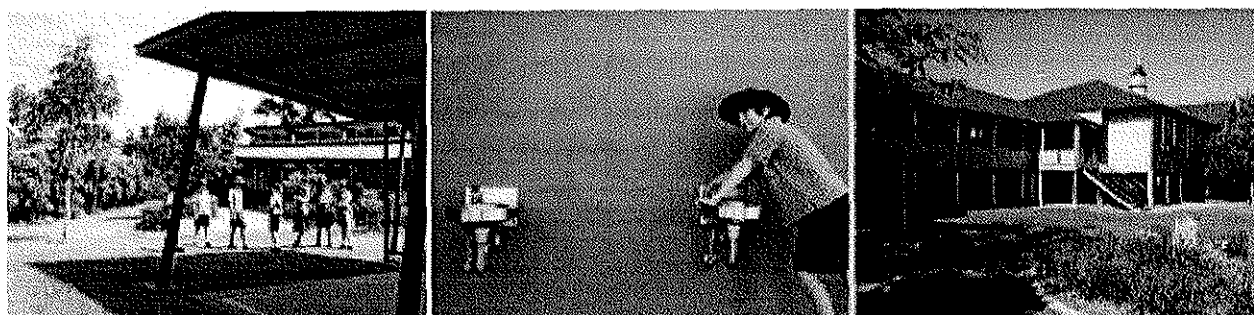
Attachment D

School Name: Runaway Bay Sport and Leadership Excellence Centre Maintenance Scope of Works For SMIP (School Maintenance Investment Program)

Prepared by: Vivien Weston Date: 9 / 12 / 2011
Approved by: David Morgan Date: 9 / 12 / 2011
School Contact Name: Vivien Weston
(e.g. School Principal or Business Services Manager)

Forward to Facilities.SMIP@deta.qld.gov.au Date Forwarded / / 2011

Approved By Date: / / 2011
SMIP Project Team Contact Name:



QUOTATION FOR MAINTENANCE SCHOOL MAINTENANCE INVESTMENT PROGRAM (SMIP)

This document provides a detailed scope of works for maintenance projects identified for completion under the School Maintenance Investment Program.

The person charged with preparing this scope of works is to ensure the DET Design Requirements/Standards, QBuild Painting Specifications and QBuild Electrical Specifications are followed.

Tenderers are to price each item. Where the item is not applicable to your trade please indicate "N/A". It is a mandatory requirement that all Tenderers attend a site visit before submission of offer. Schools retain an attendance register for this purpose.

Tenderers are to allow for barricading, scaffolding, fencing and any other requirements necessary to meet Work Place Health and Safety compliance required while undertaking the works.

Tenderers should refer to the "Working On Department of Education and Training (DET) Facilities" document to ensure they have made any allowances in pricing that may be required to conform to the conditions set out in this document.

	Description Mechanical Ventilation	Value \$(GST Excl)
CADC TASK No. from MAR		
1000000 69214	Location Commercial Kitchen Description Supply and install a mechanical ventilation system to the Commercial Kitchen located on level 1 adjacent to the dining hall. Supply and install 3 single speed, three phase induction units, complete with canopy, internal ducting, single speed three phase discharge unit and canopy, security grilles and roof trimmers. Indoor air quality together with a constant temperature within one or two degrees from outside ambient is desired. Approximate cubic air volume is 1000 cubic metres. Quotes should also include <ul style="list-style-type: none"> • All electrical costs associated with installing 3 phase power supply to the induction units including switches, cable, motor connections, plugs, waterproof isolation switches and fittings to allow proper connection of the motors to the power supply • Any mobile scaffolding or equipment hire • All associated freight costs • All cleanup and waste disposal costs • "Make good" any surfaces disturbed in carrying out the works 	
	EXCLUSIONS Please list any items specifically excluded in this quote	
	Statutory notifications and levies	\$
	TOTAL (Exclusive of GST)	\$
	GST	\$
	TOTAL (Inclusive of GST)	\$

Tenderer Name:

Date:

Signed:
Page 3 of 3

	Description	Value \$(GST Excl)
	BUILDING STRUCTURE / ROOFING WORKS	
CADC TASK No. from MAR 100000069 216	<p>Location</p> <p>Roof Replacement – Sports Medicine Clinic</p> <p>Description To take off existing roof sheets – approx. 320sqm and flashings to the roof area over the Sports Medicine Clinic. To supply and install continuous colorbond roof sheeting and colorbond flashings as required and the roof made good. When replacing roof sheeting where bad corrosion exists, the existing exposed sandwich ceiling paneling is to be removed and repaired and or replaced Also the exposed structural steel work to be repaired, rust treated, and also made good All necessary scaffolding, lifting of materials, WH&S measures and height precautions to be implemented for the purpose of high roofing works. Make good any surfaces disturbed in carrying out the works. All works to be completed in a professional manner and to the satisfaction of management</p>	
CADC TASK No. from MAR 100000069 202	<p>Location</p> <p>Roof Replacement – Dining Hall/Workshop/Amenities</p> <p>Description To take off existing roof sheets to all roof area to main building over dining hall and main kitchen, and to supply and install new continuous colorbond roof sheeting to this area and make good. Note: where installed, existing air conditioning units on the roof will have to be removed to allow for the new roofing installation and to be re-installed on completion of roof works, this will include electrical and air conditioning mechanics When replacing roof sheeting at the northern where bad corrosion exists over mezzanine area & dining hall, the existing exposed sandwich ceiling paneling is to be removed and repaired and or replaced Also at this same location (northern end) the exposed structural steel work to be repaired, rust treated, and made good All necessary scaffolding, lifting of materials, Workplace Health & Safety measures and height precautions to be erected and implemented for the purpose of high roofing works. Make good any surfaces disturbed in carrying out the works. All works to be completed in a professional manner and to the satisfaction of management</p>	

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CADC TASK No. from MAR 100000069 307	Location Sports Walk – Gutter & Flashings (Coffee Shop) Description To remove all flashings along the entire length of box gutter from gym wall to end at reception area To remove all box gutter along the entire length from gym wall to end at reception Install new stainless steel box gutter for the entire length Install new stainless steel sumps to new box gutter at all down pipe dropper points To install new colorbond flashings to the box gutter for entire length. Approx. 36sqm All necessary scaffolding, safety barriers and lifting of materials, WH&S measures and height precautions to be erected and implemented for the purpose of high roofing works. Make good any surfaces disturbed in carrying out the works. All works to be completed in a professional manner and to the satisfaction of Centre management.	
CADC TASK No. from MAR 100000069 308	Location Sports Walk (EAST) – Covered Area (Steelwork) Description To remove eaves gutter along the building length adjacent to loading dock to end at reception area To expose structural steel work, to scrape back, treat and make good, to repair and to replace or repair all existing gutter brackets to this gutter. All necessary scaffolding, safety barriers and lifting of materials, WH&S measures and height precautions to be erected and implemented for the purpose of high roofing works. Make good any surfaces disturbed in carrying out the works. All works to be completed in a professional manner and to the satisfaction of Centre management.	
	EXCLUSIONS Please list any items specifically excluded in this quote	
Statutory notifications and levies		\$
TOTAL (Exclusive of GST)		\$
GST		\$
TOTAL (Inclusive of GST)		\$

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	Description Replacement of flooring and floor covering	Value \$(GST Excl)
CADC TASK No. from MAR		
10000006 9237	Location Lodge 1 Description Replace Carpet in 8 lodge bedrooms and accommodation areas with commercial grade sheet vinyl. Replace carpet in 2 ensuited rooms with commercial grade carpet. Approximately 160sqm. Supply and install vinyl and carpet including any underlay and associated floor preparation costs.	
10000006 9246	Location Lodge 2. Description Replace Carpet in 8 lodge bedrooms and accommodation areas with commercial grade sheet vinyl. Replace carpet in 2 ensuited rooms with commercial grade carpet. Approximately 160sqm. Supply and install vinyl and carpet including any underlay and associated floor preparation costs	
10000006 9254	Location Lodge 3 Description Replace Carpet in 8 lodge bedrooms and accommodation areas with commercial grade sheet vinyl. Replace carpet in 2 ensuited rooms with commercial grade carpet. Approximately 160sqm. Supply and install vinyl and carpet including any underlay and associated floor preparation costs	
10000006 9262	Location Lodge 4 Description Replace Carpet in 8 lodge bedrooms and accommodation areas with commercial grade sheet vinyl. Replace carpet in 2 ensuited rooms with commercial grade carpet. Approximately 160sqm. Supply and install vinyl and carpet including any underlay and associated floor preparation costs	
10000006 9270	Location Lodge 5 Description Replace Carpet in 8 lodge bedrooms and accommodation areas with commercial grade sheet vinyl. Replace carpet in 2 ensuited rooms with commercial grade carpet. Approximately 160sqm. Supply and install vinyl and carpet including any underlay and associated floor preparation costs	
10000006 9278	Location Lodge 6 Description Replace Carpet in 8 lodge bedrooms and accommodation areas with commercial grade sheet vinyl. Replace carpet in 2 ensuited rooms with commercial grade carpet. Approximately 160sqm. Supply and install vinyl and carpet including any underlay and associated floor preparation costs	

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Note: Ensure that the scope of works includes the requirement to 'make good' any surfaces disturbed in carrying out the works (unless otherwise indicated).

10000006 9286	Location Lodge 7 Description Replace Carpet in all lodge bedrooms and accommodation areas with commercial grade carpet. Approximately 160sqm. Supply and install carpet including any underlay and associated floor preparation costs	
10000006 9294	Location Lodge 8 Description Replace Carpet in all lodge bedrooms and accommodation areas with commercial grade carpet. Approximately 160sqm. Supply and install carpet including any underlay and associated floor preparation costs	
10000006 9302	Location Lodge 9 Description Replace Carpet in 8 lodge bedrooms and accommodation areas with commercial grade sheet vinyl. Replace carpet in 2 ensuited rooms with commercial grade carpet. Approximately 160sqm. Supply and install vinyl and carpet including any underlay and associated floor preparation costs	
10000006 9217	Location Sports Medicine Centre Description Replace approximately 320sqm of cushioned sheet vinyl and carpet throughout the Sports Medicine Centre. Supply and install vinyl and carpet including any underlay and associated floor preparation costs	
	EXCLUSIONS Please list any items specifically excluded in this quote	
Statutory notifications and levies		\$
TOTAL (Exclusive of GST)		\$
GST		\$
TOTAL (Inclusive of GST)		\$

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	Description Painting Related Defects	Value \$(GST Excl)
CADC TASK No. from MAR	GENERAL NOTE FOR TENDERS All completed work nominated under painted related items are to be painted in accordance with relevant paint manufacturers guidelines, Australian Standard and/or QBuild specification and unless specified is to match as close as practical to the existing colour scheme and level of gloss finish. Ensure sufficient clearance to doors and windows before painting commences.	
100000 069236	Location Lodge 1 Description: Pre-paint maintenance and full internal repaint to all previously painted surfaces including re-surface and seal of internal stairs and decking. Lodge consists of 10 bedrooms 2 with ensuites, 2 bathrooms and 2 disabled bathrooms to service lodge, common room/games/kitchen area, and laundry.	
100000 069245	Location Lodge 2 Description Pre-paint maintenance and full internal repaint to all previously painted surfaces including re-surface and seal of internal stairs and decking. Lodge consists of 10 bedrooms 2 with ensuites, 2 bathrooms and 2 disabled bathrooms to service lodge, common room/games/kitchen area, and laundry.	
100000 069253	Location Lodge 3 Description Pre-paint maintenance and full internal repaint to all previously painted surfaces including re-surface and seal of internal stairs and decking. Lodge consists of 10 bedrooms 2 with ensuites, 2 bathrooms to service lodge, common room/games/kitchen area, and laundry.	
100000 069261	Location Lodge 4 Description Pre-paint maintenance and full internal repaint to all previously painted surfaces including re-surface and seal of internal stairs and decking. Lodge consists of 10 bedrooms 2 with ensuites, 2 bathrooms to service lodge, common room/games/kitchen area, and laundry.	
100000 069269	Location Lodge 5 Description of Pre-paint maintenance and full internal repaint to all previously painted surfaces including re-surface and seal of internal stairs and decking. Lodge consists of 10 bedrooms 2 with ensuites, 2 bathrooms to service lodge, common room/games/kitchen area, and laundry.	

