Contaminated Sites Act (2003)

Section 49

INVESTIGATION NOTICE

Reference No: DWERDG437/18

PERSONS TO WHOM THIS NOTICE IS GIVEN

Naline Ruth Avila and Joseph Andrew Avila of 945 Abernethy Road, Oakford, being the registered proprietors of Lot 36 Abernethy Road, Oakford WA 6121 (**Owners**).

SITE TO WHICH THIS NOTICE RELATES

The entirety of Lot 36 Abernethy Road, Oakford in Western Australia, being more particularly described as Lot 36 on Diagram 66394 as shown on certificate of title 1666/695, being the land as shown in Schedule 1 of this Notice (**Site**).

REASON FOR WHICH THE NOTICE IS GIVEN

This Notice is given to the Owners because the CEO of the Department of Water and Environmental Regulation (**DWER**) is of the opinion that there are grounds to indicate possible contamination of the Site and that appropriate action to investigate, monitor or assess the Site is not being, or has not been, taken.

DEFINITION OF TERMS USED IN THIS NOTICE

Terms used in this Notice shall have meaning as defined in Appendix 1.

GROUNDS ON WHICH THE NOTICE IS GIVEN

The Site was first classified as *possibly contaminated – investigation required* on 10 December 2013 (**First Classification**).

On 2 October 2014 an investigation notice (**First IN**) was issued to the then-occupier of the Site, Bio-Organics Pty Ltd.

The First IN required Bio-Organics Pty Ltd to:

i. install groundwater monitoring wells;

ii. undertake quarterly groundwater monitoring for a period of one year;

iii. provide a detailed site investigation (**DSI**); and

iv. provide a mandatory Auditor's report (**MAR**).

On 10 March 2017 the DSI and the MAR were provided to DWER.

The First IN was cancelled on 20 April 2017.

On 21 April 2017, based on the MAR provided under the First IN, DWER reclassified the Site as possibly *contaminated – investigation required* with updated reasons for the classification (**Second Classification**).

The notice of classification for the Second Classification required the following activities in order to further investigate the nature and extent of any contamination on the Site:

i. annual groundwater monitoring for two years commencing in the second half of 2017; and

ii. a site management plan (**SMP**) setting out the groundwater monitoring program to be prepared and submitted to DWER by May 2017 (**Second Classification Requirements**).

On 30 November 2017 Mr Ben Avila advised DWER by email that Bio-Organics Pty Ltd 'no longer had anything to do with [the Site]'.

On 8 February 2018 Greenland Resources Pty Ltd, trading as Bio-Organics, provided the Department with a SMP prepared by Galt Environmental (**Galt SMP**).

On 9 February 2018 DWER wrote to Greenland Resources Pty Ltd requesting some changes to the Galt SMP. These changes related to the methodology for groundwater sampling and laboratory analysis.

On 12 February 2018, DWER sent the Owners, the previous occupiers of the Site Bio-Organics Pty Ltd, and Greenland Resources Pty Ltd a letter regarding the outcome of an independent review into the investigations carried out under the First IN.

On 26 February 2018, based on the outcome of the independent review, DWER reclassified the Site as *possibly contaminated – investigation required* with updated reasons for the classification (**Third Classification**).

The notice of classification for the Third Classification required annual groundwater monitoring and a SMP, as per the Second Classification Requirements. It also required additional investigations to take place including the installation of additional groundwater monitoring bores, the collection of surface water samples and PFAS analysis (**Third Classification Requirements**).

On 28 February 2018, Mr Ben Avila advised DWER that the annual groundwater monitoring would only be scheduled pending further advice from DWER that "the independent review does not impact the veracity of the DSI or MAR, and... will have no impact on the SMP".

On 1 March DWER responded to Mr Ben Avila and advised that annual groundwater monitoring is still required from existing groundwater monitoring bores, in addition to the other investigations described in the Third Classification Requirements.

To date, DWER has not received a SMP reflecting the changes requested on 9 February 2018, and the groundwater monitoring required as part of the Second Classification Requirements has not been carried out at the Site.

After taking all the information and facts into consideration, the CEO has formed the opinion that there is possible contamination of the Site and that appropriate action to investigate, monitor or assess the Site is not being, or has not been, taken.

REQUIREMENTS OF THIS NOTICE

This Notice requires the Owners to take the actions set out in clauses 1 to 5 below.

1. ENGAGE AN ENVIRONMENTAL CONSULTANT

1.1. Within 14 days of this Notice being served, notify the CEO of the Environmental Consultant the Owners propose to engage to carry out the actions required by clause 1.2, for approval by the CEO.

1.2. Within 7 days of the CEO's approval of the Environmental Consultant, engage that Environmental Consultant to:

i. amend the Galt SMP in Appendix 2 by making the changes listed in Appendix 3 (**Amended Galt SMP**);

ii. within 14 days of the CEO's approval of the Environmental Consultant, provide to the Auditor engaged under clause 2 the Amended Galt SMP;

iii. within 14 days of receiving from the Auditor notice of any required changes to the Amended Galt SMP or any other draft SMP under clause 2.1(i)(b) of this Notice, make those required changes to the SMP and provide that SMP to the Auditor for further review;

iv. within 14 days of receiving notice of any required changes to any draft SMP required by the CEO under clause 5.1(ii)(b), make those changes to that SMP and provide that SMP to the CEO;

v. carry out at the Site two GMEs in accordance with clause 3 and the SMP as approved by the CEO under clause 5.1(ii)(c) (**Final SMP**);

vi. within 28 days of the completion of each GME, submit to the Auditor a draft GME report which presents the findings of that GME; and

vii. within 14 days of receiving from the Auditor notice of any required changes to any draft GME report under clause 2.1(ii)(b) of this Notice, make those required changes to that draft GME report and provide that GME report to the Auditor for further review.

1.3. The Owners are to take all reasonable steps to ensure the Environmental Consultant carries out the actions required by this clause within the times specified.

1.4. If, despite the Owners taking reasonable steps as required by clause 1.3, the Environmental Consultant does not carry out the actions required by this clause within the times specified, the Owners are to take all reasonable steps to ensure the Environmental Consultant carries out the actions required by this clause as soon as possible thereafter.

