

6 April 2023

Please quote: 4859194 NK:rl

Northern Territory Environment Protection Authority
GPO Box 3675
DARWIN NT 0801

Dear Bryan,

Re: Environment Protection Approval 304-02 – Leachate Treatment Plant Construction

Further to the above Environment Protection Approval (EPA) for the Shoal Bay Landfill, City of Darwin (CoD) is pleased to confirm that all activities as identified within EPA 304-02 have now been completed.

To assist the Environment Protection Authority in reviewing CoD's conformance with EPA 304-02, CoD has undertaken a review of all EPA 304-02 conditions and provided commentary as to how each condition is complied with. In addition to this, various other supporting information is provided to the EPA for your review. These include:

- Appendix A – NT Environment Protection Authority EPA 304-02
- Appendix B – City of Darwin Review of EPA 304-02 Conditions.
- Appendix C – Independent Assessment of Construction works against designs
- Appendix D – Construction and Environmental Management Plan
- Appendix E – Site documentation including As Constructed drawing information, daily reports and photos (refer attachment 1)
- Appendix F – Environmental Monitoring Report (refer attachment 2 for Excel data)

To assist the EPA in managing the information provided, items identified in Appendices E and F have been included on an attached USB and identified as per below.

- Attachment 1 – USB – Site Documentation
- Attachment 2 – USB – Site Monitoring Data in Excel Format

CoD is currently working through the operational and irrigation commissioning process and plans to lodge an application in the first quarter of 2023 to vary the licence for the Shoal Bay Landfill (EPL 188-03) to incorporate the operation of the site Leachate Treatment Plant.

If you have any queries pertaining to the information provided, please do not hesitate to contact the undersigned.

Regards,



NIK KLEINE
EXECUTIVE MANAGER INFRASTRUCTURE

Appendix A – NT Environment Protection Authority EPA 304-02



ENVIRONMENT PROTECTION APPROVAL

(Pursuant to section 34 of the *Waste Management and Pollution Control Act*)

Approval Holder	City of Darwin*
Approval Number	EPA304 - 02
Registered Business Address	City of Darwin* 1 Harry Chan Avenue Darwin NT 0800
ABN	11 503 313 301
Premises Address	Lot 03952 Town of Sanderson plan(s) S 79/149A VANDERLIN DR, HOLMES
Anniversary Date:	19 August
Commencement Date:	19/08/2022
Expiry Date:	18/08/2023
Scheduled Activity	Constructing, installing or carrying out works in relation to premises, other than sewage treatment plants, for the storage, re-cycling, treatment or disposal of listed wastes on a commercial or fee for service basis.
Description	This approval is for the construction and commissioning of a leachate treatment plant and irrigation area at the Shoal Bay Waste Management Facility (SBWMF) consisting of the following: a. PFAS foam fractionation; b. foamate storage and drying of foamate produced by the PFAS foam fractionation; c. sequential batch reactor (SBR) and moving bed biofilm reactor (MBBR) for nitrogen removal; d. dissolved air floatation (DAF);

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- e.** sludge storage and drying facility for sludge generated by the DAF;
- f.** bunded areas for chemical storage including sodium hydroxide;
- g.** constructed and lined wetland planted densely vegetated with an operating depth between 200mm and 300mm;
- h.** associated infrastructure including pumps, pipelines, bunds, control room, sheds, fencing, signage, carpark, roads and irrigation infrastructure.

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ATTACHMENTS

- 1 Attachment 1 - Site Layout and Monitoring Location.pdf

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INFORMATION ABOUT THIS APPROVAL

- This approval does not in any way relieve the approval holder from its obligations to comply with the *Waste Management and Pollution Control Act* (WMPC Act), including the general environmental duty in section 12 of the WMPC Act and the duty to notify of incidents causing or threatening to cause pollution under section 14 of the WMPC Act.

Duration of an approval (section 41 of the WMPC Act)

- An approval will remain in force until:
 1. its expiry date; or
 2. a licence for the premises to which the approval relates comes into force; or
 3. where no expiry date is stated in the approval, two years.
- The approval holder may apply to the NT EPA for an extension or reduction of the period specified on an approval.

Amendment or Revocation of conditions of an approval (section 37 of the WMPC Act)

- The approval holder may apply to amend or revoke a condition of this approval.
- A fee applies and the application must be made using the designated form via NT EPA Online.
- The NT EPA may also amend or revoke a condition of this approval as set out in section 38 of the WMPC Act.