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100000 069277	Location Lodge 6 Description of Pre-paint maintenance and full internal repaint to all previously painted surfaces including re-surface and seal of internal stairs and decking. Lodge consists of 10 bedrooms 2 with ensuites, 2 bathrooms to service lodge, common room/games/kitchen area, and laundry.	
100000 069285	Location Lodge 7 Description of Pre-paint maintenance and full internal repaint to all previously painted surfaces including re-surface and seal of internal stairs and decking. Lodge consists of 10 bedrooms 2 with ensuites, 2 bathrooms to service lodge, common room/games/kitchen area, and laundry.	
100000 069293	Location Lodge 8 Description of Pre-paint maintenance and full internal repaint to all previously painted surfaces including re-surface and seal of internal stairs and decking. Lodge consists of 10 bedrooms 2 with ensuites, 2 bathrooms to service lodge, common room/games/kitchen area, and laundry.	
100000 069301	Location Lodge 9 Description of Pre-paint maintenance and full internal repaint to all previously painted surfaces including re-surface and seal of internal stairs and decking. Lodge consists of 10 bedrooms 2 with ensuites, 2 bathrooms to service lodge, common room/games/kitchen area, and laundry.	
100000 069234	Location Lodge 1 Description of Pre-paint maintenance and full external repaint to all previously painted surfaces including varnished timber columns (approximately 250sqm)	
100000 069242	Location Lodge 2 Description of Pre-paint maintenance and full external repaint to all previously painted surfaces including varnished timber columns (approximately 250sqm)	
100000 069250	Location Lodge 3 Description of Pre-paint maintenance and full external repaint to all previously painted surfaces including varnished timber columns (approximately 250sqm)	
100000 069259	Location Lodge 4 Description of Pre-paint maintenance and full external repaint to all previously painted surfaces including varnished timber columns (approximately 250sqm)	

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100000 069267	Location Lodge 5 Description of Pre-paint maintenance and full external repaint to all previously painted surfaces including varnished timber columns (approximately 250sqm)	
100000 069275	Location Lodge 6 Description of Pre-paint maintenance and full external repaint to all previously painted surfaces including varnished timber columns (approximately 250sqm)	
100000 069283	Location Lodge 7 Description of Pre-paint maintenance and full external repaint to all previously painted surfaces including varnished timber columns (approximately 250sqm)	
100000 069291	Location Lodge 8 Description of Pre-paint maintenance and full external repaint to all previously painted surfaces including varnished timber columns (approximately 250sqm)	
100000 069299	Location Lodge 9 Description of Pre-paint maintenance and full external repaint to all previously painted surfaces including varnished timber columns (approximately 250sqm)	
	EXCLUSIONS Please list any items specifically excluded in this quote	
Statutory notifications and levies		\$
TOTAL (Exclusive of GST)		\$
GST		\$
TOTAL (Inclusive of GST)		\$

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	Description Electrical – Ceiling Fans	Value \$(GST Excl)
CADC TASK No. from MAR		
100000 069239	Location Accommodation Lodge 1 Description To replace existing ceiling fans in each room of the lodge with wall mounted fans and make good the old wiring connections. To supply and fit the new wall mount fans to corner of each room. All electrical connections to be fitted by licensed electricians. Make good any surfaces disturbed in carrying out the works All works to be completed in a professional manner and to the satisfaction of management.	
100000 069248	Location Accommodation Lodge 2 Description To replace existing ceiling fans in each room of the lodge with wall mounted fans and make good the old wiring connections. To supply and fit the new wall mount fans to corner of each room. All electrical connections to be fitted by licensed electricians. Make good any surfaces disturbed in carrying out the works All works to be completed in a professional manner and to the satisfaction of management.	
100000 069257	Location Accommodation Lodge 3 Description To replace existing ceiling fans in each room of the lodge with wall mounted fans and make good the old wiring connections. To supply and fit the new wall mount fans to corner of each room. All electrical connections to be fitted by licensed electricians. Make good any surfaces disturbed in carrying out the works All works to be completed in a professional manner and to the satisfaction of management.	
100000 069264	Location Accommodation Lodge 4 Description To replace existing ceiling fans in each room of the lodge with wall mounted fans and make good the old wiring connections. To supply and fit the new wall mount fans to corner of each room. All electrical connections to be fitted by licensed electricians. Make good any surfaces disturbed in carrying out the works All works to be completed in a professional manner and to the satisfaction of management.	

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100000 069272	Location Accommodation Lodge 5 Description To replace existing ceiling fans in each room of the lodge with wall mounted fans and make good the old wiring connections. To supply and fit the new wall mount fans to corner of each room. All electrical connections to be fitted by licensed electricians. Make good any surfaces disturbed in carrying out the works All works to be completed in a professional manner and to the satisfaction of management.	
100000 069280	Location Accommodation Lodge 6 Description To replace existing ceiling fans in each room of the lodge with wall mounted fans and make good the old wiring connections. To supply and fit the new wall mount fans to corner of each room. All electrical connections to be fitted by licensed electricians. Make good any surfaces disturbed in carrying out the works All works to be completed in a professional manner and to the satisfaction of management.	
100000 069288	Location Accommodation Lodge 7 Description To replace existing ceiling fans in each room of the lodge with wall mounted fans and make good the old wiring connections. To supply and fit the new wall mount fans to corner of each room. All electrical connections to be fitted by licensed electricians. Make good any surfaces disturbed in carrying out the works All works to be completed in a professional manner and to the satisfaction of management.	
100000 069296	Location Accommodation Lodge 8 Description To replace existing ceiling fans in each room of the lodge with wall mounted fans and make good the old wiring connections. To supply and fit the new wall mount fans to corner of each room. All electrical connections to be fitted by licensed electricians. Make good any surfaces disturbed in carrying out the works All works to be completed in a professional manner and to the satisfaction of management.	
100000 069304	Location Accommodation Lodge 9 Description To replace existing ceiling fans in each room of the lodge with wall mounted fans and make good the old wiring connections. To supply and fit the new wall mount fans to corner of each room. All electrical connections to be fitted by licensed electricians. Make good any surfaces disturbed in carrying out the works All works to be completed in a professional manner and to the satisfaction of management.	

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	EXCLUSIONS Please list any items specifically excluded in this quote	
Statutory notifications and levies		\$
TOTAL (Exclusive of GST)		\$
GST		\$
TOTAL (Inclusive of GST)		\$

Released under the
RTI Act by DETE

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	Description Repairs to Lighting – Beach Volleyball Courts	Value \$(GST Excl)
CADC TASK No.		
TBA	Location Beach Volleyball Courts Adjacent to lodges Description Electrical repairs to Beach Volleyball Court lighting including supply, installation and testing of lighting lamps and control gears inside poles. Including Boom lift hire/crane hire and transport. Make good any surfaces disturbed in carrying out the works	
	EXCLUSIONS Please list any items specifically excluded in this quote	
	Statutory notifications and levies	\$
	TOTAL (Exclusive of GST)	\$
	GST	\$
	TOTAL (Inclusive of GST)	\$

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	Description Furniture & Fittings	Value \$(GST Excl)
CADC TASK No. from MAR		
100000 069218	Location Sports Medicine – Vanity Unit Description Remove and replace old water damaged vanity unit in toilet vanity area. Remove existing unit, disconnect all tap ware, remove ceramic basin and associated plumbing, and replace any damaged fittings. Supply and Install new vanity and all associated tap ware and plumbing. All works to be completed in a professional manner and to the satisfaction of management. Make good any surfaces disturbed in carrying out the works	
	EXCLUSIONS Please list any items specifically excluded in this quote	
Statutory notifications and levies		\$
TOTAL (Exclusive of GST)		\$
GST		\$
TOTAL (Inclusive of GST)		\$

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	Description Hydraulic services replace Chlorine Line	Value \$(GST Excl)
CADC TASK No. from MAR 1000000 69170	Location: 20m Pool - Chlorine Feed Line (from main tank) Description To replace failed 25mm UPVC chlorine distribution line from 50m pool plant room storage tank to 20m pool plant room OR To install bunded holding tank and chlorine decanting point at 25m plant room Make good any surfaces disturbed in carrying out the works All works to be completed in a professional manner and to the satisfaction of management.	
	EXCLUSIONS Please list any items specifically excluded in this quote	
Statutory notifications and levies		£/\$
TOTAL (Exclusive of GST)		£/\$
GST		£/\$
TOTAL (Inclusive of GST)		£/\$

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	Description Internal Building repairs	Value \$(GST Excl)
CADC TASK No. from MAR		
100000 069207	Location Sports Walk- Mens & Ladies Change rooms Description To replace and upgrade toilet and shower partitions in change rooms – 5 toilets and 5 shower cubicles (Female) 3 Toilets and 5 shower cubicles (Mens) All works to be carried out in a manner as to have least interference with and as little disruption as possible to members and guests. Make good any surfaces disturbed in carrying out the works. All works to be completed in a professional manner and to the satisfaction of management	
100000 069197	Location Coffee Shop amenities – Male toilets Description To repair approx. 2sqm of gyprock ceiling in male toilet area adjacent to the urinals. Make good any surfaces disturbed in carrying out the works. All works to be completed in a professional manner and to the satisfaction of management	
	EXCLUSIONS Please list any items specifically excluded in this quote	
Statutory notifications and levies		\$
TOTAL (Exclusive of GST)		\$
GST		\$
TOTAL (Inclusive of GST)		\$

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	Description External finishes/ building/pathways	Value \$(GST Excl)
CADC TASK No.		
100000 069314	Location Accommodation Lodges – Shade Sails Description To supply and install 2 replacement shade covers to lodges outdoor areas to common deck link ways. Approx. 72sqm. All necessary scaffolding, lifting of materials, WH&S measures and height precautions to be implemented for the purpose of high roofing works. Make good any surfaces disturbed in carrying out the works. All works to be completed in a professional manner and to the satisfaction of management	
100000 069310	Location Accommodation Lodges – Rolling Step Treads Description To roll all step treads and round edges to all lodge stairways. To treat and seal all timber stair treads. approx. 160 treads. Make good any surfaces disturbed in carrying out the works. All works to be completed in a professional manner and to the satisfaction of management	
100000 069311	Location Accommodation Lodges – Timber Decking resealing Description To pressure clean all timber decking landings and step treads to all lodges. To treat and seal all timber decking and stair treads. Make good any surfaces disturbed in carrying out the works. All works to be completed in a professional manner and to the satisfaction of management	
100000 69183	Location Walkway from Car park to Lodges Description To replace timber walkway – approx.. 100sqm of treated pine timber boardwalk leading from the East Car park to the lodges. Make good any surfaces disturbed in carrying out the works. All works to be completed in a professional manner and to the satisfaction of management	
	EXCLUSIONS Please list any items specifically excluded in this quote	
Statutory notifications and levies		\$
TOTAL (Exclusive of GST)		\$
GST		\$
TOTAL (Inclusive of GST)		\$

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	Description Fire Protection System	Value \$(GST Excl)
CADC TASK No.		
100000 069178	Location Centre wide installation of Emergency/Fire protection system Description Full audit and upgrade of all buildings to incorporate a fully addressable emergency and fire system. This will include survey of accommodation areas alarm system, egress plans	
	EXCLUSIONS Please list any items specifically excluded in this quote	
Statutory notifications and levies		\$
TOTAL (Exclusive of GST)		\$
GST		\$
TOTAL (Inclusive of GST)		\$

Tenderer Name:

Date:

Signed:
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CLIENTS PEOPLE PERFORMANCE

2 February 2011

David Morgan
Sport Super Centre
Cnr Sports Drive and Morala Avenue
RUNAWAY BAY QLD 4216

Our ref: 41/20337/415677
Your ref:

Dear David,

Landfill Gas Monitoring December 2010 Report

As requested, GHD attended the Sports Super Centre site on the 16 December 2010 to undertake landfill gas monitoring. Following the recommendations from the previous monitoring round, a selection of locations (as listed below), were monitored during this round. Table 1 attached, provides details on general observations made on the day and Table 3 outlines the results for the selected structures monitoring locations.

Locations monitored December 2010

E10, E12, E21, E24 Left, E24 Right, E25, E26, West Car Park NE Corner, West Car Park NE Corner, West Car Park Right NW Corner, West Car Park NW Corner, Storeroom 1 and Storeroom 2.

All locations were compliant with the relevant adopted trigger level (12,500 ppm methane) during this round of monitoring; however detectable levels of methane were recorded at the following locations.

Location E26 (and electrical pit located at the southern boundary to the west car park) returned results of 1000 ppm methane for the second consecutive monitoring round. Although this methane level is below the relevant adopted trigger level of 12,500 ppm methane, it represents an increase in concentration at this location since the December 2009 monitoring round.

Location E25 (an electrical pit) located in the northern end of the west car park, returned a result of 1000 ppm methane. This is an increase in methane concentration when compared to the previous June 2010 round of monitoring (500 ppm).

Location E10 (an electrical pit located on the north-eastern side of the running track) returned a result of 500 ppm methane this round which is the first instance of a detectable level of methane recorded when compared to the historical dataset for this location. Due to this detection, additional electrical pits on the northern and southern edges of the running track (towards the scoreboard end) were also monitored.

Methane levels of 5000 ppm and 2000 ppm were detected at these respective additional locations.

These locations were not previously included in the monitoring program, however are recommended to be included in future visits (and have been assigned as monitoring locations E9A and E10A for the northern and southern pits respectively).



