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Our Ref: 217505_LET_002.docx

22 January 2018

Oberon Council
137-139 Oberon Street
Oberon NSW 2787

Attention: Vicki McKinnon – Development Control Assistant

ENVIRONMENTAL MONITORING OF OBERON WASTE FACILITY

Geolyse has completed scheduled environmental monitoring per the requirements of Environment Protection Licence (EPL) 20289 at Oberon Waste Facility, located at 364 – 372 Lowes Mount Road, Oberon.

Surface Water Quality

A surface water discharge event occurred on 16 January 2018 from the surface storage pond located to the west of the facility and a sample was collected. The sample was couriered to SGS Laboratories in Alexandria, NSW, who are NATA accredited to perform the scheduled analysis. Results of analysis are included in **Table 1** (attached), and laboratory certificates have also been appended to this letter.

Surface water quality has been assessed by comparison to criteria (where available) provided in the site Environment Protection Licence 20289 (November 2013) *'Limit Conditions - L2.4 Water and/or Land Concentration Limits*'.

- Laboratory measured pH was recorded to be 7.1, and was within the limit condition range (6.5 to 8.5 pH units).
- Electrical conductivity (EC) was recorded to be 630 µS/cm.
- The concentration of oil & grease in the surface water discharge was recorded to be below the laboratory limit of reporting (LOR) of 10 mg/L, below the limit condition concentration (< 10 mg/L).
- Total suspended solids (TSS) were recorded to be 41 mg/L in the surface water sample, below the limit condition concentration (< 50 mg/L).

Summary

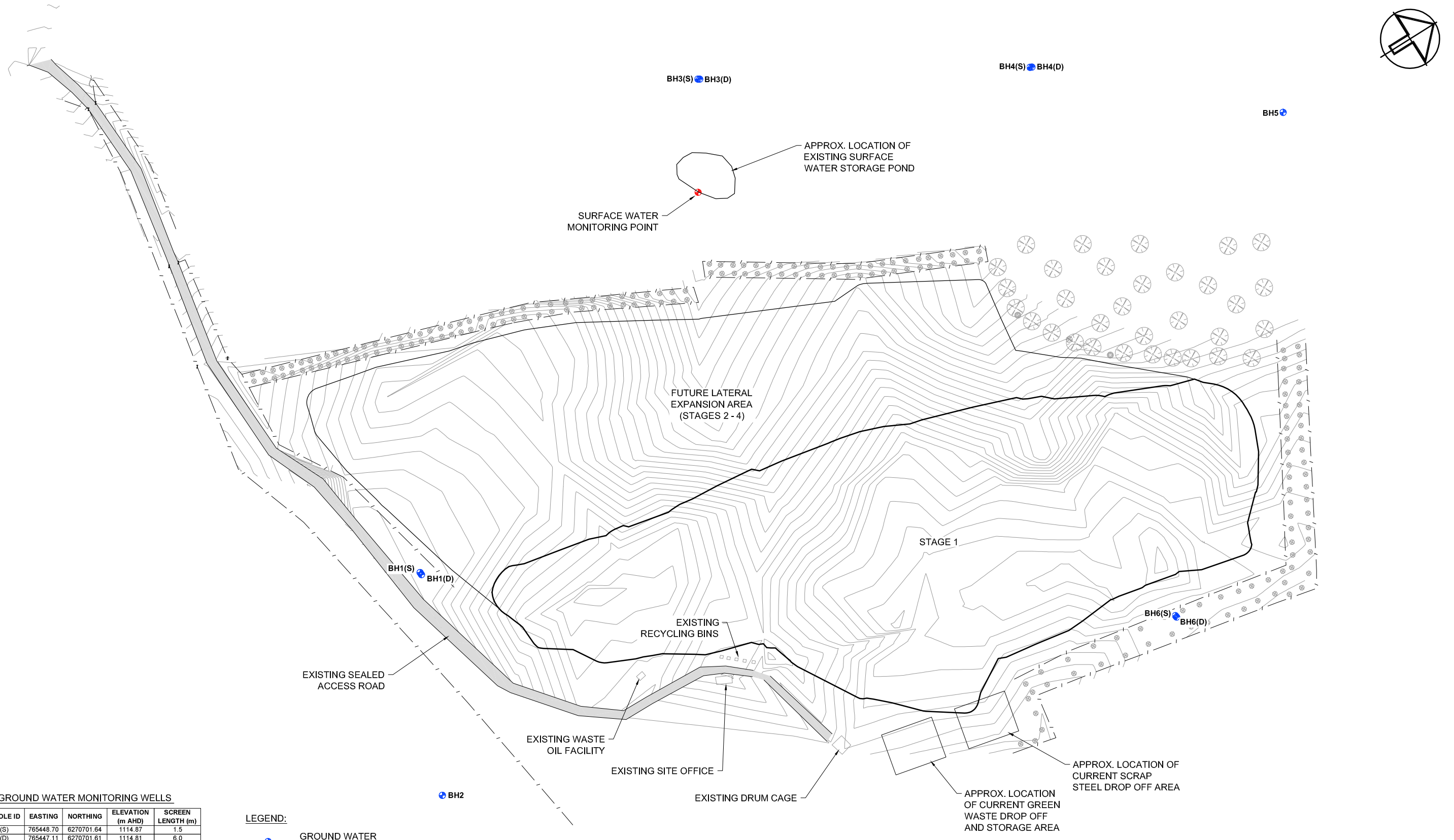
Monthly surface water samples are scheduled to continue for the duration of the recorded discharge. The next non-discharge monitoring event will occur in May 2018 and includes the groundwater monitoring points installed in the deeper aquifer.