2. ENGAGE AN AUDITOR

2.1. Within 21 days of this Notice being served, engage an Auditor to:

i. within 14 days of being provided any draft SMP:

a. review that draft SMP; and

b. if the Auditor is not satisfied that the draft SMP meets the requirements of DWER's Contaminated Sites Guidelines (**CSG**) and the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (**NEPM**), advise the Owners and the Environmental Consultant from whom the draft SMP was received, in writing, of the changes that the Auditor considers need to be made to the draft SMP so that it meets those requirements; or

c. if the Auditor is satisfied that the draft SMP meets the requirements of the CSG and the NEPM, certify, in writing, that he or she is so satisfied, and provide the certification and the SMP to the Owners;

ii. within 14 days of being provided any draft groundwater monitoring event (**GME**) report:

a. review that draft GME report; and

b. if the Auditor is not satisfied that the draft GME report meets the requirements of the CSG or the NEPM, advise the Owners and the Environmental Consultant from whom the draft GME report was received, in writing, of the changes that the Auditor considers need to be made to the draft GME report so that it meets those requirements

c. if the Auditor is satisfied that the draft GME report meets the requirements of the CSG and the NEPM, certify, in writing, that he or

she is so satisfied, and provide the certification and the GME report to the Owners;

iii. within 63 days of the completion of the second GME, prepare a MAR and submit it to the CEO.

2.2. The MAR prepared pursuant to clause 2.1(iii) is to include a report on the actions taken to comply with the requirements of the notice.

2.3. The Owners are to take all reasonable steps to ensure the Auditor carries out the actions required by this clause, within the times specified.

2.4. If, despite the Owners taking reasonable steps as required by clause 2.3, the Auditor does not carry out the actions required by this clause within the times specified, the Owners are to take all reasonable steps to ensure the Auditor carries out the actions required by this clause as soon as possible thereafter.

3. GROUNDWATER MONITORING

3.1. Carry out, through the Environmental Consultant engaged under clause 1, two GMEs at the Site in accordance with:

i. the CSG;

ii. the NEPM; and

iii. the Final SMP.

3.2. The first GME is to be completed within 28 days after the Final SMP has been approved by the CEO.

3.3. The second GME is to be commenced no less than 11 months after the first GME is completed and completed no more than 13 months after the first GME is completed.

3.4. The Owners are to take all reasonable steps to obtain permission, from the occupiers or owners of land to which access is required to carry out the GMEs, to enter onto land and carry out activities necessary for the GME. The permission is required to be obtained:

i. in case of the first GME, within 21 days after the Final SMP has been approved by the CEO; and

ii. in the case of the second GME, within 12 months after the first GME is completed.

3.5. Pursuant to section 49(7) of the CS Act, if the Owners fail to obtain the permission required by clause 3.4 after making reasonable attempts to do so within the times specified in clauses 3.4(i) and (ii), the Owners are to notify the CEO of that failure within 3 days after the latest day on which they were required to obtain the permission.

3.6. If the Owners fail to obtain the permission required by clause 3.4, the GMEs required to be carried out pursuant to clauses 3.1, 3.2 and 3.3 are to be carried out to the extent that they do not require entry onto land to which the Owners do not have lawful access.

4. REPORTING

4.1. Within 1 day of engaging an Auditor under clause 2.1, provide to the CEO, in writing–

i. notice of the engagement; and

ii. the name and contact details of the Auditor.

4.2. Within 1 day of engaging the Environmental Consultant under clause 1 provide to the CEO, in writing –

i. notice of the engagement; and

ii. the name and contact details of the Environmental Consultant.

4.3. Within 28 days of the CEO's approval of the Environmental Consultant, provide to the CEO:

i. all draft SMPs;

ii. all documents recording the changes required by the Auditor in relation to all draft SMPs under clause 2.1(i)(b); and

iii. if the Auditor has certified that he or she is satisfied with a draft SMP under clause 2.1(i)(c), a copy of that certification and the SMP.

4.4. If, within 28 days of the CEO's approval of the Environmental Consultant, the Auditor has not certified that he or she is satisfied with the draft SMP under clause 2.1(i)(c), then within 1 day of the date on which the Auditor does so certify provide to the CEO a copy of the certification, the draft SMP, and all documents recording the changes required by the Auditor in relation to all draft SMPs.

4.5. Within 2 days after the completion of each GME, notify the CEO, in writing, of the completion of that GME.

4.6. Within 42 days of the completion of each GME, provide to the CEO:

i. all draft GME reports;

ii. all documents recording the changes required by the Auditor in relation to all draft GME reports under clause 2.1(ii)(b); and

iii. if the Auditor has certified that he or she is satisfied with a GME report under clause 2.1(ii)(c), a copy of that certification and the GME report.

4.7. If, within 42 days of the completion of each GME, the Auditor has not certified that he or she is satisfied with the draft GME report under clause 2.1(ii)(c),), then within 1 day of the date on which the Auditor does so certify provide to the CEO a copy of the certification, the GME report, and all documents recording the changes required by the Auditor in relation to all draft GME reports.

5. SPECIFIED REQUIREMENTS, DIRECTIONS AND APPROVALS

5.1. For the purposes of section 49(5) of the *Contaminated Sites Act 2003*:

i. the Auditor engaged under clause 2.1 is specified as a person who may require changes to :

a) the Amended Galt SMP and any other draft SMP; and

b) any draft GME report;

ii. The CEO is specified as a person:

a) who will, once satisfied that the Environmental Consultant engaged under clause 1 meets the definition provided in Appendix 1, approve, in writing, that Environmental Consultant for the purposes of clause 1;

b) who may require changes to any draft SMP; and

c) who will, once satisfied that the draft SMP certified by the Auditor under clause 2.1(i)(c), adequately sets out the measures necessary to investigate the nature and extent of contamination on the Site and its consequences, approve, in writing, that SMP as the Final SMP for the purposes of clauses 1.2(v) and 3.

[redacted]

CHIEF EXECUTIVE OFFICER
DEPARTMENT OF WATER AND ENVIRONMENTAL REGULATION

3 December 2018

IMPORTANT NOTES:

APPEALS

UNDER SECTION 52 OF THE *CONTAMINATED SITES ACT 2003* A PERSON ON WHOM AN INVESTIGATION NOTICE IS BINDING MAY APPEAL AGAINST A REQUIREMENT OF THE NOTICE.

UNDER SECTION 79 OF THE *CONTAMINATED SITES ACT 2003* A PERSON MAY, WITHIN 21 DAYS OF BEING GIVEN THIS NOTICE, OR WITHIN 21 DAYS OF BEING BOUND BY THIS NOTICE, LODGE WITH THE CONTAMINATED SITES COMMITTEE AN APPEAL IN WRITING SETTING OUT THE GROUNDS AND FACTS ON WHICH THE APPELLANT RELIES.

OFF SITE ACCESS

IF A PERSON ON WHOM A NOTICE, WHICH HAS A REQUIREMENT BINDING, FAILS TO OBTAIN THE PERMISSION OF THE OCCUPIER OR OWNER AFTER MAKING REASONABLE ATTEMPTS TO DO SO WITHIN THE TIME SPECIFIED IN THE NOTICE, THE PERSON IS TO NOTIFY THE CEO OF THAT FAILURE WITHIN 3 DAYS AFTER THE LATEST DAY ON WHICH THE PERSON WAS REQUIRED TO OBTAIN THE PERMISSION.