Transfer of an approval (section 46 of the WMPC Act)

- The approval holder can apply to transfer their approval to another person.

Extension of an approval (section 41 of the WMPC Act)

- The approval holder may apply to extend their approval not earlier than 90 days, and not later than 30 days, before their approval expires.
- A fee applies and the application must be made via NT EPA Online.

Public Register

- A copy of environment protection approvals and any plans for environmental management, required as a condition of an environment protection approval, will be placed on a register in accordance with section 9 of the WMPC Act.
- A copy of the Annual Return will be placed on the register.
- The NT EPA makes this register freely available from the NT EPA website.

Environment Protection Objectives (Part 4 of the WMPC Act), and Water Quality Standards (section 73 of the *Water Act*)

- An Environment Protection Objective (EPO) is a statutory instrument to establish principles on which:
 - a. environmental quality is to be maintained, enhanced, managed or protected;
 - b. pollution, or environmental harm resulting from pollution, is to be assessed, prevented, reduced, controlled, rectified or cleaned up; and
 - c. effective waste management is to be implemented or evaluated.
- In accordance with section 18 of the WMPC Act a beneficial use, quality standard, criteria or objective declared under section 73 of the *Water Act* and in force is an environment protection objective for the purposes of the WMPC Act.

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- The following EPOs and Beneficial Use Declarations (BUDs) are relevant to this approval:

Environmental Interests

- This section highlights sensitivity of the surrounding land use and environment associated with the location of the approved activity.
- Sites of Conservation Significance (SOCS), including
 - Shoal Bay SOCS number 8; and
 - Darwin Harbour SOCS number 6.
- No Ramsar wetlands

Cultural Interests

- It is the approval holder's responsibility to contact the Aboriginal Areas Protection Authority and ensure that any Authority Certificates required as a result of conducting the activity are obtained and complied with.

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RULES FOR INTERPRETING THE CONDITIONS OF THIS APPROVAL

- Where there is a discrepancy between the conditions of this approval and any plan, standard, guideline or other document referred to in this approval, the conditions of this approval prevail to the extent of the inconsistency.
- Any reference to any standard (Australian or international) in this approval means the relevant parts of the current version of that standard.
- A reference to any guideline or code of practice (or to the relevant parts of any guideline or code of practice) in this approval means the current version of the guideline or code of practice.
- Under section 39 of the WMPC Act, any contravention of or failure to comply with this approval by the approval holder may be an offence.
- In determining whether the approval holder has committed an offence, the approval holder may be liable for the conduct of its directors, employees or agents.
- The approval holder should ensure that each of its directors, employees, contractors or agents are aware of, and comply with, this approval.
- In this approval, unless the contrary intention appears, words that are defined in the WMPC Act are intended to have the meaning given to them in that Act.

APPROVAL CONDITIONS

GENERAL

- 1 The approval holder must ensure the contact details recorded in NT EPA Online for this approval are correct at all times.
- 2 The approval holder must at all times have a 24 hour emergency contact.
- 3 The approval holder must cause clear and legible signage, in English, to be displayed in a prominent location at each public entrance to the premises that includes the following details:
 - 3.1 environment protection approval number issued under the WMPC Act; and
 - 3.2 24 hour emergency contact details.
- 4 The approval holder must provide to the NT EPA, within 10 business days of a request, a copy of any document, monitoring data or other information in relation to the activity, in the format requested by the NT EPA.
- 5 All notices, reports, documents or other correspondence required to be provided as a condition of this approval, unless otherwise specified as a condition of this approval, must be provided in electronic form by uploading the document via NT EPA Online (or by emailing waste@nt.gov.au).
- 6 The NT EPA may require the approval holder to submit, revise or amend and resubmit any document. Where the NT EPA requires a document to be submitted or resubmitted, the approval holder must submit it to the NT EPA by the date specified by the NT EPA.
- 7 The approval holder must, for the duration of this approval, implement, maintain and follow a Consultation and Communication Plan which includes a strategy for communicating with persons who are likely to have a real interest in, or be affected by, the activity.
- 8 The approval holder must operate and maintain a community feedback number.
- 9 The approval holder must display the community feedback number:
 - 9.1 where the approval holder has a website, in a prominent location on the approval holder website;
 - 9.2 in the Consultation and Communication Plan; and
 - 9.3 in other publicly available documents relating to the activity.
- 10 The approval holder must maintain a Complaint Log for all complaints received by the approval holder in relation to the activity.
- 11 The approval holder must ensure that the Complaint Log includes, for each complaint received by the approval holder, the following information:
 - 11.1 the person to whom the complaint was made;
 - 11.2 the person responsible for managing the complaint;
 - 11.3 the date and time the complaint was reported;
 - 11.4 the date and time of the event(s) that led to the complaint;
 - 11.5 the contact details of the complainant if known, or where no details are provided a note to that effect;