Methane was not able to be detected within Storerooms 1 and 2 during this monitoring round. As these locations recorded results of 1000 ppm methane and 500 ppm methane respectively in June 2010, any trends in methane levels at these locations will continue to be assessed in future monitoring events.

Based upon this information, it is recommended that:

1. Biannual monitoring (as a minimum) be scheduled at the selected locations detailed above to continue assessing trends in gas conditions for the site. A full assessment (monitoring of all site locations) is recommended on an annual basis (with the next monitoring round to be undertaken in June 2010).
2. Additional monitoring locations E9A and E10A (electrical pits on the northern and southern edges of the running track towards the scoreboard end) be included in future partial and full gas assessments at the site.
3. Storerooms 1 and 2 continue to be regularly opened to allow any potential methane build up to dissipate.

If you have any questions or require any further details, please don't hesitate to contact Adam Major or myself.

Yours sincerely,

belinda.oberia@GHD.com

Update Plan
eg. Ground water testing.

Belinda Oberia
Environmental Scientist
(07) 3316 3954

TABLE 1: General Weather Conditions and Site Observations

Date	Atmospheric Pressure		Wind Speed (km/h)	Wind Direction (degrees)	Temp. (°C)	Weather Conditions		Rainfall Over Preceding Week (mm)	Comments	Initials
	(hPa)	Rising/Falling				Current	Preceding Week			
26-Jun-08	1023.1	Falling	17	315	16.3	Fine conditions, cool a.m. warming and dry with light breeze.	Predominantly fine conditions with only light showers.	20	Monitoring locations clearly visible with generally good access. Some pits/drains not as per map, some on site not shown etc. Gas equipment measures CH ₄ >500ppm only.	TK
26-Sep-08	1020.2	Falling	20	0	23.9	Light early showers, then fine. Light S to SE winds	Predominately fine conditions	1.4	Site access good, map locations approximate only. Gas equipment measures CH ₄ >500ppm only. Gas like odour in south west carpark.	BO
15-Dec-08	1005.2	Rising	22	270	25.8	Fine and sunny with light breeze.	Some showers.	20.6	Site access good, map locations approximate only. Gas equipment measures CH ₄ >500ppm only. Some water observed in electrical pits in west carpark.	BO
26-Mar-09	1021.7	Falling	22	155	26.7	Fine and sunny with light breeze.	Predominantly fine conditions with light showers.	6.8	Partial assessment only (9 locations). Recent addition of vent at NE corner of west carpark. Gas equipment measures CH ₄ >500ppm only.	BO
5-Jun-09	1016.3	Falling	7	292.5	24.4	Overcast with showers. Slight WNW breeze	Some showers.	19.5	Site access good, map locations approximate only. Gas equipment measures CH ₄ >500ppm only. Some water observed in electrical pits in west carpark.	BO
25-Sep-09	1017.3	Falling	7	90	23.5	Overcast with showers. Slight WNW breeze	Predominantly fine and sunny	0.5	Partial assessment only (10 locations). Good site access, vents operating effectively. Gas equipment measures CH ₄ >500ppm only.	BO
19-Dec-09	1015.5	Falling	17	22.5	26.1	Cloudy and overcast. 7/8 cloud cover. Light breeze. Storms predicted	Mostly fine with light showers	3.2	Partial assessment only (10 locations). Good site access, vents operating effectively. Gas equipment measures CH ₄ >500ppm only.	BO
4-Jun-10	1012.6	Falling	17	315	16.5	Fine and sunny with light breeze.	Some showers.	140.22	Full site assessment. Good site access, vents operating effectively. Gas equipment measures CH ₄ >500ppm only.	BO
16-Dec-10	1007.7	Falling	20	315	28	Cloudy and overcast. 7/8 cloud cover. Intermittent breeze. Storms predicted	Some showers plus 45.8mm rainfall in one day (4 days prior to monitoring)	47.6	Partial assessment. Good site access, vents operating effectively. Gas equipment measures CH ₄ >500ppm only.	BO

Notes

Atmospheric pressure, wind speed/direction, temperature and daily rainfall data to be obtained from the Bureau of Meteorology, Gold Coast Seaway Station (No 40764).

TABLE 2: Boundary Soil Atmosphere Gas Monitoring Wells

TABLE 2: Boundary Soil Atmosphere Gas Monitoring Wells											
Location	Parameter	Units	Sampling Date								
			25-Jun-08	26-Sep-08	15-Dec-08	26-Mar-09	5-Jun-09	25-Sep-09	18-Dec-09	4-Jun-10	16-Dec-11
Boundary Wells											
MW1	CH ₄	% (v/v)	0	0	0	NM	0	NM	NM	0	NM
	H ₂ S	ppm	0	0	0	NM	0	NM	NM	0	NM
	O ₂	% (v/v)	20.9	20.9	20.9	NM	20.9	NM	NM	20.9	NM
MW2	CH ₄	% (v/v)	0	0	0	NM	0	NM	NM	0	NM
	H ₂ S	ppm	0	0	0	NM	0	NM	NM	0	NM
	O ₂	% (v/v)	19.4	20.9	19	NM	20.1	NM	NM	20.2	NM
MW3	CH ₄	% (v/v)	0	NM	NM	NM	NM	NM	NM	NM	NM
	H ₂ S	ppm	0	NM	NM	NM	NM	NM	NM	NM	NM
	O ₂	% (v/v)	18.7	NM	NM	NM	NM	NM	NM	NM	NM
MW4	CH ₄	% (v/v)	0	0	0	NM	soil gas	NM	NM	0	NM
	H ₂ S	ppm	0	0	0	NM	0	NM	NM	0	NM
	O ₂	% (v/v)	20.1	20.9	20.5	NM	20.5	NM	NM	20.5	NM

Notes:

Methane Trigger Level = 1.25 % v/v (Environmental Guidelines: Solid Waste Landfills, NSW EPA, 1999)

Shading indicates exceedance of trigger level

Bold indicates detection of methane

NM = Parameter not monitored this round

TABLE 3: Sub-Surface Structure Emissions

Location	Parameter	Units	28-Jun-08	28-Sep-08	15-Dec-08	20-Mar-09	5-Jun-09	25-Sep-09	18-Dec-09	4-Jun-10	16-Dec-10	Maximum CH ₄ Reading
E1	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E2	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E3	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E4	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E5	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E6	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E7	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E8	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E9	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E9A	CH ₄	ppm									5000	2000
	H ₂ S	ppm									0	0
	O ₂	% (v/v)									19.6	20.9
E10	CH ₄	ppm	< 500	< 500	< 500	< 500	< 500	< 500	< 500	< 500	500	500
	H ₂ S	ppm	0	0	0	0	0	0	0	0	0	0
	O ₂	% (v/v)	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.0	20.9
E10A	CH ₄	ppm									5000	5000
	H ₂ S	ppm									0	0
	O ₂	% (v/v)									17.8	20.9
E11	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E12	CH ₄	ppm	1000	< 500	< 500	500	1000	< 500	< 500	1000	< 500	1000
	H ₂ S	ppm	0	0	0	0	0	0	0	0	0	0
	O ₂	% (v/v)	20.7	20.9	20.5	20.9	20.9	20.9	20.9	20.9	20.6	20.9
E13	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.6		20.9			20.9		20.9
E14	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E14 South Left	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E14 South Right	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E15	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E15 North	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E16	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E16 North	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E17	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E18	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E19	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E20	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E20 Left	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E20 Right	CH ₄	ppm	< 500	< 500	< 500		< 500			< 500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9

*
ELECTRICAL PITS
NTH EAST SIDE
OF RUNNING TRACK
(NEW)
LOCATIONS

TABLE 3: Sub-Surface Structure Emissions

Location	Parameter	Units	28-Jun-08	26-Sep-08	15-Dec-08	26-Mar-09	5-Jun-09	25-Sep-09	19-Dec-09	4-Jun-10	16-Dec-10	Maximum CH ₄ Reading
E21	CH ₄	ppm	< 500	<500	<500		500	< 500	< 500	<500	< 500	500
	H ₂ S	ppm	0	0	0		0	0	0	0	0	0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9	20.9	20.9	20.9	20.3	20.9
E21 Left	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E21 Right	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E22	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E22 Left	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E22 Right	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E23	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E23 Left	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E23 Right	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E24	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			17.1		20.9
E24 Left	CH ₄	ppm	< 500	<500	500	<500	500	< 500	< 500	<500	< 500	500
	H ₂ S	ppm	0	0	0	0	0	0	0	0	0	0
	O ₂	% (v/v)	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.8	20.9	20.9
E24 Right	CH ₄	ppm	< 500	<500	<500	<500	<500	< 500	< 500	<500	< 500	0
	H ₂ S	ppm	0	0	0	0	0	0	0	0	0	0
	O ₂	% (v/v)	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.4	20.9	20.9
E25	CH ₄	ppm	< 500	<500	1000	500	1000	< 500	1000	500	500	1000
	H ₂ S	ppm	0	0	0	0	0	0	0	0	0	0
	O ₂	% (v/v)	20.9	20.9	20.9	20.9	20.7	20.5	20.9	20.1	20.9	20.9
E26	CH ₄	ppm	< 500	<500	<500	<500	<500	< 500	500	1000	1000	1000
	H ₂ S	ppm	0	0	0	0	0	0	0	0	0	0
	O ₂	% (v/v)	20.9	20.9	20.9	20.9	20.9	20.9	20.9	19.4	20.9	20.9
E27	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.5			20.9		20.9
E28	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E29	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.6		20.6			20.6		20.9
E30	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
E31	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.3	20.3	20.3			20.3		20.9
West Car park NE Corner	CH ₄	ppm	<500	0	3500	21000	1500	< 500	< 500	500	< 500	21000
	H ₂ S	ppm	0	0	0	0	0	0	0	0	0	0
	O ₂	% (v/v)	20.9	20.9	20.9	20.1	20.9	20.9	20.9	20.4	20.9	20.9
West Car park Left NE Corner	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
West Car park Right NW Corner	CH ₄	ppm	4000	<500	500	1000	<500	< 500	1000	<500	<500	4000
	H ₂ S	ppm	0	0	0	0	0	0	0	0	0	0
	O ₂	% (v/v)	15.6	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9
West Car park NW Corner	CH ₄	ppm	<500	<500	0	<500	<500	< 500	< 500	<500	< 500	0
	H ₂ S	ppm	0	0	0	0	0	0	0	0	0	0
	O ₂	% (v/v)	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9
West Car park NW Edge	CH ₄	ppm	<500	<500	0	<500	<500			<500		0
	H ₂ S	ppm	0	0	0	0	0			0		0
	O ₂	% (v/v)	20.9	20.9	20.4	20.4	20.4			20.4		20.9
Central Light Pole	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
Scoreboard light Pole	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
Ag pip adj Lodge 9	CH ₄	ppm	NM	NM	NM		NM			NM		0
	H ₂ S	ppm	NM	NM	NM		NM			NM		0
	O ₂	% (v/v)	NM	NM	NM		NM			NM		0.0

TABLE 3: Sub -Surface Structure Emissions

Location	Parameter	Units	28-Jun-08	28-Sep-08	15-Dec-08	28-Mar-09	5-Jun-09	25-Sep-09	19-Dec-09	4-Jun-10	18-Dec-10	Maximum CH ₄ Reading
S1	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S2	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S3	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S4	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S5	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S6	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S7	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S8	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S9	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S10	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S11	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S12	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S12A	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S12B	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S12C	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S12D	CH ₄	ppm	0	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S13	CH ₄	ppm	NM	NM	NM		NM			<500		0
	H ₂ S	ppm	NM	NM	NM		NM			0		0
	O ₂	% (v/v)	NM	NM	NM		NM			20.9		20.9
S14	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S15	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S16	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S17	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S18	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S19	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S20	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S20A	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S21	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S22	CH ₄	ppm	< 500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9
S23	CH ₄	ppm	<500	<500	<500		<500			<500		0
	H ₂ S	ppm	0	0	0		0			0		0
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9

TABLE 3: Sub -Surface Structure Emissions

Location	Parameter	Units											Maximum CH ₄
			28-Jun-08	28-Sep-08	15-Dec-08	28-Mar-09	5-Jun-09	25-Sep-09	19-Dec-09	4-Jun-10	16-Dec-10	Reading	
SW Outside reception	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.6	20.9		20.9			20.9		20.9	
SW Main Carpark	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.6	20.9		20.9			20.9		20.9	
SW Adjacent trampolines	CH ₄	ppm	NM	<500	<500		<500			<500		0	
	H ₂ S	ppm	NM	0	0		0			0		0	
	O ₂	% (v/v)	NM	20.9	20.9		20.9			20.9		20.9	
Store Room 1	CH ₄	ppm	<500	<500	<500		<500			1000	<500	1000	
	H ₂ S	ppm	0	0	0		0			0	0	0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9	20.9	20.9	
Store Room 2	CH ₄	ppm	< 500	<500	<500		<500			500	<500	500	
	H ₂ S	ppm	0	0	0		0			0	0	0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9	20.9	20.9	
Mens toilet main entrance	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
Electrical pit Beach Volleyball	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
Dewatering Sump	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
Confined Space	CH ₄	ppm	<500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
Manhole	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
L1	CH ₄	ppm	<500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
L2	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
L3	CH ₄	ppm	<500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
L4	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
L5	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
L6	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
L7	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
L8	CH ₄	ppm	<500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
L9	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
L10	CH ₄	ppm	<500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
L11	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
L12	CH ₄	ppm	<500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
L13	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
L14	CH ₄	ppm	<500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
Western Carpark Central Stairs	CH ₄	ppm	< 500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
W-Beach Volleyball	CH ₄	ppm	<500	<500	<500		<500			<500		0	
	H ₂ S	ppm	0	0	0		0			0		0	
	O ₂	% (v/v)	20.9	20.9	20.9		20.9			20.9		20.9	
Storage Containers behind lodges	CH ₄	ppm					<500			<500		0	
	H ₂ S	ppm					0			0		0	
	O ₂	% (v/v)					20.9			20.9		20.9	

Notes:

Methane Trigger Level = 1.25 % v/v or 12,500 ppm (Environmental Guidelines: Solid Waste Landfills, NSW EPA, 1996)

Shading indicates exceedance of trigger level

NM = location not monitored.