SCHEDULE 1

SITE TO WHICH THIS NOTICE RELATES

The pink line depicts the boundary of the Site as defined in this Notice and as shown on the Certificate of Title attached

WESTERN AUSTRALIA

REGISTER NUMBER	
36/D66394	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
2	14/6/2013

VOLUME 1666 FOLIO 695

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 36 ON DIAGRAM 66394

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

JOSEPH ANDREW AVILA
NALINE RUTH AVILA
BOTH OF 945 ABERNETHY ROAD, OAKFORD
AS JOINT TENANTS

(T C799881) REGISTERED 26/6/1984

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. EASEMENT BURDEN CREATED UNDER SECTION 27A OF T. P. & D. ACT - SEE DIAGRAM 66394.
2. M260243 MORTGAGE TO BENDIGO AND ADELAIDE BANK LTD REGISTERED 2/5/2013.
3. *M511074 MEMORIAL. CONTAMINATED SITES ACT 2003 REGISTERED 2/1/2014.
4. *N227060 NOTIFICATION. ENVIRONMENTAL PROTECTION ACT 1986. REGISTERED 15/1/2016.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

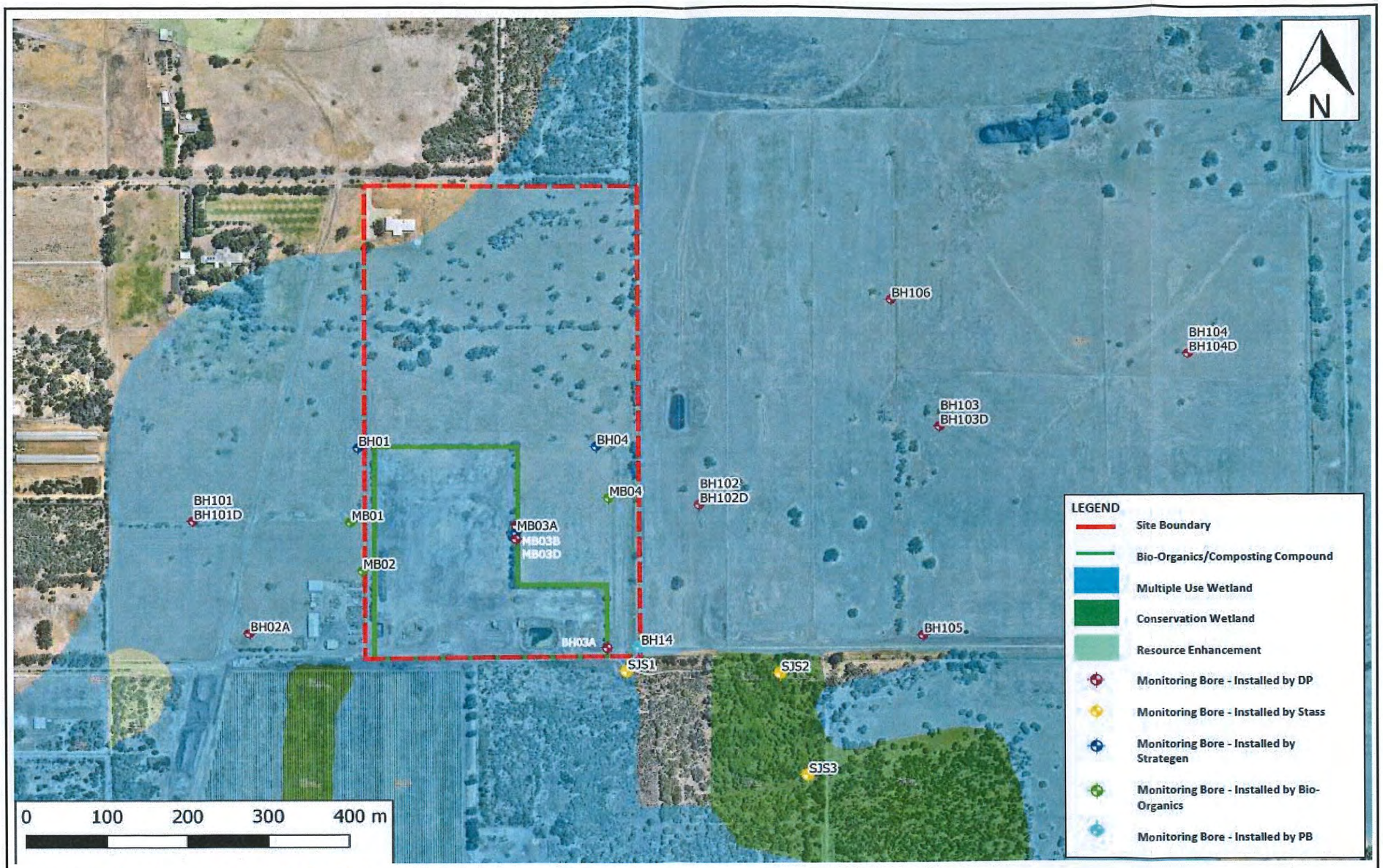
STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	1666-695 (36/D66394)
PREVIOUS TITLE:	1643-825
PROPERTY STREET ADDRESS:	941 ABERNETHY RD, OAKFORD.
LOCAL GOVERNMENT AUTHORITY:	SHIRE OF SERPENTINE-JARRAHDALE

SCHEDULE 2

GROUNDWATER MONITORING LOCATIONS



Base Image: Nearmap, flown January 2017. Geomorphic wetlands sourced from WA Atlas.

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT: Bio-Organics Pty Ltd		TITLE: Geomorphic Wetlands and Groundwater Monitoring Well Locations	Project	82453.02
	OFFICE: Perth	DRAWN BY: RW	Groundwater Investigation and Monitoring Program	Drawing No:	6
	SCALE: As Shown Coordinate System: MGA Zone 50	DATE: JAN 2017	Lot 36 Abernethy Road, Oakford	Revision:	1

APPENDIX 1

DEFINITIONS

In this Notice, unless the contrary intention appears –

'CS Act' means the *Contaminated Sites Act 2003.*

'Auditor' means a person accredited as a contaminated sites auditor under the *Contaminated Sites Act 2003.*

'CEO' means Chief Executive Officer, Department of Water and Environmental Regulation.

'CEO' for the purpose of correspondence means:

Chief Executive Officer
Department of Water and Environment Regulation
Email: info-der@dwer.wa.gov.au
Locked Bag 33
CLOISTERS SQUARE WA 6850
Telephone: (08) 6364 7000
Facsimile: (08) 6364 7001

'CSG' means DWER's Contaminated Sites Guidelines as amended from time to time, which at the time of the issuing of this notice can be found online at <https://www.der.wa.gov.au/your-environment/contaminated-sites/61-contaminated-sites-guidelines>.

'Days' means all days including weekends.