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- 11.6 the nature of the complaint;
- 11.7 the nature of event(s) giving rise to the complaint;
- 11.8 prevailing weather conditions at the time (where relevant to the complaint);
- 11.9 the action taken in relation to the complaint, including any follow-up contact with the complainant; and
- 11.10 if no action was taken, why no action was taken.

OPERATIONAL

- 12 The approval holder must ensure any plant and equipment used by the approval holder in conducting the activity:
 - 12.1 is reasonably fit for the purpose and use to which it is put;
 - 12.2 is maintained; and
 - 12.3 is operated by a person trained to use the plant and equipment.
- 13 The approval holder must ensure that wastewater generated from washing plant and equipment associated with the activity does not cause pollution.
- 14 The approval holder must segregate waste generated by the activity in clearly designated areas for recycling, re-use or disposal.
- 15 The approval holder must ensure that all materials that are likely to cause environmental harm are handled and stored in areas with a containment system in accordance with the relevant Australian Standard. Where no relevant Australian Standard exists, the containment system must be sized to contain 110% of the volume of the largest container within the area.
- 16 Prior to the commissioning and operation of the irrigation area, the approval holder must have completed the final landfill cap for the landfill stages that are incorporated in the irrigation area. This includes:
 - 16.1 satisfying all conditions associated with an environmental protection approval or licence for the capping; and
 - 16.2 certification from an appropriately qualified person that the design and construction meet the objectives detailed in the NT EPA 2013 Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites in the Northern Territory.
- 17 The approval holder must ensure that the design and location of the irrigation area is suitable for the irrigation activities to be undertaken such that:
 - 17.1 the integrity of the landfill cap is not compromised physically or chemically;
 - 17.2 the topography does not promote ponding within or runoff outside of the irrigation area; and
 - 17.3 adequate buffer distances are in place to ensure spray drift does not migrate outside of the site boundary.
- 18 Prior to construction of the activity the approval holder must develop and implement a Construction Environmental Management Plan (CEMP) for the activity that identifies potential environmental impacts associated with the activity and mitigation measures to be implemented. The CEMP must include:
 - 18.1 erosion and sediment control measures;

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- 18.2 emergency response plan that addresses procedures for responding to emergencies associated with the activity that may cause environmental harm;
 - 18.3 environmental nuisance control measures; and
 - 18.4 any other control measures to manage construction environmental impacts associated with the activity.
- 19 The approval holder must provide a Construction Quality Assurance Plan (CQAP) for the activity to the NT EPA at least 5 business days prior to commencing construction of the activity. The CQAP must:
- 19.1 include a scope of works;
 - 19.2 include the final specifications and design drawings of the works;
 - 19.3 provide the technical qualifications of the persons(s) who will be overseeing the CQAP;
 - 19.4 describe the details of any proposed inspection, testing and verification methods (including procedures, responsibilities, frequency and reporting); and
 - 19.5 include roles and responsibilities for the implementation of the CQAP.
- 20 The NT EPA may require the approval holder to revise, amend and/or resubmit the CQAP submitted under condition 19. Where the NT EPA requires the CQAP to be resubmitted, the approval holder must submit it to the NT EPA by the date specified by the NT EPA.
- 21 The approval holder must design and construct the activity in a manner which ensures that:
- 21.1 groundwater is protected from impacts of leachate;
 - 21.2 the wetland liner achieve a maximum permeability of not greater than $1 \times 10^{-9} \text{m/s}$; and
 - 21.3 the wetland liner is located above the maximum groundwater elevation with an unsaturated zone immediately below the liners of at least 2 meters.
- 22 This approval does not permit the operation of the leachate treatment plant or disposal of treated leachate to land other than for commissioning purposes. Operation of the leachate treatment plant and disposal of treated leachate to land can only occur once an application to amend Environmental Protection Licence EPL188-03 has been approved.