* Partial monitoring round completed March 2009

E = Electrical pit

S = Stormwater drain

L = Light probe

Improvement notice

This notice is issued under the Work Health and Safety Act 2011 section 191, Safety in Recreational Water Activities Act 2011 applied section 191 Work Health and Safety Act 2011 or Electrical Safety Act 2002 section 146. This notice requires the person (which includes a body corporate, government department or public authority) to whom it is issued to remedy a contravention of the Act or Regulations. The legislation requires that the person to whom an improvement notice is issued must, as soon as possible, display a copy of the notice in a prominent place at or near the workplace, or part of the workplace at which work is being carried out that is affected by the notice.

Work Health And Safety Act 2011
Electrical Safety Act 2002
Safety In Recreational Water Activities Act 2011

Notice No. I 1013320

Notice issued to:

Legal name of person/business or undertaking:	Department of Education, Training and Employment		
ABN:	76337613647	ACN:	
Trading as:	The Runaway Bay Sport and Leadership Excellence Centre		
Address:	corner Sports Drive and Morala Avenue Runaway Bay Queensland Postcode: 4216		

Details of contravention:

Site location	Finance office, north area building of complex		
I, Jonathan Harvard	reasonably believe on	Tuesday 18 March 2014	at 1256
Inspector name		date	24 hour time
that you <input type="checkbox"/> are contravening a provision or <input checked="" type="checkbox"/> have contravened a provision in circumstances that make it likely that the contravention will continue or be repeated; of the:			
<input type="checkbox"/> Work Health and Safety Act 2011, section		<input checked="" type="checkbox"/> Work Health and Safety Regulation 2011, regulation	213 (2) see attached
<input type="checkbox"/> Electrical Safety Act 2002, section		<input type="checkbox"/> Electrical Safety Regulation 2002, regulation	
<input type="checkbox"/> Safety in Recreational Water Activities Act 2011, section		<input type="checkbox"/> Safety in Recreational Water Activities Regulation 2011, regulation	

Brief description of how the provision is being or has been contravened:

The air inlet of the ducted air handling system, for the finance office, was excessively dirty with dust and/or grime. Air inlet did not appear to be cleaned and no inspection record available for maintenance of this air inlet.

Directions (if any) as to the measures to be taken to remedy or prevent the contravention or likely contravention:

It is mandatory to comply with these directions:

The person with management or control of plant at a workplace must ensure that the maintenance, inspection and, if necessary, testing of the plant (air handling system) must be carried out in accordance with the

Recommendations (if any): Recommendations may be followed or you may adopt and follow another way that gives at least the same level of protection against the risk

manufacturer's recommendations, if any; or (b) if there are no manufacturer's recommendations, in accordance with the recommendations of a competent person; or in relation to inspection, if it is not reasonably practicable to comply with

Issuing inspector: paragraph (a) or (b), annually.

Signature of inspector	Inspector's ID	Inspector's contact number
Jonathan Harvard	652	0407 029 486
Date issued	Inspector's location	
20 / 03 / 2014	Po Box 4215, Robina, Qld, 4230	

This contravention must be remedied before:**Service method:**

03 / 04 / 2014	<input type="checkbox"/> Delivered personally	<input type="checkbox"/> Left for a person at the workplace	<input checked="" type="checkbox"/> Post
	<input type="checkbox"/> Fax	<input checked="" type="checkbox"/> Email	
	<input type="checkbox"/> Left at the person's last known place of residence or business		

Notice given to

Relationship to person to whom notice is issued

* This portion may be signed and returned where a contravention has been remedied before the stated date. *

I certify that the requirements of this notice have been complied with:

Name (in block letters):	FRANK BEESON	Position:	CHIEF ENGINEER
Signature:	[Signature]	Date complied:	20 / 3 / 2014
		Notice No. I	1013320

An inspector may make minor technical changes to this notice in certain circumstances. This does not change the validity of the notice. You must comply with this notice within the period stated. Failure to comply with this notice may incur a maximum penalty of \$50 000 for an individual and \$250 000 for a body corporate, government department or public authority.

PRIVACY COLLECTION STATEMENT

The Department of Justice and Attorney-General collects, uses, discloses and stores information in accordance with legislation it administers and all applicable privacy laws. This includes information collected by inspectors of the Department. Note that privacy laws do not apply if other laws conflict or allow or require the collection of information, and do not apply to the collection of information by the Department of Justice and Attorney-General to the extent that it is exercising its law enforcement functions and non-compliance with privacy legislation is deemed necessary to fulfil those functions. The Department of Justice and Attorney-General privacy information is on our website at www.justice.qld.gov.au.

VAN WANROOY, Megan

From: Service Manager Glennair <servicemanager@glennair.com.au>
Sent: Wednesday, 5 June 2013 8:50 AM
To: VAN WANROOY, Megan
Cc: fbees1@eq.edu.au
Subject: RE: Runaway Bay Sports Centre - Air Conditioning inspection in Spin Cycle room

Megan,

I attended to site and carried out the investigation of the air conditioning system located within the spin cycle room. Currently the room is served by 3 air conditioning units. I checked out the operation of each system and serviced each of them as they were very dirty. Filters have been washed and has assisted by increasing the airflow. Checked the temperature within the room on each system and found these are all within their range.

I have provided the following answers as per your previous request.

1. I am unable to give you the air changes per hour.
2. There is no fresh air into this room
3. Each system delivers approximately 200 litre per second.
4. Each system has their own return air grille located in the middle of each unit.
5. There is no ducted air of any description coming into the room.

From the operation of this room I note the following:

1. During each class, the front door and the louvre grille windows on each side of the door are closed and then a curtain is pulled in front. This is all done to reduce the noise. This would be the quickest way of introducing fresh air but I believe noise to be an issue.
2. Issues of the sweat and condensation buildup are not related to the air conditioning. This is a room that has 30 people performing a high intensity exercise fully locked up.
3. Temperature on all units was set to 18 degrees. The systems are not designed to operate at this temperature. There would not be an instance where the systems during a class would ever get to this temperature and as such the units would be running at 100% with no benefit. Set the temperature to 23 degrees would be wiser. Setting the temperature down will not make the systems work harder, it will only make them run longer.

As provided to you previously, we have installed these systems as per the design of the consulting engineer. I would suggest that in the first instance, that an engineer is engaged to determine the most cost effective solution to the situation. We are able to provide you with options and costs as well, that is entirely up to you. Should you wish to discuss this further, please contact the undersigned at your convenience.

Regards

Tim Livanes



■ DUCTED SYSTEMS
■ SPLIT SYSTEMS
■ MECHANICAL SERVICES

P 07 5593 8000
F 07 5593 8009
E admin@glennair.com.au

23/4 Fremantle Street
Burleigh Heads Qld 4220
PO Box 2335 Burleigh 4220
QLD / NSW Lic

From: VAN WANROOY, Megan [<mailto:Megan.VANWANROOY@dete.qld.gov.au>]
Sent: Tuesday, 4 June 2013 11:54 AM
To: Service Manager Glennair
Subject: RE: Runaway Bay Sports Centre - Air Conditioning inspection in Spin Cycle room

Hi Tim

Can you please advise if you went to site to check on the AC, and if so, when do you expect to have some info to me regarding the issues that have been brought to our attention.

Thank you

Megan Van Wanrooy | Senior Facilities Services Officer

Department of Education, Training & Employment | South East Region

p: 0439 737 611 | f: 5583 4462 | e: Megan.vanwanrooy@dete.qld.gov.au

PO Box 557 Robina DC Qld 4226 | level 2, 235 Varsity Parade Varsity Lakes 4227

From: Service Manager Glennair [<mailto:servicemanager@glennair.com.au>]
Sent: Tuesday, 28 May 2013 1:00 PM
To: VAN WANROOY, Megan
Subject: RE: Runaway Bay Sports Centre - Air Conditioning inspection in Spin Cycle room

Megan,

I have attached our "as installed" drawing for this project. These are as per the consultants drawings as they were the designers and we installed this equipment as per their directions. This will show you exactly what is going on site. I will be going to site this coming Thursday.

Regards

Tim Livanes



■ DUCTED SYSTEMS
■ SPLIT SYSTEMS
■ MECHANICAL SERVICES

P 07 5593 8000
F 07 5593 8009
E admin@glennair.com.au

23/4 Fremantle Street
Burleigh Heads Qld 4220
PO Box 2335 Burleigh 4220
QLD / NSW Lic

From: VAN WANROOY, Megan [<mailto:Megan.VANWANROOY@dete.qld.gov.au>]
Sent: Monday, 27 May 2013 2:42 PM

To: servicemanager@glennair.com.au

Subject: RE: Runaway Bay Sports Centre - Air Conditioning inspection in Spin Cycle room

Hi Tim

Are you able to answer the questions below regarding the AC at Runaway Bay ?

- What is the number of air cycles per hour in the Spin Cycle Room
- What is the fresh air proportion of the air intake
- What is the air flow (velocity) rate at the supply air registers
- How many return air vents have been installed into the Spin Cycle room.
- Does the ducted air system have the flexibility to provide increased air cycles during spin classes without affecting the adjacent conference room.

Thank you

Regards

Megan Van Wanrooy | Senior Facilities Services Officer

Department of Education, Training & Employment | South East Region

p: 0439 737 611 | f: 5583 4462 | e: Megan.vanwanrooy@det.qld.gov.au

PO Box 557 Robina DC Qld 4226 | level 2, 235 Varsity Parade Varsity Lakes 4227

From: VAN WANROOY, Megan

Sent: Thursday, 23 May 2013 5:00 PM

To: 'servicemanager@glennair.com.au'

Subject: Runaway Bay Sports Centre - Air Conditioning inspection in Spin Cycle room

Hi Tim

As discussed, we have had information from Runaway Bay Sports Centre, that their new air conditioning isn't operating efficiently for the use of one of the room.

The spin cycle room is getting very hot and humid during classes. There are approximately 20 people in the class for an hour at a time.

There are WPH&S concerns about the freshness of the return air, condensation build up, pools of sweat on the floor.

Can you please inspect the system.

I believe I will need to get an independent company in to do air quality testing, for health issues, however I thought it would be good to start with your company first as you installed the system and would know its operation.

The site contact is Vivien Weston – ph: 5500 9970 and/ Or Frank Beeson on ph: 0414 791 263

Can you please let me know when you will be able to attend to do this

Thank you

Regards

Megan Van Wanrooy | Senior Facilities Services Officer

Department of **Education**, Training & Employment | **South East Region**

p: 0439 737 611 | f: 5583 4462 | e: Megan.vanwanrooy@dete.qld.gov.au

PO Box 557 Robina DC Qld 4226 | level 2, 235 Varsity Parade Varsity Lakes 4227

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Released under
RTI Act by DETE

10 May 2014

Runaway Bay Sport and Leadership Excellence Centre
Corner of Sports Drive and Morala Ave
Runaway Bay, Qld 4216

SPORTS SUPER CENTRE - RUNAWAY BAY

AIR QUALITY TESTING

IAQ-Q18717i

1.0 Introduction

Envirohealth Consulting Pty Ltd was requested by Melanie Cowan of the Department of Education, Training and Employment to undertake airborne temperature, humidity, carbon monoxide, and carbon dioxide air quality testing within one location in the office area and microbiological swab testing in two locations within the ducting and air-conditioning system. The testing was undertaken as a follow up to testing undertaken on the 21st of March. The air sampling was conducted on the 7th of May, 2014. The following highlights the results of the tests and any further recommendations.

2.1 Temperature and Humidity - Office area.

The temperature measurements taken within the room tested was 24.4°C. The results of the temperature measurement was within the defined comfort limits for the time of year at which the sampling was undertaken. The results of the temperature measurements are shown in Table 5.3. The relative humidity measurement within the office area tested was 51.5%. The relative humidity measurement was within the recommended comfort limits. The results of the relative humidity measurements are shown in Table 5.3.

IAQ-18717i



2.2 Carbon Monoxide - Office area.

The short term level of carbon monoxide measured within the office area tested was 1.0 ppm. The carbon monoxide measurement indicate there is adequate ventilation in the room tested. The results of the carbon monoxide measurements are shown in Table 5.4, and are expressed in parts per million.

2.3 Carbon Dioxide - Office area.

The highest short term level of carbon dioxide measured within the office was 722ppm. These measurements indicate adequate ventilation in the room tested. The results of the carbon dioxide measurements are shown in Table 5.4. The results shown are expressed in parts per million.

3.0 Microbiological Samples - Office area.

3.0.1 Airborne Microbiological Samples

The airborne concentrations of bacteria within the indoor environment tested was 380 cfu/m³

The airborne concentration of fungi within the indoor environment tested was <100 cfu/m³.

The airborne concentration of yeast within the indoor environment was 0 cfu/m³.

The results of the airborne microbiological samples are shown in Table 5.2, and are expressed in colony forming units per cubic metre of air (cfu/m³).

Airborne microbiological samples were taken using a high velocity air sampler and drawing a known volume of air over a culture medium suitable for the growth of fungi and bacteria. The sample was then cultured and analysed using a microscope. The result was then converted to and reported in colony forming units per cubic metre (cfu/m³). Interpretation of these results is however difficult as there are no environmental or occupational exposure standards set for microbiological contaminants at the present time. There is, however literature including



Healthy Buildings International Magazine - May/June 1991 which suggests a level of 250 - 750 cfu/m³ as being the normal comfort range for airborne microbes, with unhealthy ranges starting as low as > 750 cfu/m³. Concentrations over 1000 CFU/m³ may suggest possible indoor sources of fungi or poor filtration in the HVAC system. The samples taken within the sampled environments were found to be less than these recommended levels.

3.0.2 Surface Microbiological Samples

The surface concentration of colony forming units (bacteria, fungus, and yeast) within the air handling systems of the building were <100 cfu/swab. The results in Table 5.6 are expressed in colony forming units per cfu/swab.

4.0 Recommendations

There are no recommendations at this time.

5.0 Test Results

Table 5.1 Locations of Air Samples

Sample Number	Location
SP01	Office Reception

Table 5.2 Microbiological Air Sample Measurements and Types - Bacteria and Yeast

Sample	Bacteria	Predominate Type (cfu/m ³)	Yeast
SP01	380	OB*	0

* SFB - Spore Forming Bacteria; GPC - Gram Positive Cocci; OB - Other Bacteria



Table 5.3 Temperature and Relative Humidity Measurements

Sample Number	Temperature (°C)	Relative Humidity (%)
SP01	24.4	51.5

Table 5.4 Gas Measurements

Sample Number Carbon Monoxide (ppm) Carbon Dioxide (ppm)

SP01	1.0	722
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Table 5.5 Microbiological surface sample locations

Sample Number Locations

RBS01	Ground Level - Back Office area - Supply Air Vent
RBS02	Level 1 - Plant Room - Cooling coils.

Table 5.7 Microbiological Surface sample results

Sample	Bacteria	Yeast (cfu/m ³)	Fungus
RBS01	<100	<100	<100
RBS02	<100	<100	100

Reported:

Michael Moecker

Operations Manager

IAQ-18717i

10 May 2014

Runaway Bay Sport and Leadership Excellence Centre
Corner of Sports Drive and Morala Ave
Runaway Bay, Qld 4216

SPORTS SUPER CENTRE - RUNAWAY BAY
AIR QUALITY TESTING
IAQ-Q18334i

1.0 Introduction

Envirohealth Consulting Pty Ltd was requested by Melanie Cowan of the Department of Education, Training and Employment to undertake airborne temperature, humidity, carbon monoxide, and carbon dioxide air quality testing within one location in the office area and microbiological swab testing in two locations within the ducting and air-conditioning system. The testing was undertaken as a follow up to testing undertaken on the 21st of March. The air sampling was conducted on the 7th of May, 2014. The following highlights the results of the tests and any further recommendations.

2.1 Temperature and Humidity - Office area.

The temperature measurements taken within the room tested was 24.4°C. The results of the temperature measurement was within the defined comfort limits for the time of year at which the sampling was undertaken. The results of the temperature measurements are shown in Table 5.3. The relative humidity measurement within the office area tested was 51.5%. The relative humidity measurement was within the recommended comfort limits. The results of the relative humidity measurements are shown in Table 5.3.

IAQ-18374i



2.2 Carbon Monoxide - Office area.

The short term level of carbon monoxide measured within the office area tested was 1.0 ppm. The carbon monoxide measurement indicate there is adequate ventilation in the room tested. The results of the carbon monoxide measurements are shown in Table 5.4, and are expressed in parts per million.

2.3 Carbon Dioxide - Office area.

The highest short term level of carbon dioxide measured within the office was 722ppm. These measurements indicate adequate ventilation in the room tested. The results of the carbon dioxide measurements are shown in Table 5.4. The results shown are expressed in parts per million.

3.0 Microbiological Samples - Office area.

3.0.1 Airborne Microbiological Samples

The airborne concentrations of bacteria within the indoor environment tested was 380 cfu/m³

The airborne concentration of fungi within the indoor environment tested was <100 cfu/m³.

The airborne concentration of yeast within the indoor environment was 0 cfu/m³.

The results of the airborne microbiological samples are shown in Table 5.2, and are expressed in colony forming units per cubic metre of air (cfu/m³).

Airborne microbiological samples were taken using a high velocity air sampler and drawing a known volume of air over a culture medium suitable for the growth of fungi and bacteria. The sample was then cultured and analysed using a microscope. The result was then converted to and reported in colony forming units per cubic metre (cfu/m³). Interpretation of these results is however difficult as there are no environmental or occupational exposure standards set for microbiological contaminants at the present time. There is, however literature including



Healthy Buildings International Magazine - May/June 1991 which suggests a level of 250 - 750 cfu/m³ as being the normal comfort range for airborne microbes, with unhealthy ranges starting as low as > 750 cfu/m³. Concentrations over 1000 CFU/m³ may suggest possible indoor sources of fungi or poor filtration in the HVAC system. The samples taken within the sampled environments were found to be less than these recommended levels.

3.0.2 Surface Microbiological Samples

The surface concentration of colony forming units (bacteria, fungus, and yeast) within the air handling systems of the building were <100 cfu/swab. The results in Table 5.6 are expressed in colony forming units per cfu/swab.

4.0 Recommendations

There are no recommendations at this time.

5.0 Test Results

Table 5.1 Locations of Air Samples

Sample Number	Location
SP01	Office Reception

Table 5.2 Microbiological Air Sample Measurements and Types - Bacteria and Yeast

Sample	Bacteria	Predominate Type (cfu/m ³)	Yeast
SP01	380	OB*	0

* SFB - Spore Forming Bacteria; GPC - Gram Positive Cocci; OB - Other Bacteria



Table 5.3 Temperature and Relative Humidity Measurements

Sample Number	Temperature (°C)	Relative Humidity (%)
SP01	24.4	51.5

Table 5.4 Gas Measurements

Sample Number Carbon Monoxide (ppm) Carbon Dioxide (ppm)

SP01	1.0	722
------	-----	-----

Table 5.5 Microbiological surface sample locations

Sample Number Locations

RBS01	Ground Level - Back Office area - Supply Air Vent
RBS02	Level 1 - Plant Room - Cooling coils.

Table 5.7 Microbiological Surface sample results

Sample	Bacteria	Yeast (cfu/m ³)	Fungus
RBS01	<100	<100	<100
RBS02	<100	<100	100

Reported:

Michael Moecker

Operations Manager

IAQ-18374i

27 March 2014

Runaway Bay Sport and Leadership Excellence Centre

Cnr Sports Drive and Morala Ave

Runaway Bay, Qld 4216

SPORTS SUPER CENTRE - RUNAWAY BAY

AIR QUALITY TESTING

IAQ-Q18334i

1.0 Introduction

Envirohealth Consulting Pty Ltd was requested by Frank Beeson of Runaway Bay Sport and Leadership Excellence Centre to undertake airborne microbiological, temperature, humidity, carbon monoxide, and carbon dioxide air quality testing in three locations located within the Sports Super Centre complex at Runaway Bay. The air sampling was conducted on the 21st of March, 2014.

2.1 Temperature and Humidity

The temperature measurements taken within the occupied areas of the building tested ranged from 22.6°C to 24.5°C. The results of the temperature measurements are within defined comfort limits for the time of year at which the sampling was undertaken. The results of the temperature measurements are shown in Table 4.4.

The relative humidity measurements within the building tested ranged from 58.1% to 76.2%. The relative humidity measurements were slightly higher than recommended comfort limits. The results of the relative humidity measurements are shown in Table 4.4.

IAQ-18334i

ENVIROHEALTH CONSULTING PTY LTD

ACN 054 748 819

www.envirohealth.com.au

Brisbane Office

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PHONE: (07) 4755 0054 FAX: (07) 4725 7160

Address: Unit 4/47 Ross River Road, Mundimbura Qld 4812



2.2 Carbon Monoxide

The highest short term level of carbon monoxide measured within the building was 1.0 ppm and 1.1 ppm. The carbon monoxide measurements indicate there is adequate ventilation throughout the indoor environments. The results of the carbon monoxide measurements are shown in Table 4.5, and are expressed in parts per million.

2.3 Carbon Dioxide

The short term levels of carbon dioxide measured within the building ranged from 660 ppm to 733 ppm. These measurements indicate there is good ventilation throughout the indoor environments. The results of the carbon dioxide measurements are shown in Table 4.5. The results shown are expressed in parts per million.

3.0 Microbiological Samples

3.0.1 Airborne Microbiological Samples

The airborne concentration of bacteria within the indoor environments tested ranged from 308 cfu/m³ to 332 cfu/m³.

The airborne concentration of fungi within the indoor environments ranged from 40 cfu/m³ to 816 cfu/m³. Predominate fungus found was Non-phyllloplane Fungi.

The airborne concentration of yeast within the indoor environments were below <5 cfu/m³

The results of the airborne microbiological samples are shown in Table 4.2, and are expressed in colony forming units per cubic metre of air (cfu/m³).

Airborne microbiological samples were taken using a high velocity air sampler and drawing a known volume of air over a culture medium suitable for the growth of fungi and bacteria. The sample was then cultured and analysed using a microscope. The result was then converted to and reported in colony forming units per cubic metre (cfu/m³). Interpretation of these results is however difficult as there are no environmental or occupational exposure standards set for



microbiological contaminants at the present time. There is, however literature including Healthy Buildings International Magazine - May/June 1991 which suggests a level of 250 - 750 cfu/m³ as being the normal comfort range for airborne microbes, with unhealthy ranges starting as low as > 750 cfu/m³. Concentrations over 1000 CFU/m³ may suggest possible indoor sources of fungi or poor filtration in the HVAC system. The samples taken within the sampled environments were found to be less than these recommended levels.

Phylloplane Fungi is a leaf derived type commonly found in outdoors air. *Phylloplane Fungi* is also commonly found in household dust on internal surfaces. Fungal spores are designed for airborne dispersal from surface growth. *Phylloplane Fungi* is not commonly associated with harmful health effects although persons with a hypersensitivity disposition or chronic respiratory conditions may experience respiratory health effects.. *Non-phylloplane Fungi* can be used as an indicator of moisture or water based problems. The samples taken within Sports Super Centre, Runaway Bay were found to be below these recommended levels. However, the results from sample (GC02) in the office area indicate there may be a moisture problem within the air conditioning system for that area.

4.0 Test Results

Table 4.1 Locations of Air Samples

Sample Number	Location
GC01	Photo copy room behind reception - centre room (vent above mail)
GC02	Office area behind reception - centre room (vent above desk)
GC03	Group Sales - centre desk near entry



Table 4.2 Microbiological Air Sample Measurements and Types - Bacteria and Yeast

Sample	Bateria	Predominate Type (cfu/m ³)	Yeast
GC01	308	OB*	<5
GC02	308	OB*	<5
GC03	332	OB*	<5

* SFB - Spore Forming Bacteria; GPC - Gram Positive Cocci; OB - Other Bacteria

Table 4.3 Microbiological Air Sample Measurements and Types - Fungus

Sample	Fungus (cfu/m ³)	Predominate Type
GC01	40	Non Phylloplane
GC02	816	Non Phylloplane
GC03	356	Non Phylloplane

Table 4.4 Temperature and Relative Humidity Measurements

Sample Number	Temperature (°C)	Relative Humidity (%)
GC01	22.6	58.9
GC02	23.4	58.1
GC03	24.5	76.2



Table 4.5 Gas Measurements

Sample

Number	Carbon Monoxide (ppm)	Carbon Dioxide (ppm)
GC01	1.1	702
GC02	1.0	660
GC03	1.0	733

Reported:

Michael Moecker
Operations Manager



27 May 2013

Frank Beeson
Runaway Bay Sport and Leadership Excellence Centre
Cnr Sports Dr & Morala Ave
RUNAWAY BAY QLD 4216

Our ref:41/26317/447706
Your ref:

Letter send by email
Fbees1@eq.edu.au

Dear Frank,

**Landfill Gas Monitoring
April and May 2013 Monitoring Events (3)**

1 Introduction

GHD was commissioned by The Runaway Bay Sport and Leadership Excellence Centre (RBSLEC) to undertake a round of landfill gas monitoring at the former landfill site, now operating as the RBSLEC, located at the corner of Morala Avenue and Sports Drive, RUNAWAY BAY, Queensland (hereafter referred to as the site).

This round of monitoring was conducted on 22 April 2013 and incorporated structure locations nominated within the Landfill Gas Monitoring Map (Brisbane City Council, 2001). A copy of this site map is provided as Attachment 1.

Following the detection of an elevated methane concentration within one underground electrical service pit at the site, GHD was commissioned to undertake two additional monitoring events on 30 April 2013 and 9 May 2013 to investigate methane recovery within the service pit. This electrical service pit (identified as E3 on the site map) was located to the north-west of the beach volley ball court and is in the vicinity of other service pits and buildings that are regularly in use.

GHD has conducted landfill gas monitoring at the request of the RBSLEC since 2007. The previous landfill gas monitoring event was conducted by GHD in December 2010.

Details of the 22 April, 30 April and 9 May monitoring rounds are provided in the attached memos (and summarised in the following sections):

- *Memorandum to Runaway Bay Sport and Leadership Excellence Centre dated 27/5/13, document number 41/26317/448440 regarding "Landfill Gas Monitoring Round 22 April 2013"*
- *Memorandum to Runaway Bay Sport and Leadership Excellence Centre dated 27/5/13, document number 41/26317/44848 regarding "Landfill Gas Monitoring Round 30 April 2013"*
- *Memorandum to Runaway Bay Sport and Leadership Excellence Centre dated 27/5/13, document number 41/26317/44567 regarding "Landfill Gas Monitoring Round 9 May 2013"*

This letter is subject to and should be read in conjunction with the limitations detailed in Section 7.



2 Methodology

The landfill gas monitoring events were undertaken on 22 April 2013, 30 April 2013 and 9 May 2013 by a suitably qualified Environmental Scientist using calibrated portable field measurement units to obtain instantaneous measurements of the methane, oxygen, carbon monoxide and hydrogen sulphide concentrations. The attached memos detail the individual monitoring events. Calibration certificates are provided in Attachment 3.

Monitoring was conducted in general accordance with the requirements of the Site Management Plan and with reference to the Environmental Guidelines: Solid Waste Landfills (NSW EPA, 1996).

The monitoring undertaken during these three rounds included the following:

2.1.1 22 April 2013 –

This assessment included monitoring of 4 soil atmosphere gas wells located along the eastern boundary of the site (Morala Avenue); and 112 structures locations (including subsurface electrical pits, light poles, stormwater pits and some site buildings). These locations were located across the site and were identified from the site map provided as Attachment 1. Surface emission monitoring was not conducted under this scope of work.

2.1.2 30 April 2013 -

An initial gas reading was taken within and immediately above the E3 pit at 10 am representing 24 hours potential accumulation. The electrical pit was then opened and vented until the methane level was consistent with the 10 am ambient atmospheric reading. This took less than 10 minutes. The pit cover was then replaced and hourly potential accumulation readings were recorded within E3 (between 11 am and 3 pm).

One round of gas monitoring was conducted within the nine, two story accommodation blocks and two, one story grounds buildings in the vicinity. Rooms on both lower and upper levels and service connections into and within the buildings were targeted. Landfill gas levels were also checked within the underground services pit adjacent to E3 and the accommodation blocks intermittently between 11 am and 3 pm. A sketch of additional service pits observed (and monitored) on April 22 and 30 are included as Attachment 2.

RBSLEC advised that they were not aware of any updated service pit/ site construction drawings being available for the review (beyond Figure 1 attached). Therefore GHD completed a Dial before You Dig (DBYD) search request which confirmed the presence of Energex electricity connections along the northern and eastern boundaries of the site, and the presence of Telstra cables along the eastern boundary of the site. Details of on-site connections could not be assessed beyond site observation (based on the visual identification of underground service pits and connections boxes located on the walls of the accommodation blocks). A copy of these plans is provided in Attachment 5



2.1.3 9 May 2013

As per the recommendations following the 30 April round, a two staged approach was adopted on 9 May 2013. Initially, landfill gas monitoring to assess one week potential gas accumulation was conducted within E3, at the ambient atmospheric level immediately above E3, and within other underground service pits in the immediate vicinity. Based on the low methane levels measured and discussion with RBSLEC, an additional stage of monitoring was not conducted (that proposed to repeat landfill gas monitoring within the nearby site buildings and also to repeat monitoring on other nearby underground structures).

3 Results

Results tables for this round are provided in Attachment 4:

Table 1 - General Observations;

Table 2 – Boundary Soil Atmosphere Gas Wells Results;

Table 3 – Sub-Surface Structure Emission Results

Table 4 – Detailed Results 22 April 2013

Table 5 – Results 30 April 2013; and

Table 6 – Results 9 May 2013.

For all three monitoring rounds, concentrations of oxygen, carbon monoxide and hydrogen sulphide at all locations monitored were as follows:

- Oxygen: 20.9% v/v;
- Carbon monoxide: 0 ppm; and
- Hydrogen sulphide: 0 ppm.

These results meet the adopted trigger guidelines of oxygen (20.9% v/v), carbon monoxide (0 ppm); and hydrogen sulphide (0 ppm).

It should be understood that the instrument used to complete the monitoring is not methane specific, rather it monitors for a range of hydrocarbons and other easily flammable components (collectively referred to as “flammable gas”). It is common practice in the waste industry to monitor for flammable gas at landfill sites and use the results as a proxy for methane emissions. It should therefore be understood that the “methane” results detailed below are essentially indicative of “flammable gas”.

Methane results from the 22 April, 30 April and 9 May monitoring rounds are provided in the attached memos (and summarised below).

3.1.1 Methane results 22 April 2013

Methane concentrations detected at all monitored locations on 22 April 2013 were less than the relevant adopted trigger level (12,500 ppm methane) during this round of monitoring, with the exception of Structure E3 where accumulated methane levels greater than 50,000 ppm were detected (during an initial and also a follow up measurement after one hour for confirmation purposes as this result exceeded



the lower explosive limit for methane (50,000 ppm) and represented an explosion risk if any potential ignition sources were to be introduced to the area).

Methane levels less than the adopted trigger level (12,500 ppm methane) were detected within all other structure locations included in this round of monitoring , however a number of other service pit locations identified methane concentrations > 1000 ppm during the 22 April monitoring round indicating that methane is entering and accumulating within these structures. This included:

- E25 (an electrical pit located in the northern end of the west car park) at 9,500 ppm methane;
- E12 (an electrical pit located in the northern end of the west car park) at 1,050 ppm methane; and
- Location West Carpark, Right NW corner (an electrical pit located in the west car park) at 1,150 ppm methane.

3.1.2 Methane results 30 April 2013

Based on the elevated results within E3, follow-up monitoring was conducted on 30 April following venting of the E3 electrical pit by site staff, and replacement of the cover on 29 April 2013. Results for E3 and other site structures monitored that day were less than the adopted trigger level (12,500 ppm).

The accumulated methane level detected after 24 hours of the pit being closed was 1250 ppm. This confirmed that methane is migrating into the pit over relatively short durations.

Following venting and replacement of the pit lid, hourly gas reading were conducted over 5 hours, with a maximum methane concentration of 1,850 ppm (12 pm measurement, representing 2 hours potential accumulation).

The maximum methane concentration detected in the atmosphere immediately above and in the vicinity of E3 and also within the accommodation buildings 1 to 9, the two storage sheds located adjacent to accommodation building 9 and the electrical connection boxes attached to these buildings was 55 ppm (against the adopted ambient methane trigger level of 500 ppm).

3.1.3 Methane results 9 May 2013

The methane concentrations within all structures monitored on 9 May were less than the adopted trigger level (12,500 ppm).

The accumulated methane concentration detected after 9 days of E3 being closed was 460 ppm. This represents a decrease from the previous monitoring round. This may be due to site specific and climatic conditions. RBSLEC staff confirmed the pit had remained closed between monitoring rounds.

The maximum methane level detected in the atmosphere immediately above and in the vicinity of E3 was 15 ppm (against the adopted ambient methane trigger level of 500 ppm).

The maximum methane level detected within nearby service pits (immediately adjacent to E3) was 80 ppm.



4 Quality Assurance / Quality Control Procedures

In order to have confidence in the landfill gas monitoring data generated during the landfill gas monitoring rounds, suitable quality assurance and quality control procedures were used. The quality assurance and quality control procedures used during the April and May 2013 monitoring rounds included the following:

- The monitoring equipment used was calibrated prior to its use on-site and was verified in the field prior to use each day and during the completion of the monitoring by monitoring personnel. Instrument specifications and calibration certificates for the monitoring instrumentation are included in Attachment 3;
- Monitoring was conducted by a suitably experienced environmental scientist with reference to the Site Based Management Plan and the *Environmental Guidelines: Solid Waste Landfills* (NSW EPA, 1996) as far as practicable.

5 Project Conclusions

It is noted that this project has been a moving target and as such a number of the interim conclusions and recommendations have been superseded / acted upon. This section provides a summary of the overarching conclusions:

- The Site continues to generate landfill gas containing methane;
- Monitoring of site structures was not exhaustive and was limited to those locations detailed within Section 2 and included within the attached results tables;
- The methane level within structure location E3 (an electrical pit located to the north west of the beach volley ball court) was assessed as being greater than both the adopted trigger level (12,500 ppm) and also than the lower explosive limit of methane (50,000 ppm) during a landfill gas monitoring round conducted on 22 April 2013. This is a significant methane accumulation within this structure. Methane concentrations of that magnitude require immediate attention and management.
- Follow up monitoring of the E3 electrical pit, conducted after the E3 pit was vented indicated that during the assessment period it took one to two hours for methane levels to build up to greater than 1,000 ppm and potentially longer than one week for the methane to build up to levels greater than the lower explosive limit of methane (50,000 ppm).
- All remaining nominated structure monitoring locations able to be accessed on 22 April 2013 were less than the relevant adopted trigger level (12,500 ppm methane) during this round of monitoring. However an increase in methane concentration at electrical pit E25 since the last monitoring round in December 2010 (500 ppm) should be scrutinised in future monitoring rounds to confirm if an increasing trend is occurring within that electrical pit; and
- There has been a noted subsidence in the area of up to 300 mm between E2 and E3 to the west of the beach volley ball court (which had been backfilled with gravel since the last landfill gas monitoring event at that location in June 2010). This may have resulted in a potential compromise of the capping layer that is contributing to the methane accumulation within E3. There were sewer manholes observed within the area (including within 5m of E3), however the absence of the



detection of hydrogen sulphide within the service pits does not indicate this as a cause of the methane accumulation.

6 Project Recommendations

Based on the over-arching conclusions contained in Section 5 above, the following recommendations are made:

1. Continued use of the barricades currently in place. These are to be extended to the edge of the canopy (3-5m from pit) if possible until the next monitoring event. Hot works (ie. works with any source of ignition) should be excluded from the area unless gas monitoring is conducted prior to and during the activity
2. It is recommended that a follow up round of monitoring be conducted within the next two weeks (to check the potential methane accumulation levels after one month of leaving the cover in place). This can be in a staged approach as previous. Stage 1 – Monitoring of the E3 electrical pit, the ambient level immediately above the E3 pit, and also other underground service pits in the immediate vicinity. If results of E3 are greater than 10,000 ppm then continue to Stage 2 – conduct landfill gas monitoring within the nearby site buildings (and also recheck the other nearby underground service pits) to confirm landfill gas is not accumulating within these structures. Where results within E3 remain below 10,000 ppm, this methodology to be continued monthly until 3 consecutive monitoring rounds of monitoring is completed.
3. RBSLEC to regularly vent the E3 pit or consider installation of other passive venting systems. (GHD can provide further guidance if required).
4. A full round of landfill gas monitoring within 3 months (of all nominated structures including accommodation blocks and maintenance sheds in the vicinity of E3) to confirm that the elevated methane levels detected within E3 are not expanding to other nearby structures, and also to confirm if an increase in methane levels is occurring within E25 (in the west carpark) that may progress to greater than the adopted trigger level (12,500 ppm).
5. A more detailed gas assessment should be undertaken if methane results continue to exceed adopted trigger levels or an increase in methane concentration continues. This investigation should assist to identify migration paths for methane and sensitive receptors.
6. An assessment of the capping should also be considered in the areas of subsidence.