'Draft GME report' means a report on the results of a GME prepared by the Environmental Consultant engaged under clause 2.2 that has not been certified by an Auditor under clause 1.1(ii)(c).

'Draft SMP' means the GALT SMP and any SMP prepared as a result of amendments to that document, other than the Final SMP.

'**DSI**' means Detailed Site Investigation, prepared in accordance with CSG and the NEPM.

'Final SMP' means the SMP approved by the CEO under clause 5.2.

'**Galt SMP**' means the documents titled *Report on Site Management Plan Bio-Organics Composting Facility at Lot 36 Abernethy Road in Oakford* prepared by Galt Environmental and dated 8 February 2018 and included at Appendix 2.

'**DWER**' means the Department of Water and Environmental Regulation.

'Environmental Consultant' means an environmental consultant as described in section 4.2 of Schedule B9 of the NEPM, with demonstrable prior experience in sampling for PFAS in accordance with:

- the 'Interim Guideline on the Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances (PAS)' (Department of Environment Regulation, January 2017) as amended from time to time, which at the time of the issuing of this notice can be found online at <https://www.der.wa.gov.au/your-environment/contaminated-sites/61-contaminated-sites-guidelines>; or
- the PFAS NEMP.

'GME' means a groundwater monitoring event, carried out in accordance with the Final SMP, CSG and the NEPM.

'in writing' includes by email with an authorised signature.

'MAR' means a Mandatory Auditor's Report prepared by an accredited contaminated sites auditor, in accordance with section 73 of the *Contaminated Sites Act 2003* and regulation 31(1)(d)(iii) of the *Contaminated Sites Regulations 2006.*

'NEPM' means the *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended from time to time, which at the time of the issuing of this notice can be found online at <http://www.nepc.gov.au/nepms/assessment-site-contamination>.

'Owners' means Naline Ruth Avila and Joseph Andrew Avila of 945 Abernethy Road, Oakford WA 6121.

'**PFAS**' means per- and poly-fluoroalkyl substances

'**PFAS NEMP**' means the *PFAS National Environmental Management Plan* (Heads of EPAs Australia and New Zealand, January 2018) as amended from time to time, which at the time of the issuing of this notice can be found online at <https://www.epa.vic.gov.au/your-environment/land-and-groundwater/pfas-in-victoria/pfas-national-environmental-management-plan>.

'SMP' means a site management plan, prepared in accordance with CSG and the NEPM.

'Site' means Lot 36 on Diagram 66394 as shown on certificate of title 1666/695, 941 Abernethy Road, Oakford; known as Lot 36 Abernethy Road, Oakford; as shown in Schedule 1 of this Notice.

'within [7] days' means before 5:00 PM Australian Western Standard Time on the 7th (or whichever number is specified in the requirement) day after the specified event.

APPENDIX 2

GALT SMP
(GALT ENVIRONMENTAL, 8 FEBRUARY 2018)

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Report on

SITE MANAGEMENT PLAN
BIO-ORGANICS COMPOSTING FACILITY
LOT 36 ABERNETHY ROAD
OAKFORD

Submitted to:

Bio Organics
945 Abernethy Road
OAKFORD WA 6121

www.galtenv.com.au
250 Edward Street
OSBORNE PARK WA 6017
T: +61 (8) 6272-0200

J1702032 001 R Rev2

08 February 2018

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1. INTRODUCTION

This site management plan (SMP) for groundwater monitoring been prepared to satisfy the requirements of the mandatory audit report (MAR) for the Bio-Organics composting facility located at Lot 36 Abernethy Road, Oakford (the site). The site relative to the surrounding location is shown on Figure 1.

2. OVERVIEW

Based on the supplied information, the site is rectangular in shape and approximately 21.4 hectares in size. The site is bounded by Abernethy Road to the north and rural properties on the other sides.

We understand that the composting facility was issued a Closure Notice and Investigation Notice by Department of Water and Environmental Regulation (DWER) in 2014 on the basis of suspected contaminated waste discharge to soil and groundwater. We further understand that a detailed site investigation (DSI) was undertaken at the site by Douglas Partners in response to the Investigation Notice and a mandatory audit report (MAR) was prepared for the site. The DSI concluded that extensive impact to groundwater at the site was unlikely.

The MAR recommended that 2 groundwater monitoring events (GMEs) be undertaken at the site commencing later in 2017. We understand that an SMP is required to be prepared for the GMEs in accordance with the Department of Environment Regulation (DER) (2014) *Assessment and Management of Contaminated Sites* guideline document.

3. OBJECTIVES

The objectives of the SMP are to:

- ensure that the groundwater monitoring events (GMEs) are undertaken in accordance with the relevant guidelines and standards; and
- make recommendation for further works (if required).

4. PREVIOUS REPORTS

We understand that a number of groundwater studies have been undertaken at the site since 2013. For the purposes of this SMP, the following documents have been reviewed in detail:

- Detailed Site Investigation (DSI) (Douglas Partners) – Lot 36 Abernethy Road, Oakford, March 2017 (Ref: 82453.02.R004.Rev1 Final-DSI dated March 2017);
- Targeted Groundwater Assessment (Golder Associates) - 123 Kind Road, Oakford, August 2017 (Reference: 1779954-001-R Rev1 dated August 2017); and
- Mandatory Auditors Report (MAR) (GHD) - Lot 36 Abernethy Road, Oakford, March 2017 (Reference: 61/32087 dated March 2017).

Additional reports referenced in the MAR have not been reviewed in detail during preparation of the SMP. However, we consider that summaries presented in the DSI and MAR provide adequate background information.

5. SITE CHARACTERISTICS

This section presents relevant site characteristics sourced from existing reports and available data. Relevant information was obtained from the reports referenced in Section 3.

5.1 Topography and Geology

The general area and surrounding land generally slopes towards the east. Previous supplied drawings (reference: BO-2012-01 dated 18 December 2012), indicate that surface levels of the site previously ranged from approximately RL 22 m AHD in the western portion to RL 20 m AHD in the eastern portion of the site. The previous compost pad levels ranged from between RL 22.7m AHD in the western section to RL 21.55 in the eastern section.

The Armadale 1:50 000 scale environmental geology map indicates that soils across the southern portion of the site comprise Bassendean sand over the Guildford formation of aeolian origin. This formation is characterised by fine to medium grained sand which is white to pale grey at the surface, yellow at depth, overlain by sandy clay to clayey sand of the Guildford formation. The map shows the Guildford formation in this area can range between depths of 5 – 50 m. Soils across the central and northern portion of the site are shown to comprise Peaty Sand of lacustrine origin which is characterised by grey to black, fine to medium-grained, moderately sorted quartz sand, which is slightly peaty. The map indicates that the Peaty Sand formation in this area can range between depths of 5 – 40 m.

5.2 Groundwater and Hydrology

Detailed groundwater and hydrology information is presented in the DSI prepared by Douglas Partners and is summarised below:

- The Perth Groundwater Atlas (1997) indicates that groundwater levels beneath the site range from about RL 18.1 m AHD to RL 20.6 m AHD or approximately 0.5 m to 2.0 m below the existing ground level.
- Regional groundwater contours suggest that groundwater is generally flowing in an eastern direction.
- Site specific groundwater contours suggest that groundwater is flowing in an easterly to north easterly direction.
- Analysis of major anions and cations suggest that groundwater chemistry is sodium, potassium and sulfate dominated.
- It as concluded that coffee rock present at the site does not act as a complete aquitard and therefore the shallow and deep aquifers at the site are likely to be connected.

6. DATA QUALITY OBJECTIVES

The following data quality objectives (DQOs) are considered appropriate for the project, are consistent with the processes set out in Australian Standard AS 4482.1 and the National Environmental Protection Council (NEPC) (2013) *National Environmental Protection (Assessment of Site Contamination) Measure*. These have been incorporated into the SMP as discussed throughout the remainder of this document.

6.1 The Purpose

The purpose of the SMP is to outline the sampling procedures to be adopted in determining whether groundwater at the site has been impacted by contaminants of potential concern (COPCs). Based on findings of previous groundwater investigations undertaken at the site, COPCs in groundwater are considered to include the following:

- nutrients including
  - ammonia;
  - nitrate;
  - nitrite;
  - total Kjeldahl nitrogen (TKN); and
  - total nitrogen.

- major cations including:
  - calcium;
  - magnesium;
  - potassium;
  - sodium; and
  - calcium carbonate;
- major anions including:
  - chloride;
  - sulfate;
  - alkalinity; and
  - fluoride;
- perfluoroalkyl and polyfluoroalkyl substances (PFAS) including:
  - perfluorooctane sulfonate (PFOS);
  - perfluorooctanoic acid (PFOA);
  - 6:2 Fluorotelomer sulfonate (6:2 FtS);
  - 8:2 Fluorotelomer sulfonate (8:2 FtS);
  - perfluoroheptanoic acid (PFHpA);
  - perfluorobutane sulfonate (PFBS);
  - perfluorobutanoic acid (PFBA);
  - perfluorohexanoic acid (PFHxA);
  - perfluorohexane sulfonate (PFHxS); and
  - perfluoropentanoic acid (PFPeA).

The proposed PFAS analytical suite is consistent with the DWER (2017) *Interim Guideline on the Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS).*

6.2 Outcomes

The required outcomes of this SMP are as follows:

- to ensure that the GMEs are undertaken in accordance with the relevant guidelines and standards; and
- make recommendation or further works (if required).

6.3 Decision Inputs Affecting Outcomes

There are a number of parameters that are considered to be likely to influence the outcomes of the GMEs. These parameters are considered to be as follows:

- type and distribution of contamination within groundwater across the site;
- toxicity of the chemicals of potential concern and their persistence;
- the rate of flow of groundwater from the site and the location of potential receptors;
- the identification of potential receptors and the location of sensitive environments;
- the assessment of exposure period for the potential receptors of concern; and
- Department of Water and Environmental Regulation (DWER) endorsed criteria for groundwater.

Screening criteria for the groundwater impacts to be assessed have been adopted from the following guidelines.

- National Environmental Protection Council (1999 (as updated in 2013)) *National Environmental Protection (Assessment of Site Contamination) Measure* (NEPM);
- Department of Environment Regulation (DER) (2014) *Assessment and management of contaminated sites*; and

- DWER (2017) *Interim Guideline on the Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS).*

The screening criteria is consistent with those adopted during the DSI and have been included to ensure consistency of the GME results with previous testing.

6.4 Decision Rules

The decision rules for the project will be based on an analysis of groundwater uses and potential receptors which will, in turn, lead to the selection of Tier 1 screening criteria for the site.

Assessment criteria will be will be consistent with the following guidelines:

- National Environmental Protection Council (1999 (as updated in 2013)) *National Environmental Protection (Assessment of Site Contamination) Measure* (NEPM);
- Australian and New Zealand Environment and Conservation Council (ANZECC) (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality;*
- Department of Health (DoH) (2006) *Contaminated Sites Reporting Guideline for Chemicals in Groundwater*;
- DWER, (2017) *Interim Guideline on the Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS);* and
- DoH (2017) Health based guidance values for Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS).

Groundwater quality will be assessed against the following criteria:

- non-potable use of groundwater (NPUG);
- Livestock drinking water quality (low risk) guidelines (LDWQ);
- **Drinking water (aesthetic) guidelines;**
- **Drinking water (health) guidelines;**
- **Freshwater guidelines; and**
- **Long term irrigation (LTI).**

The adopted screening criteria for groundwater COPCs are outlined in Section 7. Laboratory detection limits will be less **than the adopted criteria where possible.**

6.5 Decision Errors

The DQOs define how the quality of data collected through the various phases of investigation is to be assessed. The evaluation criteria are summarised in Table 1.

Table 1: Evaluation Criteria of Each Aspect of the GMEs

Data Quality Objective	Evaluation Criteria
Documentation and data completeness	• Site conditions accurately described. • Sampling locations accurately described. • Completion of field notes, calibration certificates, chain-of-custody documentation and laboratory test certificates. • Samples collected from all areas of potential environmental concern. • Samples are scheduled for analysis of all COPC.

Data Quality Objective	Evaluation Criteria
Data comparability	◆ Use of appropriate techniques for sampling, storage and transport of samples. ◆ Use of National Association of Testing Authorities (NATA) accredited primary and secondary laboratories
Data representativeness	◆ Collection of representative samples from each sampling location and across the site. ◆ Use of appropriate techniques for sampling, storage and transport of samples.
Precision for sampling and analysis	◆ Use of properly trained and qualified personnel. ◆ Use of duplicate and triplicate samples collected at a minimum rate of 1 in 20 (i.e. 5%). ◆ Assessment of the relative percentage difference (RPD) between primary, duplicate and triplicate samples. ◆ Acceptable recovery of laboratory matrix spikes. ◆ Acceptable quality of rinsate blanks.

6.6 Optimal Design

The sampling locations outlined in the sampling and analysis quality plan (SAQP) have been selected to target areas of the site where additional characterisation of groundwater quality is required. These locations are outlined in Section 8 below.

We note that overall, the DSI concluded that it was unlikely that groundwater at the site represents a significant risk to human health or the environment.

7. SAMPLING AND ANALYSIS QUALITY PLAN

GMEs are proposed to be undertaken annually for 2 years across the site to monitor groundwater conditions. The groundwater sampling is designed to monitor concentrations of specific groundwater COPCs previously detected in groundwater during previous investigations.