Please do not hesitate to contact us with any questions or comments you may have regarding this report.

Yours faithfully
Geolyse Pty Ltd

BRENDAN STUART
Environmental Scientist

No. of Attachments – 4: Environmental Monitoring Point Locations
Table 1 – Results of Laboratory Analyses
SGS Laboratories Analytical Reports



GROUND WATER MONITORING WELLS

BOREHOLE ID	EASTING	NORTHING	ELEVATION (m AHD)	SCREEN LENGTH (m)
BH1(S)	765448.70	6270701.64	1114.87	1.5
BH1(D)	765447.11	6270701.61	1114.81	6.0
BH2	765577.81	6270636.72	1113.52	1.5
BH3(S)	765270.91	6271025.90	1106.14	1.5
BH3(D)	765273.17	6271029.31	1105.96	6.0
BH4(S)	765379.42	6271213.28	1106.15	1.5
BH4(D)	765379.95	6271214.43	1106.16	6.0
BH5	765491.95	6271337.41	1107.75	1.5
BH6(S)	765732.53	6271103.63	1123.07	1.5
BH6(D)	765733.70	6271103.79	1123.20	6.0

LEGEND:

- GROUND WATER MONITORING POINT
- SURFACE WATER MONITORING POINT
- EXISTING LANDFORM CONTOURS (0.5m INTERVAL)

0 100 200 300 400 500

SCALE 1:10000 (A3)

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No	DATE	DRAFTING CHECK	APPROVED BY	DETAILS
A	02/05/13	LP	KH	DRAFT
B	16/05/13	LP	KH	ISSUED
C	01/10/14	MY	MH	UPDATE PIEZO BH3(D) DATA

PROJECT
OBERON LANDFILL EXTENSION
LANDFILL ENVIRONMENTAL MANAGEMENT PLAN

FILE REFERENCE: 211129_05C_EV01-EV07.dwg

APPROVAL AUTHORITY
OBERON COUNCIL
ENVIRONMENT PROTECTION AUTHORITY

CLIENT
OBERON COUNCIL

DRAWING
EXPANSION STAGES AND MONITORING POINTS

PROJECT NUMBER: 211129 | DRAWING NUMBER: 05C_EV02 | REV: C

SOURCE: INTERNAL

TABLE 1: OBERON WASTE FACILITY - RESULTS OF LABORATORY ANALYSIS
JANUARY 2018

				Sample ID	SW1
				Sample Date	16/01/2018
Group	**Analyte**	**LOR**	**Units**	**Criteria**	PS
Physical Parameters	pH (Lab)	-	No unit	6.5 - 8.5	**7.1**
	Electrical Conductivity (Lab)	2	µS/cm	4478	**630**
	Oil & Grease	10	mg/L	10	< 10
	Total Suspended Solids	5	mg/L	50	**41**