DISCHARGES AND EMISSIONS

- 23 The approval holder must ensure there is no migration or overflow of a contaminant or waste, which causes or may cause environmental harm, beyond the boundary of the land on which the premises are located. (For the avoidance of doubt, this condition is not intended to authorise the discharge of a contaminant or waste to any land or water which discharge has not been specifically authorised by another condition of this approval.)
- 24 The approval holder must not allow a contaminant or waste, which causes or may cause environmental harm, to enter water.

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- 25 The approval holder must ensure that stormwater does not come into contact with a contaminant or waste, which causes or may cause environmental harm.

Discharges to land

For the purposes of conditions 24 to 26, inclusive, the word "land" does not include water on, above, or under land.

- 26 Discharge to land is only permitted in this approval for the commissioning of irrigation equipment. Prior to commissioning the approval holder must:
- 26.1 develop and implement an irrigation commissioning plan, including monitoring program, to validate that irrigation infrastructure is functioning correctly and meeting design objectives;
 - 26.2 have completed the installation and development of all groundwater monitoring wells; and
 - 26.3 have completed baseline monitoring for surface water and groundwater.
- 27 The approval holder must install, operate and maintain a device to measure and record, for each discharge event:
- 27.1 the time the discharge commenced and the duration of the discharge;
 - 27.2 the discharge rate of flow; and
 - 27.3 the discharge volume.
- 28 The approval holder must ensure that the discharge to land via irrigation complies with the definition of treated leachate in this approval and does not:
- 28.1 contain any floating debris, oil, grease, petroleum hydrocarbon sheen, scum, litter or other objectionable matter;
 - 28.2 cause or generate odours that may be considered environmental nuisance;
 - 28.3 cause surface ponding or run off of wastewater;
 - 28.4 pollute groundwater or water within a waterway;
 - 28.5 cause erosion or degradation of soil; or
 - 28.6 cause adverse impacts on plants or animals.

MONITORING

- 29 The approval holder must conduct baseline monitoring for surface water and groundwater at locations detailed in Attachment 1.
- 30 The approval holder must develop, implement, maintain and follow environmental monitoring plans ("the Monitoring Plans") for construction, leachate treatment plant commissioning, irrigation infrastructure commissioning and baseline environmental monitoring from the commencement date of this approval.
- 31 The approval holder must ensure that all samples and field environmental data are representative of the conditions at the time of sampling.
- 32 The approval holder must ensure that all samples and field environmental data are collected in accordance with recognised Australian Standards and guidelines (such as AS/NZS 5667, ANZECC /ARMCANZ).

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- 33 The approval holder must ensure that all monitoring samples are analysed at a laboratory with current NATA accreditation or equivalent, for the parameters to be measured.
- For the purposes of this condition, the word "land" does not include water [or air] on or above land.
- 34 The approval holder must for all land based monitoring points specified in the Monitoring Plan:
- 34.1 install and maintain appropriate identification signage so that they are reasonably identifiable at all times; and
 - 34.2 maintain safe access and egress, as is reasonably practicable.
- 35 The approval holder must ensure any samples collected in accordance with the Monitoring Plan or in connection with the activity or this approval, are obtained by, or under the supervision of a qualified sampler.
- 36 The approval holder must ensure that, for each sample collected in accordance with the Monitoring Plan or the activity the following information must be recorded and retained:
- 36.1 the date on which the sample was collected;
 - 36.2 the time at which the sample was collected;
 - 36.3 the location at which the sample was collected;
 - 36.4 the name of the person who collected the sample;
 - 36.5 the chain of custody forms relating to the sample;
 - 36.6 the field measurements (if any) and analytical results (if any) relating to the sample; and
 - 36.7 laboratory quality assurance and quality control documentation.
- 37 The approval holder must ensure that any groundwater encountered during construction is:
- 37.1 sampled for parameters as specified in Table 1.

Table 1. Field parameters and analytical suite for monitoring intercepted groundwater

Field Parameters	Laboratory Parameters
pH	Major ions (Ca, Mg, Na, K, CO ₃ , HCO ₃ , Cl, SO ₄)
Electrical Conductivity	Nutrients (nitrate, nitrite, ammonia, total nitrogen, total phosphorus)
Temperature	total and dissolved Al, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Zn
Dissolved Oxygen	Chemical Oxygen Demand
	Total Organic Carbon
	Total Recoverable Hydrocarbons
	Total Phenolics
	Benzene, Toluene, Ethylbenzene, Xylene and Naphthalene
	PFAS

- 37.2 transferred to the leachate management system if it is contaminated by landfill leachate or construction activities; and
- 37.3 transfers are measured using a flow meter to record the volume of groundwater intercepted and transferred.

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RECORDING AND REPORTING

- 38 The approval holder must keep records of all non-compliances with this approval. These records must be adequate to enable the approval holder to comply with the non-compliance notification conditions of this approval.
- 39 The approval holder must notify the NT EPA of any non-compliance with this approval by completing the Non-Compliance Notification via NT EPA Online (or by emailing waste@nt.gov.au), as soon as practicable after (and in any case within 24 hours after) first becoming aware of the non-compliance.
- 40 The approval holder must include in the notification of non-compliance the following information:
- 40.1 when the non-compliance was detected and by whom;
 - 40.2 the date and time of the non-compliance;
 - 40.3 the actual and potential causes and contributing factors to the non-compliance;
 - 40.4 the risk of environmental harm arising from the non-compliance;
 - 40.5 the action(s) that have or will be undertaken to mitigate any environmental harm arising from the non-compliance;
 - 40.6 corrective actions that have or will be undertaken to ensure the non-compliance does not reoccur;
 - 40.7 if no action was taken, why no action was taken; and
 - 40.8 a date when an incident investigation report will be submitted to the NT EPA.
- 41 The approval holder must ensure that all interceptions with groundwater are recorded, including the following information for each:
- 41.1 the time and date and GPS coordinates of where groundwater was intercepted;
 - 41.2 the volume intercepted and transferred and where it was transferred; and
 - 41.3 analytical results from sampling undertaken as a condition of this approval.
- 42 The approval holder must complete and provide to the NT EPA, within 20 business days of completion of the activity, a Monitoring Report for all environmental monitoring carried out under this approval. The approval holder must ensure the monitoring report:
- 42.1 is prepared in accordance with the requirements of the NT EPA 'Guideline for Reporting on Environmental Monitoring';
 - 42.2 includes a tabulation in Microsoft Excel format of all monitoring data required as a condition of this approval;
 - 42.3 includes an assessment of environmental impact from the activity.
- 43 The NT EPA may require the approval holder to revise or amend and resubmit any Monitoring Report. Where the NT EPA requires the Monitoring Report to be resubmitted, the approval holder must submit it to the NT EPA by the date specified by the NT EPA.

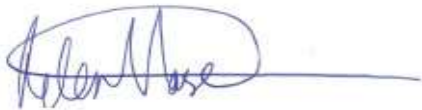
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- 44 The approval holder must submit to the NT EPA, at the completion of the activity, a review of the completed activity with certification from a qualified person(s) that the works conducted:
- 44.1 were constructed in accordance with the plans provided in condition 19 or as revised under condition 20;
 - 44.2 'as constructed' will deliver the intended performance; and
 - 44.3 are compliant with condition 21 of this approval.
- 45 Where the completed activity was not constructed in accordance with the plans provided under condition 18 or condition 19, the approval holder must submit to the NT EPA amended plans reviewed by a qualified person(s), to reflect the design 'as constructed'.

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END OF APPROVAL CONDITIONS

This approval is not valid unless signed below:



Peter Vasel
Director Environmental Operations
Delegate of the Northern Territory
Environment Protection Authority
Dated: 18/08/2022

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DEFINITIONS

All terms in the Approval which are defined in the *Waste Management and Pollution Control Act* have the meaning given in that Act unless otherwise or further defined in this section.