A summary of the proposed groundwater sampling locations is provided in Table 2 and shown on Figure 2. A total of 6 groundwater monitoring locations have been selected to be included in the GMEs.

Table 2: Summary of Groundwater Sampling Locations

Groundwater Monitoring Bore	Location
BH101	Hydraulically upgradient of the composting facility
BH02A	Hydraulically upgradient of the composting facility
BH03A	Immediately downgradient of the stormwater retention basin
SJS1	Located along the northern boundary of 619 Orton Road, Oakford, approximately 50 m downgradient from BH03A
BH14	Located offsite, downgradient from BH03A, the open drain and stormwater retention basin
BH105	Located offsite, approximately 350 m downgradient from the stormwater retention basin.

The number and location of the monitoring bores is considered appropriate for the purposes of the required GME.

7.1 Groundwater Sampling Methodology

7.1.1 Timing

It is proposed that GMEs will be conducted annually for a period of 2 years. The first GME is proposed to be conducted in February 2018.

7.1.2 Collection of Groundwater Samples

Groundwater samples will be collected from the groundwater wells in accordance with the following Australian Standards:

- AS/NZS 5667.1:1998 *Water Quality Sampling. Part I – Guidance on the Design of Sampling Programs, Sampling Techniques and the Preservation and Handling of Samples*;
- AS/NZS 5667.11:1998 *Water Quality Sampling. Part II – Guidance on the Sampling of Groundwater*; and
- DWER, (2017) *Interim Guideline on the Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS).*

Recovery of groundwater samples will be undertaken utilising the Geocontrol Pro Low-Flow Bladder Pump. The pump will be set at the centre of the screened interval and drawdown measured concurrently whilst pumping to ensure the pump flow rates are less than the recharge capacity of the well. An initial flow rate in the order of 0.1 – 0.5 L/min is used and adjusted as appropriate to ensure minimal drawdown (<0.1m) during purging. Plastic sheeting will be laid around each well to prevent contamination of pumps, hoses and lines with foreign material during the sampling process. New, low-density, polyethylene tubing, polyethylene bladder and nitrile, disposable gloves will be used at each monitoring location.

Groundwater gauging will be undertaken at each well using an interface probe to determine current depths to groundwater. Representative samples for laboratory analysis will be recovered after stabilisation of groundwater physio-chemical parameters is achieved. Measurements of these parameters, including temperature, pH, electrical conductivity, redox potential and dissolved oxygen, will be taken every three to five minutes using appropriately calibrated equipment. All equipment will be calibrated daily in accordance with manufacturers specifications and recorded on a Galt Environmental calibration certificate.

Stabilisation of groundwater parameters is considered to be achieved when there is less than 10% variation in physiochemical parameters between three successive readings. The groundwater stabilisation measurements will be recorded on a groundwater field data sheet. The field data sheet also records physical observations such as colour and turbidity of the purged water, any indications of the presence of contamination, including odour and sheen, the presence of any foreign material or objects, any QA/QC sampling and reference to the GPS coordinates and the unique sample identifier.

Groundwater samples will be collected directly from the low-flow pump into appropriately preserved and labelled, laboratory supplied bottles and filled to zero headspace. Samples that require field filtering will be collected using an in-line, single-use, 0.45 µm filter, connected directly to the discharge tube once all other samples have been collected.

Sampling will occur in a progression, with the up-gradient wells sampled before down-gradient wells, to reduce the risk of cross-contamination (where possible).

All samples will be stored on ice within an esky, prior to submission to the laboratory for analysis. All groundwater samples will be couriered to the laboratory at the conclusion of the field work, with adequate packing and ice to ensure that they arrive intact and at the appropriate temperature to ensure sample preservation.

Recovery of samples for PFAS, PFOA and PFOS will be collected in accordance with the DWER, (2017) *Interim Guideline on the Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS).* A separate decontamination process will also be utilised for samples collected for PFAS. Mitigation practices (as outlined within Appendix A of the DWER, (2017) *Interim Guideline on the Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)* will be considered and implemented prior to each GME.

7.1.3 Labelling

All groundwater samples collected during the investigation will be identified by a unique sample identifier. The sample identifier will be included on all groundwater sample bottles and associated paper work, including field data sheets and chain-of-custody forms. The following designation system will be used for this project:

- environmental samples are identified by the monitoring well location number from which they will be collected "GW1", "GW2" etc; and
- quality control samples, including trip blanks, field blanks, laboratory duplicates and triplicates will be labelled "QC" + # with the # differentiating the type of QC sample without the laboratory being able to readily determine the type of QC sample. The QC numbers and type of QC will be recorded on the field log.

Sample labels will be completed in indelible ink and include the following information:

- project number;
- sample identifier;
- date of sample collection (month/day/year); and
- initials of sampler.

7.2 Laboratory Analysis

Groundwater samples will be analysed by National Association of Testing Authorities (NATA) accredited laboratories (Eurofins and Envirolab) for a suite of COPC as outlined in Section 6.1. Laboratory limits of reporting (LOR) levels will be lower than the nominated criteria for all COPC.

7.3 Holding Times

Laboratory results are swiftly assessed upon their receipt, so if any samples require speciation due to exceeding the adopted guidelines, the analysis can be carried out within holding times for the relevant parameters. Holding times for each of the analytes are presented in Table 3.

Table 3: Laboratory Recommended Holding Times

Analyte	Holding Time
TRH	14 days
MAH	14 days
Heavy metals	6 months
PAH	14 days
Herbicides	14 days
PFAS	6 months

7.4 Community Consultation

Community consultation will be undertaken with the current site owners and the surrounding neighbouring land users. The surrounding land owners will be contacted prior to conducting each GME. Furthermore, representatives of the Shire of Serpentine-Jarrahdale will be contacted to facilitate access to location SJS1.

8. QUALITY ASSURANCE AND QUALITY CONTROL

Quality assurance/quality control (QA/QC) measures will be adopted during the groundwater sampling in accordance with Schedule B2 of the NEPM 2013 guideline document. QA/QC samples are necessary to ensure the precision, accuracy, representativeness, comparability and completeness of the data.

8.1 General QA/QC Testing and Analysis

The following QA/QC measures will be implemented during the investigation.

- Collection of field quality control samples including groundwater duplicate/triplicate samples (1 per 20 primary samples).
- Assessment of relative percentage difference (RPD) will be calculated for the duplicate and triplicate samples.
- Samples will be submitted to NATA-accredited laboratories for selected analysis.
- The QA/QC program will also consider internal laboratory QA/QC results. These include laboratory duplicate and blank sample results, method blanks, surrogates and matrix spikes.

8.2 Sampling QA/QC Procedures

The following measures will be implemented during the sampling program.

- Groundwater samples will be collected using a new pair of disposable nitrile gloves at each sampling location.
- Decontamination of groundwater pumps will be undertaken between each sampling location. Each piece of equipment will be sprayed with a laboratory grade detergent and rinsed with deionised water.
- All samples collected for laboratory analysis will be collected in laboratory-supplied containers.
- Collection of duplicate and triplicate groundwater samples at a rate not less than 5% of primary samples (i.e. 1 duplicate and triplicate per 20 primary samples) to verify the reproducibility of results. RPD values of generally less than 30% will be considered acceptable.
- Collection of rinsate samples from each piece of sampling equipment used each day to verify that cross-contamination of samples and contribution of potential contaminants from sampling equipment does not occur.
- One trip blank and one trip spike will be collected for each batch of samples collected.
- Field blanks groundwater will be used for each day of sampling.
- Rinsates and trip blanks should return non-detects (ND) for all COPC.
- Trip spikes should be within the acceptable rates of 70% to 130%.

8.3 Laboratory QA/QC

All laboratory analysis will be undertaken by the NATA-accredited laboratories Eurofins and Envirolab using NATA-accredited methods of analysis. Galt requires that laboratories have a QA/QC program that is endorsed by NATA. Both laboratories have a comprehensive QA/QC program to monitor and control every aspect of the laboratory process. Eurofins has an internal QA/QC process which includes laboratory control samples, method blanks, matrix spikes, laboratory duplicates and surrogates at frequencies at or above that detailed in the NEPM (2013) guidelines.

All groundwater samples will be transported under Galt chain-of-custody procedures. This process details the links in the transfer of samples between the time of collection and arrival at the laboratory. The Chain of Custody (CoC) documentation includes the name of the person transferring the samples, name of the person receiving laboratory samples, time and date the samples are taken, time and date samples are received at the laboratory, name and contact

details of the client, analytes to be determined, details of the sample matrix and any other specific instructions in the handling of the samples during the analysis.

8.4 Data Usability

An assessment of the usability of the laboratory data will be made by considering field and laboratory procedures and comparing against pre-determined qualitative criteria.

8.5 QA/QC Data Evaluation

The analytical results and quality control data are evaluated for accuracy, precision and representativeness of the data. This is compiled into a QA/QC report and checked against the DQOs specified in Section 6 to ensure that these objectives have been met.

Laboratory data is checked for any analytical errors, such as contamination identified in rinsates and laboratory blanks, which may indicate cross contamination of samples. The acceptable criteria for laboratory quality control samples are summarised in Table 4.

Table 4: Criteria for Laboratory Quality Control Samples

Quality Control Sample	Minimum Number of Samples	Acceptable Value
Duplicate	5% of samples collected	Organics/Inorganics +/- 30-50%
Triplicate	5% of samples collected	Organics/Inorganics +/- 30-50%
Method blank	5% of samples or per batch if < 20	Non-detect
Laboratory control spike	5% of samples or per batch if < 20	70%-130%
Matrix spike	5% of samples or per batch if < 20	70%-130%

The RPD results and actual concentrations will be reviewed to determine the acceptability of the data. RPD results can be separated dependent upon the range into the following.

- Pass with a range <= 20% RPD.
- Pass-1 with a range >20% RPD or an analysis result <10 times LOR.
- Pass-2 with a range <50% RPD or and analysis result >10 and <20 times LOR.

9. REGULATORY ASSESSMENT CRITERIA

Beneficial uses of the sites groundwater is likely for livestock drinking water, non-potable uses and short-term irrigation with the following criteria for the assessment of groundwater contamination, adopted from the following documents:

- National Environmental Protection Council (NEPC) (2013) *National Environmental Protection (Assessment of Site Contamination) Measure* (NEPM);
- Australian and New Zealand Environment and Conservation Council (ANZECC) (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality;*
- Department of Health (DoH) (2006) *Contaminated Sites Reporting Guideline for Chemicals in Groundwater*; and
- DWER, (2017) *Interim Guideline on the Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS).*

Groundwater will be assessed against the following:

- non-potable use of groundwater (NPUG);

- Livestock drinking water quality (low risk) guidelines (LDWQ);
- Drinking water (aesthetic) guidelines;
- Drinking water (health) guidelines;
- Freshwater guidelines; and
- Long term irrigation (LTI).

Groundwater assessment criteria are outlined in Table 5.

Table 5: Groundwater Assessment Criteria

Chemical	Livestock Drinking Water (mg/L)	Freshwater Guidelines (mg/L)	Drinking Water (health) (mg/L)	Drinking) Water (aesthetic) (mg/L)	Non-potable use of groundwater (mg/L)	Long Term Irrigation (mg/L)
Inorganics						
Ammonia (as NH_3)	-	-	-	-	0.5	-
Nitrate (as NO_3)	-	-	50	-	500	-
Nitrite (as NO_2)	-	-	3	-	30	-
Nitrogen	-	-	-	-	-	-
Phosphorus (as P)	-	-	-	-	-	0.05
Total Kjeldahl Nitrogen	-	-		0.4		
Biological oxygen demand	-	-	-	-	-	-
Chemical oxygen demand	-	-	-	-	-	-
Total organic carbon	-	-	-	-	-	-
Hardness	-	-	-	-	-	-
Sulfate (as SO_4)	1000	-	500	250	1000	-
Sodium	-	-	-	-	-	-
Potassium	-	-	-	-	-	-
Calcium	1000	-	-	-	-	-
Magnesium	-	-	-	-	-	-
Chloride	-	-	-	250	250	
Bicarbonate alkalinity	-	-	500	-	-	-
Carbonate alkalinity	-	-	-	-	-	-
Hydroxide alkalinity	-	-	-	-	-	-
PFAS						
PFOS/PFHxS	-	$2.3x10^{-7}$	0.0005	-	0.005	-
PFOA	-	0.019	0.005	-	0.05	-

* Note: Taken from guidance for wetlands in south-west Australia

Groundwater health screening levels (HSLs) have been adopted from the NEPM (2013) guideline document with HSL-A (low density residential) considered the most appropriate.

10. REPORTING

The results of the GME will be presented in a factual report prepared with reference to DWER and NEPM guidelines. The report will be provided to DWER via Bio-Organics for advice and comment.

11. CLOSURE

We draw your attention to Appendix A of this report, "Understanding Your Report". The information provided within is intended to inform you as to what your realistic expectations of this report should be. This information is provided not to reduce the level of responsibility accepted by Galt, but to ensure that all parties who rely on this report are aware of the responsibilities each assumes in so doing.

We trust this information meets your needs at this time. If you require further information, please do not hesitate to contact the undersigned on (08) 6272 0200.

GALT ENVIRONMENTAL PTY LTD

[redacted]

Brad Palmer

Environmental Scientist

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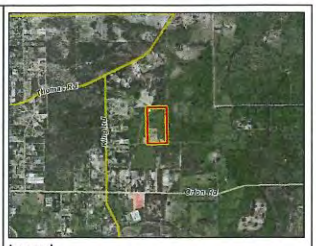
Figures



Legend

- Site Boundary
- Groundwater Monitoring Well

N

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Meters

SCALE	1:3,750 (A3)
DRAWN	CED
DATE DRAWN	6/02/2018
CHECKED	-
DATE CHECKED	-
PROJECTION	GDA 1994 MGA Zone 50

Galt Environmental Pty Ltd
ACN : 161 758 998
Tel : +61 (0)8 6272-0200
Address: 50 Edward Street
Osborne Park WA 6017

CLIENT	BIO-ORGANICS
PROJECT	SITE MANAGEMENT PLANQ
LOCATION	LOT 36 ABERNETHY ROAD OAKFORD
TITLE	PROPOSED GROUNDWATER MONITORING

Job No	Fig No	Rev
J1702032	FIGURE 2	A

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Site Boundary

N

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Meters

SCALE	1:2,500 (A3)
DRAWN	CED
DATE DRAWN	2/02/2018
CHECKED	-
DATE CHECKED	-
PROJECTION	GDA 1994 MGA Zone 50

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CLIENT	BIO-ORGANICS
PROJECT	SITE MANAGEMENT PLANQ
LOCATION	LOT 36 ABERNETHY ROAD OAKFORD
TITLE	SITE & LOCATION PLAN
Job No	J1702032
Fig No	FIGURE 1
Rev	A

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Appendix A Understanding Your Report

UNDERSTANDING YOUR REPORT

GALT FORM PMP29 Rev3

1. EXPECTATIONS OF THE REPORT

This document has been prepared to clarify what is and is not provided in your report. It is intended to inform you of what your realistic expectations of this report should be and how to manage your risks associated with the conditions on site.

Geotechnical engineering and environmental science are less exact than other engineering and scientific disciplines. We include this information to help you understand where our responsibilities begin and end. You should read and understand this information. Please contact us if you do not understand the report or this explanation. We have extensive experience in a wide variety of projects and we can help you to manage your risk.

2. THIS REPORT RELATES TO PROJECT-SPECIFIC CONDITIONS

This report was developed for a unique set of project-specific conditions to meet the needs of the nominated client. It took into account the following:

- the project objectives as we understood them and as described in this report;
- the specific site mentioned in this report; and
- the current and proposed development at the site.

It should not be used for any purpose other than that indicated in the report. You should not rely on this report if any of the following conditions apply:

- the report was not written for you;
- the report was not written for the site specific to your development;
- the report was not written for your project (including a development at the correct site but other than that listed in the report); or
- the report was written before significant changes occurred at the site (such as a development or a change in ground conditions).

You should always inform us of changes in the proposed project (including minor changes) and request an assessment of their impact.

Where we are not informed of developments relevant to your report, we cannot be held responsible or liable for problems that may arise as a consequence.

Where design is to be carried out by others using information provided by us, we recommend that we be involved in the design process by being engaged for consultation with other members of the project team. Furthermore, we recommend that we be able to review work produced by other members of the project team that relies on information provided in our report.

3. SOIL LOGS

Our reports often include logs of intrusive and non-intrusive investigation techniques. These logs are based on our interpretation of field data and laboratory results. The logs should only be read in conjunction with the report they were issued with and should not be re-drawn for inclusion in other documents not prepared by us.

4. THIRD PARTY RELIANCE

We have prepared this report for use by the client. This report must be regarded as confidential to the client and the client's professional advisors. We do not accept any responsibility for contents of this document from any party other than the nominated client. We take no responsibility for any damages suffered by a third party because of any decisions or actions they may make based on this report. Any reliance or decisions made by a third party based on this report are the responsibility of the third party and not of us.

5. CHANGE IN SUBSURFACE CONDITIONS

The recommendations in this report are based on the ground conditions that existed at the time when the study was undertaken. Changes in ground conditions can occur in numerous ways including anthropogenic events (such as construction or contaminating activities on or adjacent to the site) or natural events (such as floods, groundwater fluctuations or earthquakes). We should be consulted prior to use of this report so that we can comment on its reliability. It is important to note that where ground conditions have changed, additional sampling, testing or analysis may be required to fully assess the changed conditions.

6. SUBSURFACE CONDITIONS DURING CONSTRUCTION

Practical constraints mean that we cannot know every minute detail about the subsurface conditions at a particular site. We use professional judgement to form an opinion about the subsurface conditions at the site. Some variation to our evaluated conditions is likely and significant variation is possible. Accordingly, our report should not be considered as final as it is developed from professional judgement and opinion.

The most effective means of dealing with unanticipated ground conditions is to engage us for construction support. We can only finalise our recommendations by observing actual subsurface conditions encountered during construction. We cannot accept liability for a report's recommendations if we cannot observe construction.

7. ENVIRONMENTAL AND GEOTECHNICAL ISSUES

Unless specifically mentioned otherwise in our report, environmental considerations are not addressed in geotechnical reports. Similarly, geotechnical issues are not addressed in environmental reports. The investigation techniques used for geotechnical investigations can differ from those used for environmental investigations. It is the client's responsibility to satisfy themselves that geotechnical and environmental considerations have been taken into account for the site.

Geotechnical advice presented in a Galt Environmental report has been provided by Galt Geotechnics under a sub-contract agreement. Similarly, environmental advice presented in a Galt Geotechnics report has been provided by Galt Environmental under a sub-contract agreement.

Unless specifically noted otherwise, no parties shall draw any inferences about the applicability of the Western Australian state government landfill levy from the contents of this document.

APPENDIX 3

CHANGES TO BE MADE TO THE GALT SMP

1. The methods for PFAS sampling in the SMP must meet the standards specified in the PFAS NEMP.

    (a) The SMP is to provide specific details as to how PFAS sampling will be carried out to avoid cross-contamination.

    (b) Detergent is not to be used during PFAS sampling.

    (c) A frequency of one in 10 quality control samples is to be used for PFAS sampling.

2. Table 5 of the SMP shown in Appendix 2 is to be updated. The health and ecological assessment levels used for risk assessment for PFAS are to be the health-based guidance values and the 99% species protection levels for freshwater aquatic ecosystems published in section 8 of the PFAS NEMP.

3. The following substances are to be included in laboratory analysis, in addition to the substances listed in section 6.1 of the SMP in Appendix 2:

    i. Perfluorohexanoic acid (PFHxA)
    ii. Perfluoropentane sulfonic acid (PFPeS)
    iii. Total dissolved solids
    iv. Arsenic
    v. Cadmium
    vi. Chromium (total)
    vii. Copper
    viii. Lead
    ix. Nickel
    x. Zinc
    xi. Iron
    xii. Aluminium
    xiii. Bicarbonate

4. Groundwater sampling is also to include bore BH101D, as shown in Schedule 2.