7 Limitations and Quantifications of Letter

This letter has been prepared by GHD for Runaway Bay Sport and Leadership Excellence Centre and may only be used and relied on by Runaway Bay Sport and Leadership Excellence Centre for the purpose agreed between GHD and the Runaway Bay Sport and Leadership Excellence Centre as set out in section 1 of this Report.

GHD otherwise disclaims responsibility to any person other than Runaway Bay Sport and Leadership Excellence Centre arising in connection with this letter. GHD also excludes implied warranties and conditions, to the extent legally permissible.



The services undertaken by GHD in connection with preparing this letter were limited to those specifically detailed in the letter and are subject to the scope limitations set out in the letter.

The opinions, conclusions and any recommendations in this letter are based on conditions encountered and information reviewed at the date of preparation of the letter. GHD has no responsibility or obligation to update this letter to account for events or changes occurring subsequent to the date that the letter was prepared.

The opinions, conclusions and any recommendations in this letter are based on information obtained from, and testing undertaken at or in connection with, specific sample points. Site conditions at other parts of the site may be different from the site conditions found at the specific sample points. Investigations undertaken in respect of this letter are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this letter.

Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of this letter. GHD does not accept responsibility arising from, or in connection with, any change to the site conditions. GHD is also not responsible for updating this letter if the site conditions change.

If you have any questions or require any further details, please don't hesitate to contact Adam Major or myself.

Yours sincerely,

Report Prepared By:

Belinda Oberia

Environmental Scientist
(07) 3316 3954

GHD Pty Ltd

Approved for Issue

Adam Major

Senior Environmental Engineer
(07) 3316 3587

GHD Pty Ltd

Attachment 1: Site Map of Landfill Gas Monitoring Locations

Attachment 2: Site sketch of additional service pits monitored



Attachment 3: Calibration Certificates and Specification Sheet for Meter

Attachment 4: Tables of results

Table 1. General Weather Conditions and Site Observations

Table 2. Boundary Soil Atmosphere Gas Monitoring Wells

Table 3. Sub-surface Structure Emissions.

Table 4. Detailed results 22 April 2013

Table 5. Results 30 April 2013

Table 6. Results 9 May 2013

Attachment 5: DBYD plans

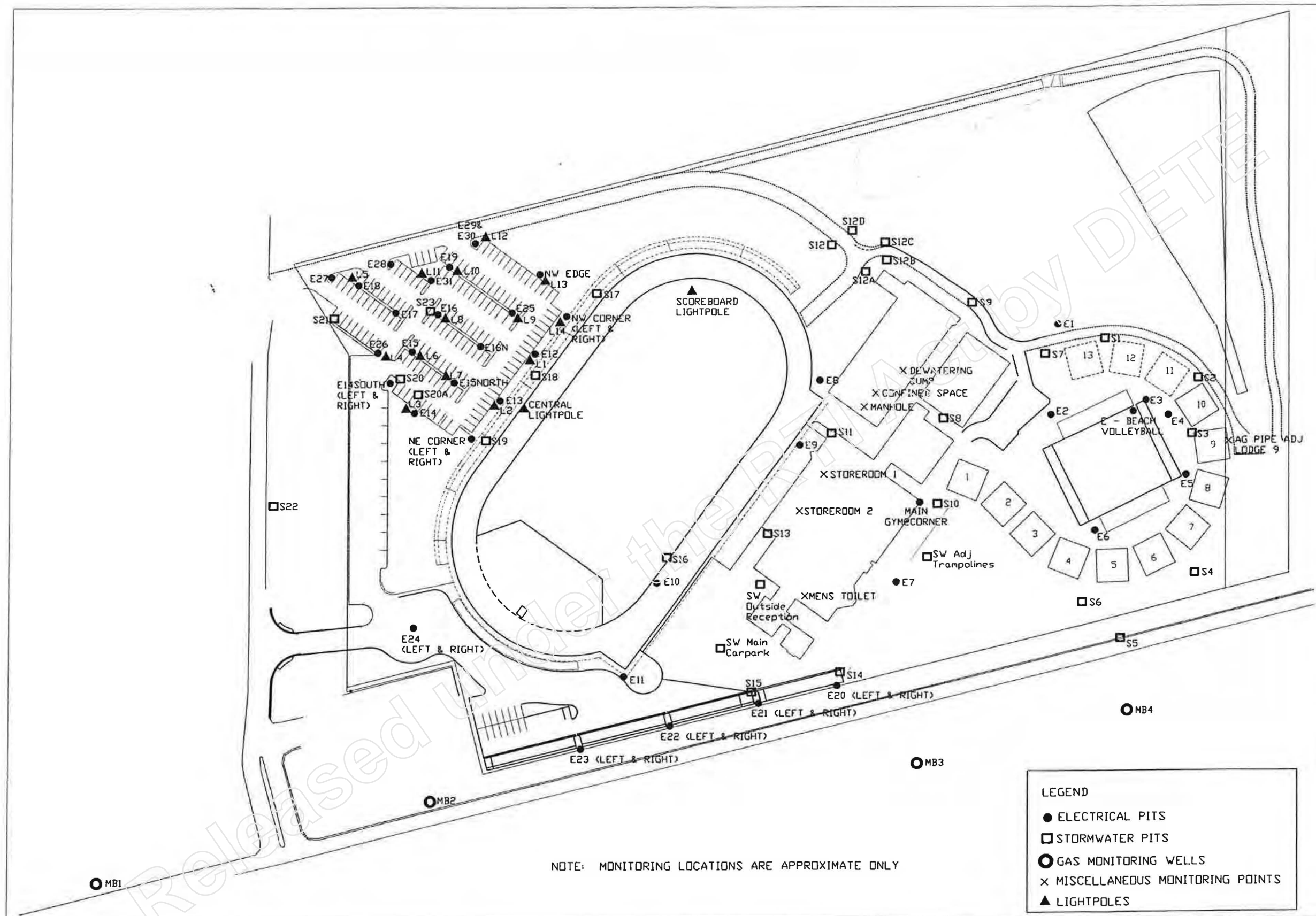
Attachment 6:

- Memorandum to Runaway Bay Sport and Leadership Excellence Centre dated 27/5/13, document number 41/26317/448440 regarding "Landfill Gas Monitoring Round 22 April 2013"
- Memorandum to Runaway Bay Sport and Leadership Excellence Centre dated 27/5/13, document number 41/26317/44848 regarding "Landfill Gas Monitoring Round 30 April 2013"
- Memorandum to Runaway Bay Sport and Leadership Excellence Centre dated 27/5/13, document number 41/26317/44567 regarding "Landfill Gas Monitoring Round 9 May 2013"



Attachment 1: Site Map of Landfill Gas Monitoring Locations

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RTI Act by DETE



City Design
Brisbane City Council

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TC Centre
315 Brunswick St Mall,
Fortitude Valley, Q 4006
Telephone 07-3403 3848
Facsimile 07-3403 0447
e-mail citydesign@brisbane.qld.gov.au

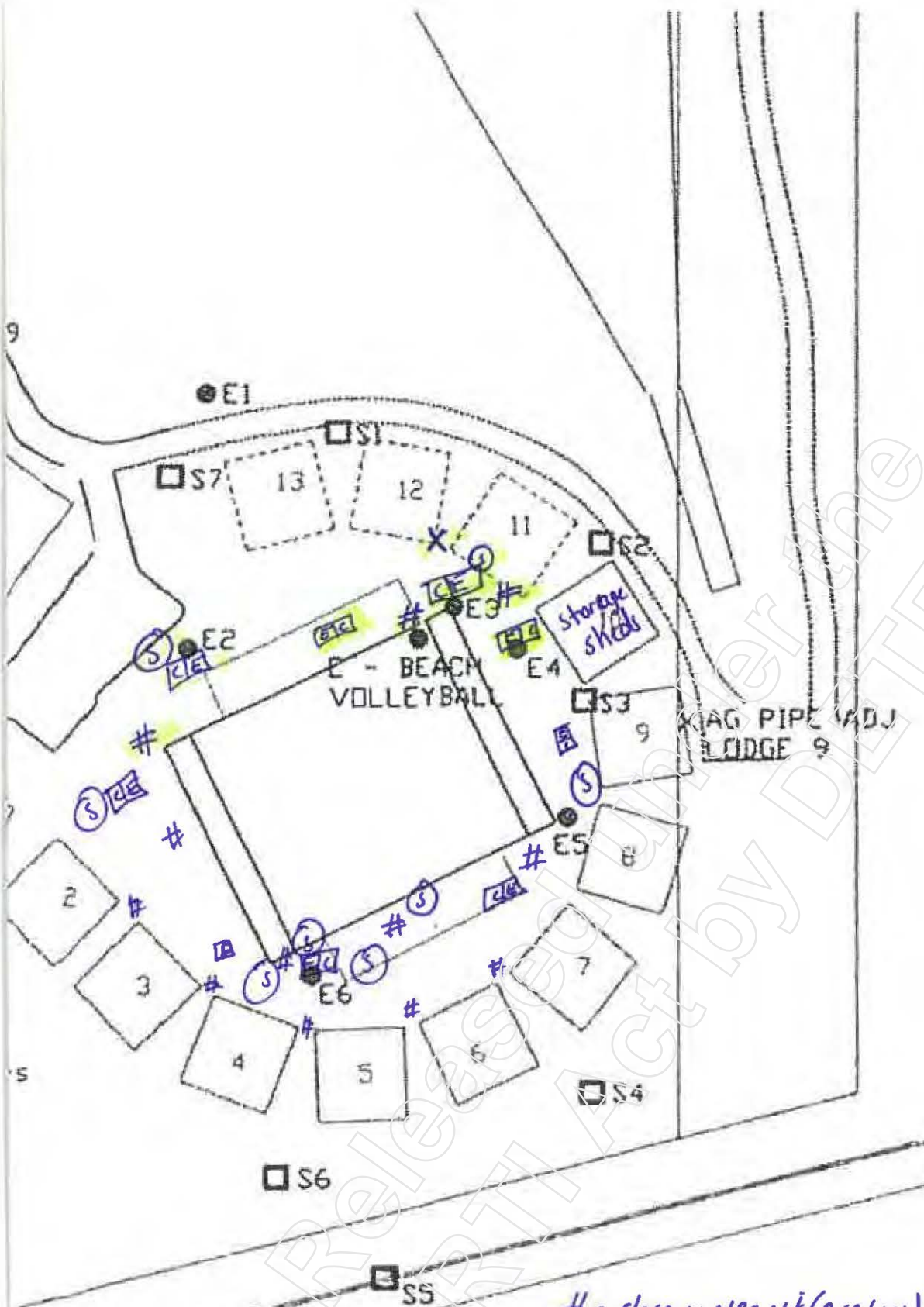


Issue	Description	Date	Drawn	Auth.	Issue	Description	Date	Drawn	Auth.	Project	Title	Design	Drawn	Checked	Authorised for Issue
A	PLAN OF MONITORING LOCATIONS	18.10.01								LAYOUT DRAWING SOURCED FROM EGIS CONSULTING AUSTRALIA	RUNAWAY BAY SPORTS SUPER CENTRE GAS MONITORING	LANDFILL GAS MONITORING LOCATIONS	LYP	MJ	MJ
B	UPDATE OF MON. LOCS	16.11.01													
												Reference no.			
												CDG30287516			
												Drawing no.		Sheet	Issue
												FIGURE 2		1	A



Attachment 2: Site sketch of additional service pits monitored

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- # = stormwater pit (grated)
- Ⓢ = sewer manhole (unable to open)
- Ⓢ = communication pit
- Ⓢ = Electrical pit
- (based on labelling of pit covers)
- X approx location of PVC pipe stickup (connection point) to E3.
- = "immediately adjacent" pits.



Attachment 3: Calibration Certificates and Specification Sheet for Meter

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RTI Act by DETE

RENTALS

Equipment Report – Eagle Multi-Gas Monitor

This Gas Meter has been performance checked / calibrated* as follows:			
Gas Channel	Cal Value	Reading	Pass?
CH4 Check Only	0 % LEL	0 % LEL	<input checked="" type="checkbox"/>
	50 % LEL	50 % LEL	<input checked="" type="checkbox"/>
O2 Check Only	0.0 % vol	0.0 % vol	<input checked="" type="checkbox"/>
	18.0 % vol	18.0 % vol	<input checked="" type="checkbox"/>
CO Check Only	100ppm	100 ppm	<input checked="" type="checkbox"/>
H2S Check Only	25.0 ppm	25 ppm	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Electrical Safety Tag attached (AS/NZS 3760)	Tag No:	Valid to:
<input checked="" type="checkbox"/>	Alkaline Batteries	<input checked="" type="checkbox"/> Inline Filter Check	<input checked="" type="checkbox"/> Cleaned
<input checked="" type="checkbox"/>	Low alarm set at 10% (5000ppm)	<input checked="" type="checkbox"/> High alarm set at 50% (25,000ppm)	<input checked="" type="checkbox"/> Battery Status @ V
* Calibration gas traceability information is available upon request.			