mg/L	milligrams per litre
µS/cm	microsiemens per centimetre
LOR	limit of reporting
PS	primary sample
Criteria	Criteria adopted from *Australian and New Zealand Environment and Conservation Council (ANZECC) Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) Australian and New Zealand Guidelines for Fresh and Marine Water Quality* - 'Primary Industries: Water quality for irrigation and general water use', 2000 and/or *NSW EPA Environment Protection Licence 20289* 'Limit Conditions - L2.4 Water and/or Land
	within criteria
	criteria exceeded

ANALYTICAL REPORT

Accreditation No. 2562

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Brendan Stuart	Manager	Huong Crawford
Client	GEOLYSE PTY LIMITED	Laboratory	SGS Alexandria Environmental
Address	PO BOX 1963 NSW 2800	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	61 2 68841525	Telephone	+61 2 8594 0400
Facsimile	(Not specified)	Facsimile	+61 2 8594 0499
Email	bstuart@geolyse.com	Email	au.environmental.sydney@sgs.com
Project	**217505 - Oberon WF**	SGS Reference	**SE174464 R0**
Order Number	(Not specified)	Date Received	18 Jan 2018
Samples	1	Date Reported	19 Jan 2018

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

Oil and Grease - LOR raised due to insufficient sample provided.

SIGNATORIES

Dong Liang
Metals/Inorganics Team Leader

Parameter	Units	LOR	Sample Number: SE174464.001 Sample Matrix: Water Sample Date: 16 Jan 2018 Sample Name: SW1
pH in water Method: AN101 Tested: 18/1/2018			
pH**	No unit	-	**7.1**
Conductivity and TDS by Calculation - Water Method: AN106 Tested: 18/1/2018			
Conductivity @ 25 C	µS/cm	2	**630**
Oil and Grease in Water Method: AN185 Tested: 19/1/2018			
Oil and Grease	mg/L	5	<10↑
Total and Volatile Suspended Solids (TSS / VSS) Method: AN114 Tested: 19/1/2018			
Total Suspended Solids Dried at 103-105°C	mg/L	5	**41**

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Conductivity and TDS by Calculation - Water **Method: ME-(AU)-[ENV]AN106**

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Conductivity @ 25 C	LB139813	µS/cm	2	<2	103%

Oil and Grease in Water **Method: ME-(AU)-[ENV]AN185**

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Oil and Grease	LB139828	mg/L	5	<5	104%

pH in water **Method: ME-(AU)-[ENV]AN101**

Parameter	QC Reference	Units	LOR	LCS %Recovery
pH**	LB139813	No unit	-	99%

Total and Volatile Suspended Solids (TSS / VSS) **Method: ME-(AU)-[ENV]AN114**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Total Suspended Solids Dried at 103-105°C	LB139831	mg/L	5	<5	15%	97%

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode (glass plus reference electrode) and is calibrated against 3 buffers purchased commercially. For soils, an extract with water is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos/cm or µS/cm @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Total Dissolved Salts can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. SGS use 0.6. Reference APHA 2510 B.
AN114	Total Suspended and Volatile Suspended Solids: The sample is homogenised by shaking and a known volume is filtered through a pre-weighed GF/C filter paper and washed well with deionised water. The filter paper is dried and reweighed. The TSS is the residue retained by the filter per unit volume of sample. Reference APHA 2540 D. Internal Reference AN114
AN185	Gravimetric Oil & Grease and Hydrocarbons: A known volume of sample is extracted using an organic solvent and the solvent layer with dissolved oils and greases is transferred to a pre-weighed beaker. The solvent is evaporated over low heating and the beaker reweighed. The concentration of oil and grease is determined by the increase in mass of the collection beaker per volume of sample extracted. O&G is suitable for lubricating oils and other high boiling point products but is not suitable for volatiles. Reference APHA 5520 B. Internal Reference AN185

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
		NVL	Not Validated

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calcuated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the " Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.
Note that in terms of units of radioactivity:

a. 1 Bq is equivalent to 27 pCi
b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au/~/media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf