



Department of
**Environment and
Heritage Protection**

2 October 2015

To: Veolia Water Australia Pty Ltd
C/- PO Box 10819
BRISBANE ADELAIDE STREET QLD 4000

Email: carlos.vargas@veolia.com

Attention: Mr Carlos Vargas

Your reference: EPAN01460013
Our reference: 405349

Application details

I refer to your amendment application that was received by the administering authority on 21-AUG-2015.

Land description: 189 Main Beach Road PINKENBA 4008 Lot 2 Plan SP229518, Lot 3 Plan SP229518, Lot 1 Plan SP229518; 7 River Road Bundamba QLD 4304 Lot 143 Plan SP153068; 188 Paringa Road Murarrie 4172 Lot 40 Plan SP227024, Lot 5 Plan CP AP5151, Lot 41 Plan SP227024; Gibson Island Water Treatment Plant Lot 40 Plan SP227024, Lot 41 Plan SP227024.

Decision

Your application has been approved and your environmental authority (reference EPAN01460013) is attached.

Amanda Gray
Government Organisations and Utilities
Assessment
Department of Environment and
Heritage Protection
GPO Box 2454
BRISBANE QLD 4001
Phone: 1300 130 372
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ABN 46 640 294 485

Should you have any further enquiries, please contact Amanda Gray on telephone 1300 130 372.

Yours sincerely

	Prejudice the protection of an individuals right	02 / 10 / 15
	Signature	Date

Willian Inonda
Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

Enclosed

Permit - environmental authority (reference EPAN01460013)

Permit¹

Environmental Protection Act 1994

EPAN01460013

Environmental authority

This environmental authority is issued by the administering authority under Chapter 5 of the Environmental Protection Act 1994.

Permit¹ number: EPAN01460013

Environmental authority takes effect 2 October 2015

The anniversary date of this environmental authority is 1 November.

Environmental authority holder(s)

Name	Registered address
Veolia Water Australia Pty Ltd	The Company Secretary Level 4, Bay Centre, 65 Pirrama Road PYRMONT NSW 2009

Environmentally relevant activity and location details

Environmentally relevant activity(ies)	Location(s)	Relevant Site
64-(4b) Water treatment >5ML water day advanced 8-(4) Chemical storage >200t solids or gases 8-(5) Chemical storage >200m3 liquids	188 Paringa Road Murarrie 4172 - Lot 40 Plan SP227024, Lot 5 Plan CP AP5151 and Lot 41 Plan SP227024	188 Paringa Road Murarrie 4172 Gibson Island Water Treatment
63-(2) Sewage treatment - pumping station (1)(b)		189 Main Beach Road, PINKENBA 4008
64-(4b) Water treatment >5ML water day advanced 63-(2) Sewage treatment - pumping station (1)(b) 8-(5) Chemical storage >200m3 liquids	189 Main Beach Road PINKENBA 4008 - Lot 2 Plan SP229518 and Lot 3 Plan SP229518 and Lot 1 Plan SP229518	Luggage Point Advanced Water Treatment Plant (EPPR00699313)

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation

64-(4b) Water treatment >5ML water day advanced 8-(5) Chemical storage >200m3 liquids	7 River Road Bundamba QLD 4304 - Lot 143 Plan SP153068	7 River Road Bundamba QLD 4304 Bundamba Water Advanced Treatment Plant (EPPR00347813)
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Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority is issued is a restatement of the ERA as defined by legislation at the time the approval is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an environmental authority as to the scale, intensity or manner of carrying out an ERA, then the conditions prevail to the extent of the inconsistency.

An environmental authority authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the authority specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

Contaminated land

It is a requirement of the EP Act that if an owner or occupier of land becomes aware a notifiable activity (as defined in Schedule 3 and Schedule 4) is being carried out on the land, or that the land has been, or is being, contaminated by a hazardous contaminant, the owner or occupier must, within 22 business days after becoming so aware, give written notice to the chief executive.

3(3) Prejudice the protection of an individuals right to p

Signature

02/10/15

Date

William Inonda
Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Amanda Gray
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Assessment
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Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Conditions of environmental authority

Site Specific

Locations: 188 Paringa Road Murarrie 4172 - Lot 40 Plan SP227024, Lot 5 Plan CP AP5151 and Lot 41 Plan SP227024

189 Main Beach Road PINKENBA 4008 - Lot 2 Plan SP229518 and Lot 3 Plan SP229518 and Lot 1 Plan SP229518

7 River Road Bundamba Q D 4304 - Lot 143 Plan SP153068

Relevant activity/ies: 64-(4b) Water treatment >5ML water day advanced

8-(4) Chemical storage >200t solids or gases

8-(5) Chemical storage >200m3 liquids

The environmentally relevant activity(ies) conducted at the location as described above must be conducted in accordance with the following site specific conditions of approval.

Department Interest: General

Prevent and/or minimise likelihood of environmental harm

General 1: In carrying out an ERA to which this environmental authority relates, all reasonable and practicable measures must be taken to prevent and/or to minimise the likelihood of environmental harm being caused.

Maintenance of Measures, Plant and Equipment

General 2: The person undertaking the activity to which this environmental authority relates must do all of the following —

- (a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;
- (b) maintain such measures, plant and equipment in a proper and efficient condition; and
- (c) operate such measures, plant and equipment in a proper and efficient manner.

Alterations

General 3: The person undertaking the activity to which this environmental authority relates must not do either or both of the following —

- (a) change the diffuser configuration;
- (b) make any change that would result in a reduction of the nutrient removal measured as a percentage of nutrient content from raw water.

Records

General 4: All information and records that are required by the conditions of this environmental authority must be kept for a period of at least 5 years and provided to the **administering authority** upon request.

Copy of environmental authority must be kept at approved place

General 5: The person undertaking the activity to which this environmental authority relates must keep a copy of this environmental authority in hardcopy format at the approved place.

Annual Monitoring Report

General 6: The person undertaking the activity to which this environmental authority relates must prepare an annual monitoring report that includes the following information, and give or send the report to the administering authority within 28 days after the anniversary day for the environmental authority under which the activity is undertaken—

- (a) a summary of the previous twelve (12) months monitoring results obtained in accordance with any of the monitoring requirements of this environmental authority and, in graphical form showing relevant limits, a comparison of the previous twelve (12) months monitoring results to both the limits specified in this environmental authority and to relevant prior results;
- (b) an evaluation and explanation of the data from any monitoring programs;
- (c) a summary of any record of quantities of releases required to be kept under this environmental authority;
- (d) a summary of the record of equipment failures or events recorded for any site to which this environmental authority relates; and
- (e) an outline of actions taken or proposed to minimise the environmental risk from any deficiency identified by the monitoring or recording programs.

Site Based Management Plan

General 7: The person undertaking the activity to which this environmental authority relates must keep and implement a site-based management plan (SBMP) that provides for the management of the actual and potential environmental impacts resulting from the carrying out of the activity to which this environmental authority relates, and includes the following —

- (a) the functions and responsibilities of person's engaged in the activity (either by name or position) at the approved place;
- (b) day-to-day procedures for the management of the activity specifically with respect to the management of aspects of the activity that cause, or may cause, a release of contaminants to the environment (including where the release is authorised under this environmental authority);
- (c) the processes and procedures for manual handling and storage of chemicals used in the activity to which this environmental authority relates;
- (d) obligations for monitoring the operation and performance of plant or equipment associated with the activity, and reporting particular non-compliance to the administering authority under a condition of this environmental authority or otherwise in accordance with any legally imposed duty to notify¹ (however described) under the *Environmental Protection Act 1994*;
- (e) describes training requirements for all persons engaged in the activity, including general environmental awareness, incident response, reporting and emergency procedures;
- (f) the location and instruction for the operation and maintenance of all equipment used for clean-up of any spillages;
- (g) the location of all designated discharge points where wastes are released from the activity site to the environment, or any other infrastructure designed to capture any spillage or discharges to land at the approved place, and describing maintenance and operation procedures for that infrastructure;
- (h) investigation and response protocols to be utilised by persons engaged in the activity in response to any emergency, incident or event (including non-compliance events), the circumstances in which those protocols are to be applied, and describing escalation criteria for such events;
- (i) the sampling and analysis regimes under the conditions of this environmental authority, identifies the person(s) responsible for taking compliance samples, and describes alternative sampling protocols where it is not practicable to take such samples at the prescribed sampling times (e.g. when the plant is not operating at the time a sample is required to be taken);
- (j) procedures for dealing with any abnormal situation or operation of the infrastructure used in the activity to which this environmental authority relates (including any release of contaminants to the environment or any situation or event that indicates non-compliance with the conditions of this environmental authority has occurred or may occur); and

¹ At the date of approval, see s. 320 of the *Environmental Protection Act 1994* (Duty to notify) for the obligations to notify the administering authority of particular events that cause, or may cause, unlawful serious or material environmental harm.

- (k) response procedures for employees undertaking the activity arising from any emergency, incident or event (including any abnormal operating condition or circumstance observed or recorded in connection with the activity), including any protocols for the investigation of non-compliance events (e.g. investigating whether any environmental harm has occurred as a result of a non-compliance event, taking into account the nature and severity of the event).

General 8: The person undertaking the activity to which this environmental authority relates must review the SBMP annually to ensure that it remains current, is consistent with the conditions of this environmental authority, and reflects contemporary practice at the approved place, and a record of the review kept at the approved place.

General 9: The person undertaking the activity to which this environmental authority relates must give the administering authority a copy of the SBMP, as amended from time to time, within 14 days after any amendments being made to the SBMP².

General 10: The person undertaking the activity to which this environmental authority relates must ensure the SBMP is kept in hardcopy format at the approved place.

Recording details of specified events or incidents

General 11: The person undertaking the activity to which this environmental authority relates must record details of the following events —

- (a) the time, date and duration of equipment malfunctions where the failure of the equipment results in the release of contaminants which causes, or are reasonably likely to cause, environmental harm; and
- (b) any release of contaminants that exceeds, or is likely to exceed, the limits or trigger values detailed in all tables in Schedule 2 and 3.

Notification of certain releases or events to be supplied to the administering authority

General 12: The person undertaking the activity to which this environmental authority relates must notify the administering authority within twenty-four (24) hours of becoming aware of any event where environmental harm is caused or threatened, or any release of contaminants to air or waters that occurs otherwise than in accordance with the conditions of this environmental authority, unless one or more of the following applies —

- (a) the administering authority has been given notice of the release or event under any statutorily imposed duty to notify under the *Environmental Protection Act 1994*;
- (b) the release or event is done in compliance with an emergency direction or a statutory notice or obligation given or issued to the person under the *Environmental Protection Act 1994*;
- (c) the administering authority waives, in writing, the requirement to give such notification for the specific release or event, or provides a general written exemption^{3,4} for giving such notification for releases or events of the class of events into which the release or event falls.

² Note: This requirement may be satisfied by giving the administering authority a copy of the SBMP in electronic format.

³ Any exemption under this condition may be amended or withdrawn by the administering authority at any time.

⁴ To remove any doubt, section 76 of the *Justices Act 1899* (Proof of negative etc.) applies to an exemption under this condition.

General 13: If the person undertaking the activity to which this environmental authority relates must give notification to the administering authority under condition General 12, the notification must include the following information —

- (a) the name and telephone number of a designated contact person, who is able to talk with the administering authority on behalf of the operator, in relation to the event or release;
- (b) the location of the release or event, including a physical address and lot on plan description (if available) and any other information necessary to identify the specific location of the event or release;
- (c) the time of the release or event;
- (d) the time the person undertaking the activity to which this environmental authority relates became aware of the event or release; and
- (e) if the event or release involves a chemical — the name of the chemical (including its molecular formula) and any known information about the chemical including its known environmental toxicity.

Please Note: The Pollution Hotline (1300 130 372) is the most appropriate contact for pollution incidents.

General 14: If the person undertaking the activity to which this environmental authority relates is required under condition General 12 to notify the administering authority of a release or event, the person must, within 14 days, give the administering authority a written notice that includes the following information —

- (a) the name of the person undertaking the activity to which this environmental authority relates, including the environmental authority number;
- (b) the information included in the notification supplied under condition General 12, including any updates or changes to that information of which the person has become aware as a result of any incident response or investigation;
- (c) if the event or release involved a chemical — a material safety data sheet (MSDS) for the chemical;
- (d) a description of any observed effects on the environment of the release or event, and any anticipated long-term impacts;
- (e) the suspected cause of the release or event;
- (f) the results of any environmental sampling performed in relation to the release or event;
- (g) actions taken to mitigate any environmental harm (including environmental nuisance) caused by the release or event;
- (h) proposed actions to prevent a recurrence of the release or event;
- (i) that the written advice is submitted under a condition of an environmental authority⁵; and
- (j) a tabulated summary of similar event(s) over the preceding 24 months, identifying:

⁵ This statement differentiates a notification made under a condition of this approval and a notification made under a statutorily imposed duty under the *Environmental Protection Act 1994*.

- i. the cause for the preceding event(s);
- ii. any common infrastructure between the preceding event and the release or event about which the written advice is being submitted; and
- iii. any corrective actions taken to prevent recurrence of the preceding event(s) at the relevant time.

Monitoring.

General 15: An appropriately qualified person(s) must monitor, interpret and record all quality indicators in the manner provided, under:

Table 1: Noise limits,

Table 2: Wastewater release limits (Gibson Island),

Table 3: Wastewater release trigger limits (Gibson Island),

Table 4: Wastewater release limits (Luggage Point),

Table 5: Wastewater release trigger limits (Luggage Point);

Table 6: Wastewater release limits (Bundamba), and

Table 7: Wastewater release trigger limits (Bundamba) and

Table 8: Release limits from chemical unloading and storage areas.

General 16: All monitoring in this environmental authority must be undertaken in accordance with the latest version of the administering authority's Noise Measurement Manual, Air Quality Sampling Manual and Water Sampling Manual when an applicable parameter is being monitored.

General 17: The person undertaking the activity to which this environmental authority relates must ensure that all samples taken for the purpose of measuring compliance with this environmental authority are representative of the discharge.

Equipment calibration

General 18: All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this environmental authority must be calibrated, and appropriately operated and maintained.

Sample Analysis

General 19: All analyses and tests required to be conducted under this environmental authority must be carried out by a laboratory that has NATA certification for such analyses and tests, except as otherwise authorised by the administering authority.

Trained/Experienced Operator(s)

General 20: The operation of the Advanced Water Treatment Plant (AWTP) and associated pollution control equipment must be carried out by an appropriately qualified person.

General 21: All activities associated with the activity to which this environmental authority relates, including the release of ROC to waters, must be undertaken in a manner which prevents any adverse impacts to riparian vegetation located in or adjacent to any waters.

Provision of Spill Kits

General 22: An appropriate spill kit, personal protective equipment and relevant operator instructions/emergency procedure guides for the management of wastes and chemicals associated with the activities to which this environmental authority relates must be kept at the site.

General 23: Anyone operating under this environmental authority must be trained in the use of the spill kit.

Implementing environmental protection commitments in application documents

General 24: Environmental protection measures and commitments mentioned in the application documents listed in Schedule 1 of this environmental authority must be implemented, to the extent that they are not inconsistent with the conditions of this environmental authority. In the event of any inconsistency between measures and commitments in those documents and the environmental authority conditions, the conditions must prevail.

Department Interest: Air

Nuisance caused by noxious or offensive odours or airborne contaminants prohibited

Air 1: The release of noxious or offensive odours, or any other noxious or offensive airborne contaminants resulting from the activity to which this environmental authority relates, must not cause a nuisance at any nuisance sensitive or commercial place.

Nuisance caused by emission of dust or particulate matter prohibited

Air 2: The release of dust and/or particulate matter resulting from the activity to which this environmental authority relates must not cause an environmental nuisance at any nuisance sensitive or commercial place.

Air 3: When requested by the administering authority, dust and particulate monitoring must be undertaken to investigate any complaint of environmental nuisance caused by dust and/or particulate matter, and the results notified to the administering authority within fourteen (14) days of completion of the monitoring. Monitoring must be carried out at a place or places relevant to the potentially affected dust sensitive place and at upwind control sites and must include:

- (a) For a complaint alleging dust nuisance, dust deposition; and
- (b) For a complaint alleging adverse health effects caused by dust, the concentration per cubic metre of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM_{10}) suspended in the atmosphere over a 24-hour averaging time.

Reasonable adjustment of practices, procedures or infrastructure for resolving nuisance complaints

Air 4: The person undertaking the activity to which this environmental authority relates must investigate, or commission the investigation of, any complaints of nuisance caused by noxious or offensive odours and, if those complaints are validated, make reasonable adjustments to processes or equipment to prevent a recurrence of odour nuisance⁶.

⁶ See the *Environmental Protection Act 1994*, s. 319 (General environmental duty), for matters that should be considered in determining whether a change is reasonable and practicable in the circumstances.

Monitoring obligations in respect to air quality

Air 5: The person undertaking the activity to which this environmental authority relates must, if directed in writing by the administering authority, undertake or commission the undertaking of odour monitoring for contaminants released from the approved place at the site and other locations relevant to ascertaining the odour at affected premises.

Department Interest: Land

Land 1: A person must not cause or permit the release of contaminants to land.

Land 2: Storage of chemicals and fuels in bulk or in containers of greater than 15 litres must be within a secondary containment system and releases from the containment system controlled in a manner that prevents environmental harm.

Particular requirements for works that impact, or may impact, on acid sulphate soils

Land 3: Treatment and management of acid sulfate soils must comply with the latest edition of the administering authority's manual *Instructions for the treatment and management of acid sulfate soils 2001*.

Department Interest: Noise

Noise limits and monitoring

Noise 1: All noise from operation of the AWTP must not exceed the levels specified in the Table 1: Noise Limits at any nuisance sensitive or commercial place.

Table 1: Noise limits

Time period	Noise level at a 'Noise sensitive place' measured as the Adjusted Maximum Sound Pressure Level $L_{A, \max \text{ adj } T}$
7am - 6pm	45 dB(A) or background noise level plus 5 dB(A), whichever is the greatest
6pm - 10pm	45 dB(A) or background noise level plus 5 dB(A), whichever is the greatest
10pm - 7am	40 dB(A) or background noise level plus 3 dB(A), whichever is the greatest
Time period	Noise level at a 'Commercial place' measured as the Adjusted Maximum Sound Pressure Level $L_{A, \max \text{ adj } T}$
7am - 6pm	50 dB(A) or background noise level plus 10 dB(A), whichever is the greatest
6pm - 10pm	50 dB(A) or background noise level plus 10 dB(A), whichever is the greatest
10pm - 7am	45 dB(A) or background noise level plus 8 dB(A), whichever is the greatest

Administering authority may require noise monitoring to be undertaken

- Noise 2** You must:
- a) carry out a noise assessment to investigate a complaint of noise nuisance when requested by the administering authority;
 - b) commence the noise monitoring within 48 hours of receiving the request from the administering authority; and
 - c) provide the results of the noise monitoring to the administering authority within 14 days of completing the noise monitoring.
- Monitoring must include:
- i. LA eq, adj-T
 - ii. ambient and background noise levels;
 - iii. the level and frequency of occurrence of impulsive or tonal noise;
 - iv. atmospheric conditions including wind speed and direction;
 - v. effects due to extraneous factors such as traffic noise; and
 - vi. location, date and time of recording.

Noise 3 For the purposes of condition N2, the measurement duration, T, must be determined by an appropriately qualified person, so as to adequately represent and validate the data.

Note: The minimum value for T must be:-

- a) 15 minutes for continuous noises
- b) 1 hour for intermittent noises.

Reasonable adjustment of practices, procedures or infrastructure for resolving nuisance complaints

Noise 4: The person undertaking the activity to which this environmental authority relates must investigate, or commission the investigation of, any complaints of nuisance caused by noise and, if those complaints are validated, make reasonable adjustments to processes or equipment to prevent a recurrence of any noise nuisance⁷.

Department Interest: Waste

- Waste 1:** Waste generated in the carrying out of the activities must be stored, handled and transferred in a way so as to prevent spillage or contamination of land or waters.
- Waste 2:** Waste must only be removed from the site by a transporter lawfully able to transport it to a place lawfully able to receive it.

Department Interest: Water

PART 1: Restrictions on the release of contaminants to waters

Release of contaminants to waters prohibited unless expressly permitted by a condition of environmental authority

⁷ See the *Environmental Protection Act 1994*, s. 319 (General environmental duty), for matters that should be considered in determining whether a change is reasonable and practicable in the circumstances.

Water 1: Unless expressly permitted by conditions Water 2, Water 33-35, Water 37-39 and Water 40-42 of this environmental authority, and subject to any restriction or proviso stated in those conditions, a person must not cause or permit contaminants to be released to waters (including ground water).

De-chlorination of PRW prior to release

Water 2: The person undertaking the activity to which this environmental authority relates must not cause or permit the release of PRW through the discharge points measured at the locations listed below, either directly or as a component of wastewater, if the concentration of total chlorine in the PRW exceeds the relevant release limit:

- Monitoring point S1 – Discharge Monitoring Point (E 81353, N 47745), refer plan BUN1B-C-SK-5525-70 attached to this environmental authority
 - **Release limit 0.1 mg/L**
- Discharge Monitoring Point A (E 511614.900, N 6965043.190) and Discharge Monitoring Point B (E 511709.800, N 6964969.267) refer plan GIBS-D-SK-5519-01 attached to this environmental authority
 - **Release limit 0.3 mg/L**
- Monitoring point S2 – Product Water Monitoring Point (E 514 585, N 697089), refer plan LUGG-D-DR-5500-23 attached to this environmental authority.
 - **Release limit 0.6 mg/L**

Monitoring of PRW and/or Potable Water used during the hibernation state of the Western Corridor Network

Water 3: The person undertaking the activity to which this environmental authority relates must not cause or permit the release of PRW and/or Potable Water used during the hibernation state for the Western Corridor Network through the discharge points measured at the locations listed below, either directly or as a component of wastewater, if the concentration of total chlorine and pH in the waters exceed the relevant release limits:

- Monitoring point S1 – Discharge Monitoring Point (E 81353, N 47745), refer plan BUN1B-C-SK-5525-70 attached to this environmental authority
- Discharge Monitoring Point B (E 511709.800, N 6964969.267) refer plan GIBS-D-SK-5519-01 attached to this environmental authority
- Monitoring point S2 – Discharge Monitoring Point (E 514 585, N 697089), refer plan LUGG-D-DR-5500-23 attached to this environmental authority.
 - **Total Chlorine Release limit 0.5mg/L**
 - **pH Range 6.5 - 9.0**

PART 2: General monitoring and reporting requirements

General design criteria and performance of advanced water treatment plant

Water 4: If no discharge of wastewater is occurring at the scheduled sampling time, the person undertaking the activity to which this environmental authority relates must take the sample at the time when the discharge of wastewater recommences.

Water 5: The person undertaking the activity to which this environmental authority relates must visually observe the surface of the water immediately above the discharge point while discharge of wastewater is occurring at least once a month to ensure that condition Water 1 is being complied with.

Contaminant releases from bunded areas

Water 6: Contaminants must not be directly or indirectly released from any sources of the approved places to any waters at any location other than the contaminants and sources at the location(s) listed below:

- Release points listed in Table 8: Release limits from chemical unloading and storage areas.

Water 7: The release of contaminants from chemical storage and unloading areas to waters from the release points, at the sampling and in situ monitoring points specified in Table 8, must comply with each of the limits specified in Table 8 for each quality characteristic.

Water 8: If the wastewater does not meet the release limits specified in Table 8, it may only be disposed of to sewer with the environmental authority of the relevant government authority in a trade waste environmental authority or be disposed of at an authorised facility.

Calculation of aggregate daily, monthly and annual mass loads of particular contaminants

Water 9: The person undertaking the activity to which this environmental authority relates must calculate, and record, the following details —

- (a) for intake waters — the aggregate daily load (in kilograms) of total Nitrogen, total Phosphorous and Ammonia (each a 'relevant contaminant') for all intake works;
- (b) for all wastewater — the aggregate monthly and annual mass loads of each relevant contaminant released to waters from all discharge points;

Note: For this condition —

- *the daily load in wastewaters = release concentration for each contaminant (mg/L) × discharge volume (ML/day);*
- *the daily load in intake waters (kg) = intake concentration for each contaminant (mg/L) × intake volume (ML/day);*
- *the monthly mass load of each relevant contaminant means the sum total daily mass loads for each calendar month; and*
- *the annual mass load of each relevant contaminant means the sum total daily mass load for each calendar year.*

Water 10: For applying condition Water 9, if the concentration of each relevant contaminant is not measured on the day corresponding to the discharge event, the concentration can be calculated using concentration data derived at the last scheduled sampling time.

Water 11: Records made under condition Water 9 must be submitted to the administering authority within 28 days after the anniversary day for the environmental authority under which the activity is undertaken.

PART 3 – Direct toxicity assessment

Design and procedures for undertaking direct toxicity assessment if required under this environmental authority

Water 12: If the person undertaking the activity to which this environmental authority relates is required to undertake a DTA under a condition of this environmental authority, the DTA must be designed and conducted so as to determine, with reference to the latest available diffuser dilution profiles for 'worst case' mixing conditions, the number of dilutions of ROC effluent required where the concentrations of toxicants would cease to demonstrate observable:

- acute toxicity, and the distance from the discharge point at which that level of dilution would be achieved, thereby identifying the extent of the "acute toxicity zone" under both worst and average case mixing conditions, and
- chronic toxicity, and the distance from the discharge point at which that level of dilution would be achieved, thereby identifying the extent of the "chronic toxicity zone" under both worst and average case mixing conditions.

Water 13: The person undertaking the activity to which this environmental authority relates must ensure a DTA is designed and conducted with the following minimum requirements —

- (a) specify the appropriate organisms to be utilised in DTA testing in accordance with Section 8.3.6.8 of the ANZECC/ARMCANZ Guidelines (2000) (or the relevant section(s) in subsequent editions) to provide an indication of acute and chronic toxic effects likely to occur in the receiving waters, taking into consideration locally-occurring species⁸ wherever possible and the nature of any change(s) being investigated;
- (b) describe the basis for selection and characterisation of receiving environment water used as the diluent (dilution water) of the effluent (test water) in DTA bioassays;
- (c) characterise the current ROC wastewater stream (i.e. provide analysis results of the potential toxicants likely to be present as per Schedule 2, including screening level analysis for pesticides);
- (d) indicate that DTA testing is being conducted on test water representative of end-of-pipe ROC wastewater as discharged;
- (e) identify the end points for each of the bioassays used in the DTA;
- (f) describe the quality assurance and quality control measures undertaken for the collection, preservation, storage, transport and chain-of-custody records of wastewater and receiving water samples, and DTA test procedures; and

⁸ Where locally occurring species cannot be sourced for DTA, substitute species are acceptable.

- (g) provide Toxicity Identification Evaluation (TIE) procedures as undertaken in situations where the administering authority requires such an evaluation.

Water 14: The DTA must be designed and performed by a suitably qualified person.

Results of DTA to be provided to the administering authority

Water 15: The person undertaking the activity to which this environmental authority relates must give or send the results of a DTA, which includes the following information, to the administering authority within 14 days after the person receives the results of the DTA —

- (a) NOEC, LOEC, and EC₁₀ or LC₁₀ (as applicable) for all bioassay results;
- (b) all relevant collection, preservation, storage, transport and chain-of-custody records for the ROC wastewater test sample and receiving environment water used as the diluent;
- (c) timing of ROC test sample collection in relation to process performance;
- (d) time between test sample collection and commencement of the DTA procedure;
- (e) details of any manipulation of the test sample or receiving environment diluent water;
- (f) results of the chemical analysis of the test sample for known toxicants of concern (including all parameters mentioned in Schedule 2 receiving environment dilution water; and
- (g) an interpretation of the results.

Water 16: Where the results of a DTA demonstrate non-compliance with condition Water 35, Water 39 or Water 42⁹, the person undertaking the activity to which this environmental authority relates must —

- (a) advise the administering authority as soon as practicable of the results of the DTA, including the nature of the observed toxicological effects;
- (b) promptly investigate the toxicity results by —
 - (i) identifying any trend in concentration or excessive presence of any contaminant with the potential to cause the observed toxicity;
 - (ii) undertake an additional DTA for an appropriate single-species toxicity bioassay (following consultation with and as agreed with the administering authority) to investigate whether the non-compliant level of toxicity is still present;
 - (iii) notify the administering authority of the causative agent for the observed increase in toxicity and take measures to reduce the toxicity of the effluent to a level where the compliance is achieved with conditions Water 40, Water 44 and Water 47.

Water 17: The person undertaking the activity to which this environmental authority relates may be required to undertake a full Confirmation DTA, or alternatively, one or more component bioassays, as directed through consultation with the administering authority, as soon as practicable following any modifications or changes to the infrastructure or processes made

⁹ Non-compliance with condition Water 35, Water 39 or Water 42 is when the toxicity is below the dilution specified in those conditions and after an investigation, it is demonstrated that the toxicity is caused by one or more of the toxicants of concern from Schedule 2

under condition Water 15 to confirm that the measures taken under condition Water 16 have resulted in compliance with conditions Water 35, Water 39 and Water 42.

Scheduled direct toxicity assessment

Water 18: The person undertaking the activity to which this environmental authority relates must undertake, or commission the undertaking of, a direct toxicity assessment at least once in each period of 12 months.

Event-based direct toxicity assessment

Water 19: The person undertaking the activity to which this environmental authority relates must —

- (a) if three out of four consecutive samples taken for the purposes of ascertaining compliance with the release quality characteristics for compliance with condition Water 3 reveal concentrations of a contaminant exceed the trigger limits specified for the contaminant in Schedule 2 of this environmental authority — make arrangements for priority analysis for the next scheduled sample and for a DTA process to be commenced immediately in the event a fourth exceedance for that same trigger limit for the same contaminant is recorded during the next scheduled sampling period; and
- (b) if four consecutive samples taken for the purpose of ascertaining compliance with the release quality characteristics of this environmental authority exceed the trigger limits specified for a contaminant — undertake, or commission the undertaking of, a DTA for the effluent as soon as practicable.

Part 4 — Investigation of potential environmental impacts arising from changes to raw water or treatment methodologies

Influent quality and treatment train critical assessment

Water 20: Prior to changing the treatment process at the approved place, or where there is a projected change to the quality of source water to be used as part of the activity to which this environmental authority relates, the person undertaking the activity must —

- (a) undertake an Influent Quality and Treatment Train Critical Assessment to determine whether there is potential for the wastewater arising from the change to increase the size of the acute toxicity zone or chronic toxicity zone beyond that permitted under conditions Water 35, Water 39 and Water 42 to test biota as a result of a change; and
- (b) keep a record of the assessment, which includes the nature of the change proposed and any results of the assessment.

Water 21: If the person undertaking the activity to which this environmental authority relates concludes, through the Influent Quality & Treatment Train Critical Assessment undertaken under condition Water 20, that an increased toxicological effect may occur, the person must undertake, or commission the undertaking of, a DTA utilising indicator organism(s) appropriate to the change.

Example for this condition: a change is planned in treatment processes and material toxicity to crustaceans is indicated by reference material. A DTA using a crustacean(s) or related indicator organism(s) must be carried out.

Part 5 — Monitoring impacts of release on the receiving environment

Receiving Environment Monitoring Program

- Water 22:** The person undertaking the activity to which this environmental authority relates must develop and implement a receiving environment monitoring program (REMP), focussing on near-field, mid-field and far-field impacts based on the outcomes of a background environmental investigation into the impacts of the discharge of wastewater to the receiving waters (i.e. Brisbane River, Moreton Bay and connected waters), that addresses at least the following —
- (a) a description of potentially affected receiving waters including key biological communities and background water quality characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality);
 - (b) a description of applicable environmental values and water quality objectives to be achieved through the *Environmental Protection Act 1994* and any applicable environmental protection policy made under that Act;
 - (c) any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment within which the REMP is proposed; and
 - (d) water quality targets within the receiving environment to be achieved, and clarification of contaminant concentrations or levels in the receiving environment that would be an indicator of adverse environmental impacts arising from the activity to which this environmental authority relates during the term of the REMP.

Involvement in Regional Monitoring Studies (i.e. receiving environment monitoring program as it pertains to the mid-field and far-field impacts)

- Water 23:** As an alternative to implementing the receiving environment monitoring program, as it relates to monitoring the mid-field and far-field impacts arising from the activity to which this environmental authority relates, the person undertaking the may become and remain a “participating member” in one or more of following regional water quality and ecosystem health monitoring studies, or any equivalent program —
1. the Southeast Queensland Regional Water Quality Management Strategy; or
 2. the Ecosystem Health Monitoring Program.
- Water 24:** For the purposes of conditions Water 23, the person undertaking the activity to which this environmental authority relates will be deemed by the administering authority to be a “participating member” in regional studies while all of the following apply —
- (a) the person is a “contributing member” to the regional studies of water quality and ecosystem health;
 - (b) the person is identified as a “contributing member” in a written statement to the administering authority from the authority carrying out the regional studies; and
 - (c) the person continues to be a “contributing member” of such regional studies.
- Water 25:** For the purposes of condition Water 24, the person undertaking the activity to which this environmental authority relates will be deemed by the administering authority to be a “contributing member” until such time as —

- (a) the entity carrying out the regional studies notifies the administering authority in writing that the holder is no longer a "contributing member";
- (b) the administering authority has undertaken reasonable steps to confirm this with the person undertaking the activity to which this environmental authority relates and the entity carrying out the regional studies; and
- (c) the person undertaking the activity to which this environmental authority relates notifies the administering authority in writing that they are no longer a "contributing member".

Additional Records to Monitor Environmental Fate of Nutrient Loads

Water 26: The person undertaking the activity to which this environmental authority relates must keep a record of the following information —

- 1. days when recycled water is produced;
- 2. the volume of recycled water in megalitres produced each day; and
- 3. if it is released directly or indirectly into any waters, for example a water storage or flow through cooling system — the name of receiving waters affected and the mass loads of total nitrogen and total phosphorus transferred in the recycled water, determined from measurements of total nitrogen and total phosphorus taken at least weekly, to the greatest extent practicable.

Stormwater Management

Water 27: The person undertaking the activity to which this environmental authority relates must not cause or permit the release of stormwater that has been in contact with any contaminants at the site to any waters, roadside gutter or stormwater drain.

Water 28: Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable —

- (a) without hosing or sweeping; or
- (b) otherwise in any way that may result in the release of the material to any stormwater drain, roadside gutter or water.

Water 29: Suitable banks and/or diversion drains must be installed and maintained to exclude stormwater runoff from entering any ponds or other structures used for the storage or treatment of contaminants or wastes.

Pump Stations

Water 30: The person undertaking the activity to which this environmental authority relates must keep an updated list of all pump stations and any overflow structures connected to the AWTP that pump wastewater, which includes the following information —

- 1. the identity of the pump station (e.g. by reference to a unique number);
- 2. the location of the pump station; and
- 3. the location of any discharge structures associated with the pump station, and the path of any wastewater into the environment.

Contaminant and Release Reduction Strategy

Water 31: The person undertaking the activity to which this environmental authority relates must implement studies to investigate alternative treatment and management of the Reverse Osmosis Concentrate (ROC) release to the Brisbane River from the AWTP. The studies shall inform a Contaminant and Release Reduction Strategy (CRRS) that must have the following aims:

1. To reduce ROC contaminant concentrations and loads in general.
2. To identify ways to progress towards the South East Queensland Healthy Waterways Strategy requirement for point sources to remove 100% of the nutrient loads from discharges to the Brisbane River by 2026.
3. To conduct a regular review (not less than every five (5) years) of emerging technologies or reuse options that may achieve significant load reductions, or zero loads of nutrients and other contaminants.
4. Provide a regular review of new or updated guidelines to accurately characterise and quantify potential environmental risks associated with the ROC discharge.
5. To provide a regular review of emerging technologies that may reduce toxic effects of the Reverse Osmosis Concentrate.
6. To develop five year programs of implementation of any feasible measures consistent with best practice environmental management for the relevant contaminant.

Water 32: The CRRS, required by condition Water 31, must include, as a minimum, the following:

- (a) An investigation of the feasibility of alternative options, practices and procedures to avoid or further minimise the volume and concentration of contaminants (reverse osmosis concentrate) released to waters including (but not limited to) avoiding discharge, improving the quality of the influent, best practice re-use and recycling alternatives, segregation of waste streams and source reduction and the use of other treatment technologies (i.e. constructed wetlands, biological filters, moving beds bio-film reactors) for the treatment of ROC prior to discharge in line with the objectives
- (b) Incorporation of any relevant Healthy Waterway's action items contained in the *South East Queensland Healthy Waterways Strategy 2007-2012 – Point Source Pollution Management Action Plan December 2007* or the most recent Healthy Waterways Strategy(s);
- (c) The Management Goals and Water Quality Objectives in the *Environmental Protection Policy (Water) 1997*;
- (d) Where alternative options, practices and procedures (as identified under Water 32-a) exist, but are not considered feasible and will therefore not be adopted, provide content that supports and justifies those decision(s), and
- (e) Acknowledgement in weighing the costs and benefits of various implementation options, considering the Regulatory Impact Statement for SL 2006 No. 30 made under the *Environmental Protection Act 1994*. Particularly regarding the strong case for intervention that seeks the improvement in water quality to protect environmental values.

Water 33: The initial CRRS report must be submitted to the administering authority in accordance with conditions Water 31 & 32 by 31 December 2014 with further reporting every five years. The report(s) must, as a minimum, link with the aims and include the following:

1. Details of the specific options, practices and procedures investigated under Water 32;
2. Estimation of monthly contaminant loads released to the Brisbane River (per individual contaminant identified for monitoring within this environmental authority) calculated on a 'volume x total concentration' basis, using the most relevant data available for each monthly determination;
3. a month-by-month summary of the extent of the perceived acute and chronic toxicity zones for the top five* (5) contaminants since discharges commenced at each AWTP, calculated:
 - (a) on a 'per individual (dissolved) contaminant' basis and adopting the following assumptions:
 - using the laboratory-based chemical analysis data set;
 - incorporating the nearest calendar background contaminant dissolved concentrations result as measured in the REMP;
 - utilising the average-case diffuser dilution profile;
 - 'perceived chronic toxicity diffuser dilution profile; % species protection level (SPL) (or 99% SPL for bio accumulating contaminants), or the 80th percentile of the locally-derived background concentration for an individual contaminant, whichever is higher, was exceeded;
 - 'perceived acute toxicity exceeded; at the default 95% SPL (or 99% SPL for bio accumulating contaminants) multiplied by an acute-to-chronic ratio (ACR) of 10, or the 95th percentile of the locally-derived background concentration for an individual contaminant multiplied by an ACR of 10, whichever is higher, was exceeded.
 - (b) on a 'contaminants mixture' basis and adopting the following assumptions:
 - using the Routine DTA NOEC, or preferably, and the EC5/10/LC5/10 results;
 - noting that these already incorporate the background contaminant concentrations data, and
 - utilising the average-case diffuser dilution profile.

Note [] age-case diffuser dilutions will be determined from the entire data set available as the contaminants with the median value which has exceeded their respective default*

95% species protection level (or 99% SPL for bio accumulating substances) by the highest percentage.

4. a summary of the longevity of occurrence of the acute and chronic toxicity zones in the Brisbane River (i.e. calculated as time (hours) and percent time per week that a ROC discharge was taking place e.g. 50 discharge hours / 168 week hours = 29.7%);
5. a summary of any contaminants (as dissolved and as total concentrations, where available) in the ROC that have never exceeded any release compliance or ANZECC/ & ARMCANZ (2000) (or later edition) trigger limits as determined end-of-pipe, and their respective Limit of Reporting (LOR);
6. a summary of any contaminants (as dissolved and as total concentrations, where available) in the ROC that have seldom exceeded (<5% occurrence) any release or compliance ANZECC/ & ARMCANZ (2000) (or later edition) trigger limits as determined end-of-pipe, and their respective LOR;
7. Where alternative options, practices and procedures are not considered feasible, the provision of justification to support that determination; and
8. Details of the option(s) to be implemented by the person undertaking the activity to which this environmental authority relates, including the timeframes for implementation, and justification for the chosen option/s.

Gibson Island Advanced Water Treatment Plant

188 Paringa Road Murarrie 4172 - Lot 40 Plan SP227024, Lot 5 Plan CP AP5151 and Lot 41 Plan SP227024

General restrictions on release of all contaminants to waters

Water 34: The release of contaminants directly or indirectly to waters must not:

1. produce any visible discolouration of receiving waters; nor
2. produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter; nor
3. have any other properties or contain any organisms or other contaminants in concentrations that are capable of causing environmental harm, including acute toxicological effects.

Water 35: The person undertaking the activity to which this environmental authority relates must not cause or permit the release of wastewater if the No Observed Effect Concentration (NOEC) for the effluent derived from a toxicity bioassay exceeds the following limits for the bioassay:

- (a) for a chronic toxicity bioassay — 3.5% concentration or more; or
- (b) for an acute toxicity bioassay — 5.5% concentration or more.

Note -

for paragraph (a) — it is acceptable for a NOEC in a chronic toxicity bioassay to be observed at 100%, 50%, 25%, 12.5% and 6.3% test exposure but it is not acceptable for NOEC to be observed at the 3.5% test exposure.

for paragraph (b) — it is acceptable for a NOEC in an acute toxicity bioassay to be observed at 100%, 50%, 25%, 12.5% and 6.3% test exposure but it is not acceptable for NOEC to be observed at the 5.5% test exposure.

Specific restrictions on the release of ROC and PRW

Water 36: The person undertaking the activity to which this environmental authority relates may release wastewater to waters only while all of the following apply —

- (a) the wastewater is released at release point DF1 as described in Plan GIBS-D-SK-5519-01;
- (b) the wastewater complies with all of the release quality characteristics specified in Schedule 2, Table 2 and Table 3: Wastewater release limits; and
- (c) for the component of the wastewater that is ROC — no more than 14 mega litres (ML) is released in any period of 24 hours.
- (d) The PRW released to the environment is subject to condition Water 2 only.

Phosphorus Removal

Water 37: The person undertaking the activity to which this environmental authority relates must ensure consistent phosphorus removal of not less than 6.3mg/L of phosphorus when influent total phosphorus exceeds 7.3 mg/L. Records of removal must be included in the annual report required by condition General 6.

Bundamba Advanced Water Treatment Plant

7 River Road Bundamba QLD 4304 - Lot 143 Plan SP153068

General restrictions on release of all contaminants to waters

Water 38: The release of contaminants directly or indirectly to waters must not:

1. produce any visible discolouration of receiving waters; nor
2. produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.
3. have any other properties or contain any organisms or other contaminants in concentrations that are capable of causing environmental harm, including acute toxicological effects.

General restrictions on release of water with observed toxicological effects

Water 39: The person undertaking the activity to which this environmental authority relates must not cause or permit the release of wastewater if the No Observed Effect Concentration (NOEC) for the effluent derived from a toxicity bioassay exceeds the following limits for the bioassay:

- (a) for a chronic toxicity bioassay — 6.25% concentration or more; or

- (b) for an acute toxicity bioassay — 12.5% concentration or more.

Note —

- for paragraph (a) — it is acceptable for a NOEC in an chronic toxicity bioassay to be observed at 100%, 50%, 25%, 12.5% and 6.25% test exposure but it is not acceptable for NOEC to be observed at the 3.125% test exposures;
- for paragraph (b) — it is acceptable for a NOEC in an acute toxicity bioassay to be observed at 100%, 50%, 25%, 12.5% test exposure but it is not acceptable for NOEC to be observed at the 6.25% or 3.125% test exposures.

Specific restrictions on the release of ROC and PRW

Water 40: The person undertaking the activity to which this environmental authority relates may release wastewater to waters only while all of the following apply —

- (a) the wastewater is released at release point DF1 as described in Plan EPIPE-C-DR-7125-43;
- (b) the wastewater complies with all of the release quality characteristics specified in Schedule 2, Table 6 and Table 7: Wastewater release limits ; and
- (c) for the component of the wastewater that is ROC — no more than 18 mega litres (ML) is released in any period of 24 hours.
- (d) The PRW released to the environment is subject to condition Water 2 only.

Luggage Point Advanced Water Treatment Plant

189 Main Beach Road PINKENBA 4008 - Lot 2 Plan SP229518 and Lot 3 Plan SP229518 and Lot 1 Plan SP229518

General restrictions on release of all contaminants to waters

Water 41: The release of contaminants directly or indirectly to waters:

1. must not produce any visible discolouration of receiving waters; nor
2. must not produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter; nor

in the case of contaminants released via the stormwater discharge point, must not be undertaken in a way in that causes erosion, risks public health through contact with the release or causes environmental harm to the Boggy Creek ecosystem.

General restrictions on release of water with observed toxicological effects

Water 42: The person undertaking the activity to which this environmental authority relates must not cause or permit the release of wastewater if the No Observed Effect Concentration (NOEC) for the effluent derived from a toxicity bioassay exceeds the following limits for the bioassay:

- (a) for a chronic toxicity bioassay — 6.25% concentration or more; or
- (b) for an acute toxicity bioassay — 25% concentration or more.

Note -

for paragraph (a) — it is acceptable for a NOEC in an chronic toxicity bioassay to be observed at 100%, 50%, 25%, 12.5% and 6.25% test exposure but it is not acceptable for NOEC to be observed at the 3.125% test exposures;

for paragraph (b) — it is acceptable for a NOEC in an acute toxicity bioassay to be observed at 100%, 50% and 25% test exposure but it is not acceptable for NOEC to be observed at the 12.5, 6.25% or 3.125% test exposures

Specific restrictions on the release of ROC and PRW

Water 43: The person undertaking the activity to which this environmental authority relates may release wastewater to waters only while all of the following apply —

- (a) the wastewater is released at release point DF1 as described in Plan LUGG-C-DR-5500-42
- (b) the wastewater complies with all of the release quality characteristics specified in Schedule 2, Table 4 and Table 5: Wastewater release limits.; and
- (c) for the component of the wastewater that is ROC — no more than 18 mega litres (ML) is released in any period of 24 hours.
- (d) The PRW released to the environment is subject to condition Water 2 only

Pump Stations

Locations: **Gibson Island Water Treatment Plant** - Lot 40 Plan SP227024 and Lot 41 Plan SP227024
Luggage Point Advanced Water Treatment Plant - 189 Main Beach Road
 PINKENBA 4008 - Lot 2 Plan SP229518 and Lot 3 Plan SP229518 and Lot 1 Plan SP229518

Relevant activity/ies: 63-(2) Sewage treatment - pumping station (1)(b)

The environmentally relevant activity(ies) conducted at the location as described above must be conducted in accordance with the following site specific conditions of approval.

Department Interest: General

General 1: The Luggage Point and Gibson Island AWTPs must be operated in accordance with the latest edition of the Department of Environment and Heritage *Code of Environmental Compliance for certain aspects of sewerage treatment (ERA 63)*.

Schedule 1

Application documents, plans and programs relating to this environmental authority.

▪ **188 Paringa Road Murarrie 4172 (SPDE0095610)**

The following documents(s) also apply to this environmental authority:

- *“Western Corridor Recycled Water Pty Ltd – Gibson Island Advanced Water Treatment Plant – Development Approval – Environmentally Relevant Activity 16 (Water Treatment) – Supporting Information April 2008”;*
- *“Western Corridor Recycled Water Pty Ltd – Gibson Island Advanced Water Treatment Plant Development Approval – Environmentally Relevant Activity 16 (Water Treatment) – Response to Request for Information”;* and
- *“Gibson Island AWTP – Receiving Environment Monitoring Program – July 08”*
- *“Gibson Island AWTP – Receiving Environment Monitoring Program – Jan 09”.*
- *“Gibson Island AWTP – Site Plan: GIBS-D-SK-5519-01*

▪ **189 Main Beach Road PINKENBA 4008 – (SPDE01507911)**

The following documents(s) also apply to this environmental authority:

- *Western Corridor Recycled Water Pty Ltd – Luggage Point Advanced Water Treatment Plant – Development Approval – Environmentally Relevant Activity 16 (Water Treatment) Supporting Information February 2008;*
- *Western Corridor Recycled Water Pty Ltd – Luggage Point Advanced Water Treatment Plant*
- *Development Approval – Environmentally Relevant Activity 16 (Water Treatment) – Response to Request for Information; and*
- *Luggage Point AWTP – Receiving Environment Monitoring Program – APRIL 08.*
- *Luggage Point AWTP Site Plans – LUGG-C-DR-5500-42 & LUGG-D-DR-5500-23*

▪ **7 River Road Bundamba QLD 4304 – (IPDE00987708)**

The following document(s) also apply to this environmental authority:

- *“Western Corridor Recycled Water Pty Ltd – Bundamba Advanced Water Treatment Plant – Development Approval – Environmentally Relevant Activity 16 (Water Treatment) Supporting Information March 2008”*
- *“Western Corridor Recycled Water Pty Ltd – Bundamba Advanced Water Treatment Plant Development Approval – Environmentally Relevant Activity 16 (Water Treatment) – Response to Request for Information”*
- *“Bundamba AWTP – Receiving Environment Monitoring Program – MAY 08.”*
- *“Bundamba AWTP – EMPE-C-DR-7125-43 & BUN18-C-SK-5525-70*

Schedule 2*Release Limits***Gibson Island Advanced Water Treatment Plant**

188 Paringa Road Murarrie 4172 (SPDE0095610)

Table 2: Wastewater release limits

RELEASE POINT	MONITORING POINT	QUALITY CHARACTERISTICS	RELEASE LIMIT	LIMIT TYPE	MINIMUM MONITORING FREQUENCY
DF1 – Diffuser Discharge Point	S11	Total Chlorine (as Cl)	0.5 mg/L	Long term 50th percentile	Daily (single measurement)
			1 mg/L	Maximum	
		Dissolved Oxygen	2.0 mg/L	Minimum	
		Chemical Oxygen Demand	No Limit	No Limit	Weekly (composite sample ²)
		5-day Biochemical Oxygen Demand (inhibited)	20 mg/L	Maximum	
		Turbidity	5 NTU	Long term 50th percentile	Daily (single measurement)
			15 NTU	Maximum	
		pH	6.5 to 8.5	Range	
		Ammonia (as N)	13 mg/L	Long term 50th percentile	Daily (grab sample)
			16 mg/L	Short term 50th percentile	
			27 mg/L	Maximum	
		Total Nitrogen (as N)	29 mg/L	Long term 50th percentile	Weekly (composite sample ²)
			37 mg/L	Short term 50th percentile	
			47 mg/L	Maximum	
		Total Phosphorus (as P)	7 mg/L	Long term 50th percentile	
			30 mg/L	Maximum	

1. monitoring point S1 described as Reverse Osmosis Concentrate Monitoring Point (N6964986.968 E511560.989), refer plan GIBS-D-SK-5519-01 attached to this environmental authority.
2. Composite Sample – Taken as a composite grab sample over a 2 hour period. The sample to be made up of sub-samples taken at least every 15 minute and mixed in equal proportion, all sub samples must comply the provisions of the administering authority's most recent version of the Water Quality Sampling Manual.

Table 3 Wastewater release trigger limits – Toxicants

RELEASE POINT	MONITORING POINT	QUALITY CHARACTERISTICS	TRIGGER LIMIT (dissolved fraction µg/L unless otherwise specified)	TRIGGER TYPE	MINIMUM MONITORING FREQUENCY
DF1 – Diffuser Discharge Point	S1 ¹	Aluminium	800	Maximum	Weekly (composite sample ²)
		Arsenic (As III)	9.8		
		Arsenic (As V)	18		
		Boron	20400		
		Cadmium	2.8		
		Chromium (Cr III)	110		
		Chromium (Cr VI)	17.6		
		Cobalt	15		
		Copper	57		
		Lead	17.6		
		Manganese	1177		
		Mercury (inorganic)	0.4		
		Nickel	71		
		Selenium	12		

		Silver	5.6		
		Zinc	310		
<p>1. monitoring point S1 described as Reverse Osmosis Concentrate Monitoring Point (N6964986.968 E511560.989), refer plan GIBS-D-SK-5519-01 attached to this environmental authority</p> <p>2. Composite Sample – Taken as a composite grab sample over a 2 hour period. The sample to be made up of sub-samples taken at least every 15 minute and mixed in equal proportion, all sub samples must comply the provisions of the administering authority's most recent version of the Water Quality Sampling Manual.</p>					

Luggage Point Advanced Water Treatment Plant

189 Main Beach Road PINKENBA 4008 – (SPDE01507911)

Table 4: Wastewater release limits

RELEASE POINT	MONITORING POINT	QUALITY CHARACTERISTICS	RELEASE LIMIT	LIMIT TYPE	MINIMUM MONITORING FREQUENCY
DF1 – Diffuser Discharge Point	S1 ¹	Total Chlorine (as Cl)	0.5 mg/L	Long term 50th percentile	Daily (single measurement)
			1 mg/L	Maximum	
		Dissolved Oxygen	2.0 mg/L	Minimum	
		Chemical Oxygen Demand	No Limit	No Limit	Weekly (composite sample ²)
		5-day Biochemical Oxygen Demand (inhibited)	20 mg/L	Maximum	
		Turbidity	5 NTU	Long term 50th percentile	Daily (single measurement)
			15 NTU	Maximum	
		pH	6.5 to 8.5	Range	
		Ammonia (as N)	8 mg/L	Long term 50th percentile	Daily (grab sample)
			12 mg/L	Short term 50th percentile	
			13 mg/L ²	Maximum	
		Total Nitrogen (as N)	57 mg/L	Long term 50th percentile	Weekly (composite)

			84 mg/L ³	Maximum	sample ²)
		Total Phosphorus from 1/1/2012	7 mg/L	Long term 50th percentile	
			14 mg/L	Maximum	

1. Monitoring point S1 - Reverse Osmosis Concentrate Monitoring Point (E514642 N 697101), refer plan LUGG-D-DR-5500-23 attached to this environmental authority.
2. Where influent ammonia (as N) is greater than 1 mg/L the maximum limit is 19 mg/L.
3. Where an influent total nitrogen (as N) is greater than 12 mg/L the maximum limit is obtained by the formula $TN = \text{Intake } TN \times 6.1 + 10.79$. In this instance the limit is not to be used for Point Source Database reporting and to be assessed for compliance on advice from LP AWTP.
4. Composite Sample – Taken as a composite grab sample over a 2 hour period. The sample to be made up of sub-samples taken at least every 15 minute and mixed in equal proportion, all sub samples must comply the provisions of the administering authority's most recent version of the Water Quality Sampling Manual.