Date: 17/11/13 Checked by: Justin
 Signed: [Signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Eagle Multi Gas detector Ops check,
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Liquid Inhibiting Probe with In-Line Filter
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Strap
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Spare Alkaline Batteries Qty <u>2</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Operating Manual
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Quick Guide
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Case
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Battery Status @ <u>6.2v</u>
<input type="checkbox"/>	<input type="checkbox"/>	Check to confirm electrical safety (tag must be valid)

Processors Signature/ Initials _____

TFS Quote Reference		Condition on return
Customer Ref		
Equipment ID	EAGLE1	
Equipment serial no.	E25060	
Return Date & Time	/ /	

"We do more than give you great equipment... We give you great solutions!"

Phone: (Free Call) 1300 735 295		Environmental Assessment Technologies		Fax: (Free Call) 1800 675 123	
Melbourne Branch 5 Caribbean Drive, Scoresby 3179 Email: RentalsEnviroVIC@thermofisher.com	Sydney Branch Level 1, 4 Talavera Road, North Ryde 2113 Email: RentalsEnviroNSW@thermofisher.com	Adelaide Branch 27 Bedale Road, Norwood, South Australia 5007 Email: RentalsEnviroSA@thermofisher.com	Brisbane Branch Unit 25 Ross St Newstead 4006 Email: RentalsEnviroQLD@thermofisher.com	Perth Branch 121 Beringarra Ave Melaga WA 6000 Email: RentalsEnviroWA@thermofisher.com	

RENTALS

Equipment Report - GEOTECHNICAL INSTRUMENTS GA2000

This Gas Meter has been performance checked / calibrated* as follows:

Calibration	Cal Value	Reading	Cal Value	Reading	Pass?
CH4	60% vol	60 %	0.00% vol	0.0 %	<input checked="" type="checkbox"/>
CH4 -check only	2.5%CH4	2.5 %			<input checked="" type="checkbox"/>
H2s	25ppm	25 ppm	0 ppm	25 ppm	<input checked="" type="checkbox"/>
O2	20.9% vol	20.9 %	0.00% vol	20.9 %	<input checked="" type="checkbox"/>
CO	100ppm	100 ppm	0 ppm	0 ppm	<input checked="" type="checkbox"/>
CO2	40% vol	40 %			<input checked="" type="checkbox"/>
Operations Check					
<input checked="" type="checkbox"/> Electrical Safety Tag attached (AS/NZS 3760)		Tag No: TPN 3002		Valid to: 8/7/13	
<input checked="" type="checkbox"/> Cleaned/checked		<input checked="" type="checkbox"/> In line Filter Check		<input checked="" type="checkbox"/> Battery Status @ 100%	

* Calibration gas traceability information is available upon request.

Date: 29/4/13 Checked by: ROBERT

Signed: RBLT

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclear or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sampling Probe with in-Line Filter
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1m of Sampling Tube
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Strap
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Battery Charger and AC/DC Power Supply
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Operating Quick Guide behind foam on lid of case
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Manual behind foam on lid of case
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Spare Inline Filters Qty (2)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry case
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Data Cable and Software CD or Diskette
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Instrument Battery Status @ 100 %
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Well cap Quick connect fitting
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Check to confirm electrical safety (tag must be valid)

Processors Signature/
Initials

TFS Quote Reference	Condition on return
Customer Ref	
Equipment ID	GA2000BD
Equipment serial no.	GA10577/07
Return Date	/ /
Return Time	

"We do more than give you great equipment... We give you great solutions!"

Phone: (Free Call) 1300 735 295		Environmental Assessment Technologies		Fax: (Free Call) 1800 675 123	
Melbourne Branch 5 Caribbean Drive, Scoresby 3179 Email: RentalsEnviroVIC@thermofisher.com	Sydney Branch Level 1, 4 Talavera Road, North Ryde 2113 Email: RentalsEnviroNSW@thermofisher.com	Adelaide Branch 27 Beulah Road, Norwood, South Australia 5067 Email: RentalsEnviroSA@thermofisher.com	Brisbane Branch Unit 2/5 Ross St Newstead 4006 Email: RentalsEnviroQLD@thermofisher.com	Perth Branch 121 Baringara Ave Majaga WA 6090 Email: RentalsEnviroWA@thermofisher.com	

RENTALS

Equipment Report – Eagle Multi-Gas Monitor

This Gas Meter has been performance checked / calibrated* as follows:

Gas Channel	Cal Value	Reading	Pass?
CH ₄	0 % LEL	0 % LEL	<input checked="" type="checkbox"/>
	50 % LEL	50 % LEL	<input checked="" type="checkbox"/>
O ₂	0.0 % vol	0.0 % vol	<input checked="" type="checkbox"/>
	18.0 % vol	18.0 % vol	<input checked="" type="checkbox"/>
CO	100ppm	100 ppm	<input checked="" type="checkbox"/>
H ₂ S	25.0 ppm	25 ppm	<input checked="" type="checkbox"/>

☐ Electrical Safety Tag attached (AS/NZS 3760) Tag No: Valid to:
☒ Alkaline Batteries ☒ Inline Filter Check ☒ Cleaned
☒ Low alarm set at 10 % ☒ High alarm set at 50 % ☒ Battery Status 5.5 v

* Calibration gas traceability information is available upon request.

Date: 29/4/13 Checked by: ROBERT
 Signed: RBLK

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Eagle Multi Gas detector Ops check
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Liquid Inhibiting Probe with In-Line Filter
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Strap
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Spare Alkaline Batteries Qty <u>4</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Operating Manual
<input type="checkbox"/>	<input type="checkbox"/>	Quick Guide
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Case
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Battery Status @ <u>5.5v</u>
<input type="checkbox"/>	<input type="checkbox"/>	Check to confirm electrical safety (tag must be valid)
<input type="checkbox"/>	<input type="checkbox"/>	

Processors Signature/ Initials _____

TFS Quote Reference	Condition on return
Customer Ref	
Equipment ID	EAGBA
Equipment serial no.	E47029
Return Date & Time	/ /

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Phone: (Free Call) 1300 735 295		Environmental Assessment Technologies		Fax: (Free Call) 1800 675 123	
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RENTALS

Equipment Report - GEOTECHNICAL INSTRUMENTS GA2000

This Gas Meter has been performance checked / calibrated* as follows:

Calibration	Cal Value	Reading	Cal Value	Reading	Pass?
CH4	60% vol	60 %	0.00% vol	%	<input checked="" type="checkbox"/>
CH4 -check only	2.5%CH4	2.4 %			<input checked="" type="checkbox"/>
H2s	25ppm	25 ppm	0 ppm	0 ppm	<input checked="" type="checkbox"/>
O2	20.9% vol	20.9 %	0.00% vol	0.0 %	<input checked="" type="checkbox"/>
CO	100ppm	100 ppm	0 ppm	0 ppm	<input checked="" type="checkbox"/>
CO2	40% vol	40 %			<input checked="" type="checkbox"/>
Operations Check					
<input type="checkbox"/> Electrical Safety Tag attached (AS/NZS 3760)		Tag No:		Valid to:	
<input checked="" type="checkbox"/> Cleaned/checked		<input checked="" type="checkbox"/> In line Filter Check		<input checked="" type="checkbox"/> Battery Status @ 100 %	

* Calibration gas traceability information is available upon request.

Date: 6/5/13 Checked by: Justin

Signed: [Signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed at the full replacement cost.

Sent	Returned	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sampling Probe with In-Line Filter
<input checked="" type="checkbox"/>	<input type="checkbox"/>	1m of Sampling Tube
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Strap
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Battery Charger and AC/DC Power Supply
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Operating Quick Guide behind foam on lid of case
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Manual behind foam on lid of case
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Spare In-line Filters Qty (2)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry case
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Data Cable and Software CD or Diskette
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Instrument Battery Status @ 100 %
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Well cap Quick connect fitting

☐ Check to confirm electrical safety (tag must be valid)

☐ Processors Signature/
Initials

TFS Quote Reference		Condition on return
Customer Ref		
Equipment ID	GA2000BA	
Equipment serial no.	07844/05	
Return Date	/ /	
Return Time		

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RENTALS

Equipment Report – Eagle Multi-Gas Monitor

This Gas Meter has been performance checked / calibrated* as follows:			
Gas Channel	Cal Value	Reading	Pass?
CH4 Check Only	0 % LEL	0.0 % LEL	<input checked="" type="checkbox"/>
	50 % LEL	50.0 % LEL	<input checked="" type="checkbox"/>
O2 Check Only	0.0 % vol	0.0 % vol	<input checked="" type="checkbox"/>
	18.0 % vol	18.0 % vol	<input checked="" type="checkbox"/>
CO Check Only	100 ppm	100 ppm	<input checked="" type="checkbox"/>
H2S Check Only	25.0 ppm	25.0 ppm	<input checked="" type="checkbox"/>
<input type="checkbox"/> Electrical Safety Tag attached (AS/NZS 3760)		Tag No: N/A	Valid to:
<input checked="" type="checkbox"/> Alkaline Batteries	<input checked="" type="checkbox"/> Inline Filter Check	<input checked="" type="checkbox"/> Cleaned	
<input checked="" type="checkbox"/> Low alarm set at 10% LEL (5,000ppm)	<input checked="" type="checkbox"/> High alarm set at 50% LEL (25,000ppm)	<input checked="" type="checkbox"/> Battery Status: 6.1 V	

* Calibration gas traceability information is available upon request.

Date: 8/5/13 Checked by: Justin

Signed: [Signature]

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum \$20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Eagle Multi Gas detector Ops check,
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Liquid Inhibiting Probe with In-Line Filter
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Strap
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Spare Alkaline Batteries Qty 14
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Operating Manual
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Quick Guide
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Carry Case
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Battery Status 6.2 V
<input type="checkbox"/>	<input type="checkbox"/>	Check to confirm electrical safety (tag must be valid)

Processors Signature/ Initials

TFS Quote Reference	Condition on return
Customer Ref	
Equipment ID	EAGBB
Equipment serial no.	E2A813
Return Date & Time	/ /

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	Adelaide Branch 27 Beulah Road, Norwood, South Australia 5067 Email: RentalsEnviroSA@thermofisher.com	Perth Branch 121 Beringarra Ave Malaga WA 6090 Email: RentalsEnviroWA@thermofisher.com



Attachment 4: Tables of results

Table 1. General Weather Conditions and Site Observations

Table 2. Boundary Soil Atmosphere Gas Monitoring Wells

Table 3. Sub-surface Structure Emissions.

Table 4. Detailed results 22 April 2013

Table 5. Results 30 April 2013

Table 6. Results 9 May 2013

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Attachment 4 - TABLE 1: General Weather Conditions and Site Observations

Date	Atmospheric Pressure		Wind Speed (km/h)	Wind Direction (degrees)	Temp. (°C)	Weather Conditions		Rainfall Over Preceding Week (mm)	Comments	Initials
	(hPa)	Rising/Falling				Current	Preceding Week			
22-Apr-13	1014.3	Falling	20	315	22.1	Fine with 2/8 cloud cover and a light NW breeze	Mostly fine with one day of rainfall	32.4	Full site assessment. Vents operating effectively. Gas equipment measures CH ₄ >20ppm. Elevated methane in E3.	BO
30-Apr-13	1023.5	Falling	9	135	23.5	Fine with 2/8 cloud cover and a light SE breeze	Mostly fine	0	Partial assessment.	BO
9-May-13	1028.6	Falling	15	180	20.3	Fine with 4/8 cloud cover and a light S breeze	Light showers in the preceding week including the evening prior to monitoring.	2.8	Partial assessment.	BO

Notes

Atmospheric pressure, wind speed/ direction, temperature and daily rainfall data to be obtained from the Bureau of Meteorology, Gold Coast Seaway Station (No 40764.)

Runway Bay Former Landfill: Sports Super Centre

Attachment 4 - TABLE 2: Boundary Soil Atmosphere Gas Monitoring Wells

Location	Parameter	Units	22-Apr-13
MW1	CH ₄	% (v/v)	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
MW2	CH ₄	% (v/v)	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
MW3	CH ₄	% (v/v)	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM
MW4	CH ₄	% (v/v)	NM
	H ₂ S	ppm	NM
	O ₂	% (v/v)	NM

Notes:

Methane Trigger Level = 1.25 % v/v (Environmental Guidelines: Solid Waste Landfills, NSW EPA, 1996)

Shading indicates exceedance of trigger level

Bold indicates detection of methane

NM = Parameter not monitored this round