Table 5: Wastewater release trigger limits – Toxicants

RELEASE POINT	MONITORING POINT	QUALITY CHARACTERISTICS	TRIGGER LIMIT (dissolved fraction µg/L unless otherwise specified)	TRIGGER TYPE	MINIMUM MONITORING FREQUENCY
DF1 – Diffuser Discharge Point	S1 ¹	Aluminium	800	Maximum	Weekly (composite sample ²)
		Arsenic (As III)	9.8		
		Arsenic (As V)	18		
		Boron	20400		
		Cadmium	2.8		
		Chromium (Cr III)	110		
		Chromium (Cr VI)	17.6		
		Cobalt	26		
		Copper	90		
		Lead	17.6		

		Manganese	1500		
		Mercury (inorganic)	0.4		
		Nickel	92		
		Selenium	12		
		Silver	5.6		
		Zinc	310		
1. Monitoring Point S1 - Reverse Osmosis Concentrate Monitoring Point (E514642 N697101). refer plan LUGG-D-DR-5500-23 attached to this environmental authority.					

Bundamba Advanced Water Treatment Plant

7 River Road Bundamba QLD 4304 – (IPDE00987708)

Table 6: Wastewater release limits

RELEASE POINT	MONITORING POINT	QUALITY CHARACTERISTICS	RELEASE LIMIT	LIMIT TYPE	MINIMUM MONITORING FREQUENCY
DF1 – Diffuser Discharge Point	S11	Total Chlorine (as Cl)	0.5 mg/L	Long term 50th percentile	Daily (grab sample/ single measurement)
			1 mg/L	Maximum	
		Dissolved Oxygen	4.0 mg/L	Minimum	
		Chemical Oxygen Demand	No Limit	No Limit	Weekly (composite sample ²)
		5-day Biochemical Oxygen Demand (inhibited)	20 mg/L	Maximum	
		Turbidity	5 NTU	Long term 50th percentile	Daily (single measurement)
			15 NTU	Maximum	
		pH	6.5 to 8.5	Range	
		Ammonia (as N)	1.4 mg/L	Long term 50th percentile	Daily (grab sample)
			2.8 mg/L	Short term 50th percentile	

			4.2 mg/L	Maximum
		Total Nitrogen (as N) From 1 April 2009	19 mg/L	Long term 50th percentile
			27 mg/L	Short term 50 th percentile
			36 mg/L	Maximum
		Total Phosphorus (as P)	7 mg/L	Long term 50th percentile
			14 mg/L	Maximum

1. Monitoring point S1 described as the Discharge Monitoring Point (N47745 E81353), refer plan BUN1B-C-SK-5525-70 attached to this environmental authority.
2. Composite Sample – Taken as a composite grab sample over a 2 hour period. The sample to be made up of sub-samples taken at least every 15 minute and mixed in equal proportion, all sub samples must comply the provisions of the administering authority's most recent version of the Water Quality Sampling Manual.

Table 7: Wastewater release trigger limits – Toxicants

RELEASE POINT	MONITORING POINT	QUALITY CHARACTERISTICS	TRIGGER LIMIT (dissolved fraction µg/L)	TRIGGER TYPE	MINIMUM MONITORING FREQUENCY
DF1 – Diffuser Discharge Point	S1 ¹	Aluminium	800	Maximum	Weekly (composite sample ²)
		Arsenic (As III)	9.8		
		Arsenic (As V)	18		
		Boron	20400		
		Cadmium	2.8		
		Chromium (Cr III)	110		
		Chromium (Cr VI)	17.6		
		Cobalt	17		
		Copper	24		
		Lead	17.6		
		Manganese	560		
		Mercury (inorganic)	0.4		

		Nickel	92		
		Selenium	12		
		Silver	5.6		
		Zinc	432		
<p>1. Monitoring point S1 described as the Discharge Monitoring Point (N47745 E81353), refer plan BUN1B-C-SK-5525-70 attached to this environmental authority.</p> <p>2. Composite Sample – Taken as a composite grab sample over a 2 hour period. The sample to be made up of sub-samples taken at least every 15 minute and mixed in equal proportion, all sub samples must comply the provisions of the administering authority's most recent version of the Water Quality Sampling Manual.</p>					

Schedule 3

Release limits from bunded areas

Locations:

- **188 Paringa Road Murarrie 4172** - Lot 40 Plan SP227024, Lot 5 Plan CP AP5151 and Lot 41 Plan SP227024
- **189 Main Beach Road PINKENBA 4008** - Lot 2 Plan SP229518 and Lot 3 Plan SP229518 and Lot 1 Plan SP229518
- **7 River Road Bundamba QLD 4304** - Lot 143 Plan SP153068

Table 8 - Release Limits from Chemical Unloading and Storage Areas

Discharge Point	Quality characteristics	Release Limit	Monitoring points			Frequency
			Gibson Island AWTP	Bundamba AWTP	Luggage Point AWTP	
Stormwater Discharge Point SW1	pH	6.5 – 8.5	Chemical North: 6965010.962 N 5115903207 E		Within the bunded storage and unloading sumps – Chemical East: E 514605.4669 Chemical West: W6970883.2221	Prior to each discharge
	Turbidity	25 NTU	Chemical South: 696872.430 N 511572.237 E			
	Total Chlorine	0.7 mg/L	on plan GIBS-D-SK-5519-01		on plan LUGG-D-DR-5500-23	

DEFINITIONS

Words and phrases used throughout EHP imposed conditions of this environmental authority are defined below:

Where a definition for a term used in this environmental authority is sought and the term is not defined within this environmental authority, the definitions provided in the *Environmental Protection Act 1994*, its regulations, and relevant Environmental Protection Policies shall be used.

Word Definitions:

administering authority means the Department of Environment and Heritage Protection or its successor.

Appropriately qualified person(s) means a person or persons who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using the relevant protocols, standards, methods or literature.

Air Quality Sampling Manual means the following document or more recent additions or supplements to that document as such become available:

Department of Environment (1997). Air Quality Measurement Manual, Department of Environment, Brisbane, Australia.

annual load means the sum of all daily loads released during the same calendar year period.

approved place means the place authorised under this environmental authority for the carrying out of the specified environmentally relevant activities.

artificial waterway means an artificial channel, lake or other body of water. Artificial waterway includes –

- an artificial channel that is formed because the land has been reclaimed from tidal water and is intended to allow boating access to allotments on subdivided land;
- other artificial channels subject to the ebb and flow of the tide; and
- any additions or alterations to an artificial waterway.

background noise level means either:

$L_{A90, T}$ being the A-weighted sound pressure level exceeded for 90 percent of the time period not less than 15 minutes, using Fast response measured in the absence of the noise under investigation, or

$L_{A90, T}$ being the arithmetic average of the minimum readings measured in the absence of the noise under investigation during a representative time period of not less than 15 minutes, using Fast response.

canal means an artificial waterway surrendered to the State. A canal is an artificial waterway connected, or intended to be connected, to tidal water; and from which boating access to the tidal water is not hindered by a lock, weir or similar structure.

clinical waste means waste that has the potential to cause disease including, for example, the following:

- animal waste;
- discarded sharps;
- human tissue waste;
- laboratory waste.

coastal dune means a ridge or hillock of sand or other material on the coast and built up by the wind.

commercial place means a place, other than a nuisance sensitive place, that is used as an office or for business or commercial purposes and includes the cartilage of the place reasonably used by persons at the place.

composite sample taken as a composite flow paced sample over 24-hour period. The sample to be made of sub-samples taken at least every 200kL of discharge and mixed in equal proportions, all sub samples must comply with the provision of the latest edition of the administering authority's Water Quality Sampling Manual.

Where a composite sampler is not available or fails to operate, a time based composite grab sample is to be taken over a 2-hour period. The sample is to be made up of sub samples taken at least every 15 minutes and mixed in equal proportions, all sub samples must comply with the provision of the latest edition of the administering authority's Water Quality Sampling Manual.

consecutive sample means:

A sample is considered a "consecutive sample" when it is the subsequent sample collected (at any sampling frequency) when the plants' standard operating discharge regime has not been interrupted. Consecutive samples, for the purpose of assessing discharge quality, should only include those samples collected where a discharge was occurring. Any grab or composite samples collected, or instrument readings taken, on days where a discharge did not take place are ignored and excluded from the water quality assessment calculations. For instance, if a "short-term 50th percentile" of weekly samples taken over a 6 month period includes a 2 week shut-down period where no discharge took place, then the 26 (weekly) "consecutive samples" would not incorporate the two week shut-down data (if any), but would include an additional two (subsequent) data points so that 26 "consecutive samples" are used in the calculation.

contaminant can be:

1. a gas, liquid or solid; or
2. an odour; or
3. an organism (whether alive or dead), including a virus; or
4. energy, including noise, heat, radioactivity and electromagnetic radiation; or
5. a combination of contaminants.

Control Exposure In Direct Toxicity Assessments and toxicological bioassays, a control exposure is where the test organism is exposed to a 'control' substance for the purpose of determining baseline toxicity against which test exposures are compared. For example, where an effluent was being discharged at a site X into the river, then a control exposure would involve exposing the test organism to that river water collected near site X (however the control water must not be impacted by the effluent discharge, so it should always be collected up current of the site X discharge point).

dwelling means any of the following structures or vehicles that is principally used as a residence –

- a house, unit, motel, nursing home or other building or part of a building;
- a caravan, mobile home or other vehicle or structure on land;
- a water craft in a marina.

Intake waters means water taken up for advanced water treatment from any permanent or temporary sources

intrusive noise means noise that, because of its frequency, duration, level, tonal characteristics, impulsiveness or vibration –

- is clearly audible to, or can be felt by, an individual; and
- annoys the individual.

- In determining whether a noise annoys an individual and is unreasonably intrusive, regard must be given to Australian Standard 1055.2 – 1997 Acoustics – Description and Measurement of Environmental Noise Part 2 – Application to Specific Situations.

$L_{A\ 10, \text{adj}, 10 \text{ mins}}$ means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10 minute measurement period, using Fast response.

$L_{A\ 1, \text{adj}, 10 \text{ mins}}$ means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10 minute measurement period, using Fast response.

$L_{A, \text{max adj}, T}$ means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 15 minute period, using Fast response.

$L_{A, \text{max adj}, T}$ means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

land means all land excluding waters and the atmosphere.

long term 50th percentile means that not more than thirteen (13) of the measured values of the quality characteristic are to exceed the stated release limit for any twenty six (26) consecutive samples where —

- the consecutive samples are taken over a six (6) month year period; and
- the consecutive samples are taken at approximately equal periods; and
- the time interval between the takings of each consecutive sample is not less than three (3) days or greater than nine (9) days.

$\mu\text{g/L}$ means micrograms per Litre.

maximum means that the measured value of the quality characteristic or contaminant must not be greater than the release limit stated.

minimum means that the measured value of the quality characteristic or contaminant must not be less than the release limit stated.

mg/L means milligrams per Litre.

ML means megalitres.

noise sensitive place means -

1. a dwelling, mobile home or caravan park, residential marina or other residential premises; or
2. a motel, hotel or hostel; or
3. a kindergarten, school, university or other educational institution; or
4. a medical centre or hospital; or
5. a protected area; or
6. a park or gardens.
7. and includes the curtilage of such place.

No Observed Effect Concentration means the highest concentration of an effluent tested, which does not exhibit a toxic effect.

noxious means harmful or injurious to health or physical wellbeing.

NTU means nephelometric turbidity units

nuisance sensitive place means a place that is one or more of the following —

- (a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises;
- (b) a motel, hotel or hostel;
- (c) a kindergarten, school, university or other educational institution;
- (d) a medical centre or hospital;
- (e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area;
- (f) a public thoroughfare, park or gardens;
- (g) a place used as a workplace, an office or for business or commercial purposes;

and includes a place within the curtilage of such a place reasonably used by persons at that place.

offensive means causing offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive.

product water means water that has been treated through the water treatment train detailed in the application documents.

Purified recycled water (PRW) means water that has been treated through the water treatment train detailed in the application documents.

recycled water means appropriately treated sewage wastes suitable for further use and includes treated sewage wastes from onsite treatment of domestic or industrial waste water and treated sewage wastes from sewage treatment plants (including water mining from sewers)

Reverse Osmosis Concentrate (ROC) means the concentrated waste stream generated during operation of the advanced water treatment plant utilising reverse osmosis processes.

short term 50th percentile means that not more than two (2) of the measured values of the quality characteristic are to exceed the stated release limit for any five (5) consecutive samples where —

- (a) the consecutive samples are taken over a five (5) week period;
- (b) the consecutive samples are taken at approximately equal periods; and
- (c) the time interval between the taking of each consecutive sample is not less than three (3) days or greater than nine (9) days.

site means land or tidal waters on or in, to which this environmental authority relates.

sewage is defined under the *Plumbing and Drainage Act 2002* as household and commercial wastewater that contains, or may contain, faecal, urinary or other human waste.

Test Exposure In Direct Toxicity Assessments and toxicological bioassays, a test exposure is where the test organism is exposed to a 'test' substance at a range of concentrations for the purpose of determining the substance-related toxicity. For example, where an effluent is Reverse Osmosis Concentrate (ROC), the test exposures may include a series of dilutions where the test organisms are exposed to ROC at 100%, 50%, 25%, 12.5%, 6.25%, 3.125% (and 0% being the control exposure).

the Project means the Western Corridor Recycled Water Project.

the operator means the person, organisation or legal entity responsible for managing the activities at the site(s) to which this environmental authority relates.

Total Nitrogen means the sum of Organic Nitrogen, Ammonia Nitrogen, Nitrite plus Nitrate Nitrogen, which must be reported separately, expressed as mg/L as Nitrogen.

Total Phosphorus means the sum of the reactive phosphorus, acid-hydrolysable phosphorus and organic phosphorus, as mg/L of Phosphorus. This includes both the inorganic and organic fraction of phosphorus.

Toxicants of Concern A toxicant of concern is a substance that is either known or suspected of being present in wastewater intended for release into an aquatic receiving environment at a concentration that would potentially cause environmental harm and thereby is of concern to the EPA. A toxicant of concern may be identified as such because it is considered a common component in the effluent produced by a particular industry type (e.g. ammonia in sewerage treatment plant effluents) or has been identified in an Environmental Impact Assessment that is part of the Development Application.

Toxicity Identification Evaluation means a procedure to identify the chemical(s) responsible for the toxicological effects observed in the direct toxicity assessment testing. The procedure is described in the document "Methods for Aquatic Toxicity Identification Evaluation: Phase II Toxicity Identification Procedures for Acutely and Chronically Toxic Samples" document reference EPA/600/R-92/080 published by the United States Environmental Protection Agency, Office of Research and Development in 1993, or more recent revisions of that procedure as such become available.

treated sewage wastes means aqueous waste flowing from sewage treatment plants, that has been subjected to screening, sedimentation, biological and chemical processes to improve its quality.

Wastewater means water that is comprised of 1 or more of the following waste stream, and is discharged or stored for future discharge to the environment —

- (a) reverse osmosis concentrate including reverse osmosis system flush water;
- (b) purified recycled water.

watercourse means a river, creek or stream in which water flows permanently or intermittently-

- in a natural channel, whether artificially improved or not; or
- in an artificial channel that has changed the course of the watercourse.

waters includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater and any part thereof.

weekly means that a sample is collected each week and the subsequent sample must be taken on the seventh day following that day and is exclusive of Saturdays and Sundays (i.e. day rolling forward each week this week Monday, next week Tuesday).

works or operation means the development approved under this environmental authority.

you means the holder of this environmental authority or owner / occupier of the land which is the subject of this environmental authority.

Attachments:

ERA: 64-(4b) Water treatment >5ML water day advanced

Locations:

188 Paringa Road Murarrie 4172 – SPDE00959610 (supercedes IPDE00990508)

1. "Gibson Island AWTP – Site Plan: GIBS-D-SK-5519-01

189 Main Beach Road PINKENBA 4008 – (SPDE01507911)

2. Luggage Point AWTP Site Plans – LUGG-C-DR-5500-42
3. Luggage Point AWTP Site Plans –LUGG-D-DR-5500-23

7 River Road Bundamba QLD 4304 – (IPDE00987708)

4. "Bundamba AWTP – EMPE-C-DR-7125-43
5. "Bundamba AWTP – BUN18-C-SK-5525-70

ERA: 63-(2) Sewage treatment - pumping station (1)(b)

Locations:

Gibson Island Water Treatment Plant (SPDE02035011)

6. Site Plan: GIBS-D-SK-5519-01

189 Main Beach Road PINKENBA 4008 (IPDE01667809)

7. Luggage Point AWTP Site Plans – LUGG-D-DR-5500-17

END OF PERMIT