DEFINITION	In this approval, unless a contrary intention appears:
24 hour emergency contact	the phone number of a person who can be contacted at any time and be capable of responding to and providing information about any incident associated with the activity.
Activity	the Scheduled activity as described on the covering page of this approval.
Air	includes any layer of the atmosphere.
Annual fee	yearly fee payable in respect of the activity as specified in the WMPC Act and the Regulations.
Annual Return	an NT EPA prescribed format for demonstrating and reporting compliance with the conditions of this approval and providing information on waste volumes for the preceding 12 month period.
ANZECC/ARMCANZ	Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, 2000: National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting.
Asbestos containing material	any material that contains asbestos.
Business days	a day not Saturday, Sunday or a public holiday, in the Northern Territory.
Community feedback number	a telephone number enabling members of the public to contact, at any time, a person or voice mail system that can accept, on behalf of the approval holder, enquiries or complaints about the activity, and to which the approval holder must respond.
Complaint Log	a register of complaints to be maintained by the approval holder that records the details of each complaint received in relation to the activity.
Consultation and Communication Plan	a written plan documenting proposed consultation and communications for the activity before, during and after the activity which includes a strategy for communicating with members of the public who are likely to have a real interest in, or be affected by, the activity.
Contact details	includes the 24 hour emergency contact, and name, position title and phone number of a representative of the approval holder who can be contacted about the approval and activity.
Contaminant	a solid, liquid or gas or any combination of such substances and includes: (a) noise, odour, heat and electromagnetic radiation; (b) a prescribed substance or prescribed class of substances; and (c) a substance having a prescribed property or prescribed class of properties.
Discharges	allow a liquid, gas or other substance to flow out from where it has been confined.
Disposal schedule	a plan for disposing of asbestos containing material such that asbestos containing material is not stored in perpetuity.

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Emergency Response Plan	a written plan documenting the approval holder's procedures for responding to emergencies caused by, resulting from or associated with the activity and that may cause environmental harm.
Environmental audit	has the meaning given in section 47 of the WMPC Act.
Environmental harm	(a) any harm to or adverse effect on the environment; or (b) any potential harm (including the risk of harm and future harm) to or potential adverse effect on the environment, of any degree or duration and includes environmental nuisance.
Environmental nuisance	means: (a) an adverse effect on the amenity of an area that: (i) is caused by noise, smoke, dust, fumes or odour; and (ii) unreasonably interferes with or is likely to unreasonably interfere with the enjoyment of the area by persons who occupy a place within the area or are otherwise lawfully in the area; or (b) an unsightly or offensive condition caused by contaminants or waste.
Incident	includes: (a) an accident, emergency or malfunction; and (b) a deliberate action, whether or not that action was taken by the person conducting the activity in the course of which the incident occurred.
Land	includes water and air on, above or under land.
Landfill cell	a purpose built area for the disposal of waste within a landfill.
Landfill Closure and Post Closure Plan	a written plan which specifies the landfill closure and post-closure activities as set out in the NT EPA Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites in the Northern Territory.
Leachate	any liquid produced by the action of water percolating through waste, and that contains contaminants.
Leachate treatment plant	a facility designed for the treatment of leachate produced by the Shoal Bay Waste Management Facility consisting of: a. PFAS foam fractionation; b. foamate storage and drying of foamate produced by the PFAS foam fractionation; c. sequential batch reactor (SBR) and moving bed biofilm reactor (MBBR) for nitrogen removal; d. dissolved air floatation (DAF); e. sludge storage and drying facility for sludge generated by the DAF; f. bunded areas for chemical storage including sodium hydroxide; g. constructed and lined wetland planted densely vegetated with an operating depth between 200mm and 300mm; h. associated infrastructure including pumps, pipelines, bunds, control room, sheds, fencing, signage, carpark, roads and irrigation infrastructure.
Listed waste	a waste included under Schedule 2 of the Regulations.
Litter	litter, garbage, rubbish, refuse or waste matter, and includes the body of a dead animal.
Maintain	kept in a manner that it does not present or cause a risk of environmental harm or a

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hazard to persons or property or, for the purposes of documents including plans, a process of reviewing and amending documentation to ensure it is relevant.

Material environmental harm	environmental harm that: (a) is not trivial or negligible in nature; (b) consists of an environmental nuisance of a high impact or on a wide scale; (c) results, or is likely to result, in not more than \$50,000 or the prescribed amount (whichever is greater) being spent in taking appropriate action to prevent or minimise the environmental harm or rehabilitate the environment; or (d) results in actual or potential loss or damage to the value of not more than \$50,000 or the prescribed amount (whichever is greater).
NATA	National Association of Testing Authorities, Australia.
Non-compliance	failure or refusal to comply, whether by act or omission, with obligations or requirements and includes any exceedance of a approval limit.
Non-compliance notification	an NT EPA prescribed format for notifying the NT EPA of a non-compliance.
NT EPA Online	online system for Environment Protection Approval (EPL), Environment Protection Approval (EPA) and Waste Discharge Approval (WDL) lodgement and maintenance
NT EPA Online Vehicle Register	the vehicle register found at NT EPA Online.
Plant and equipment	all material items used in association with the activity, including (but not limited to) storage vessels and containers, pipe work and hosing, vehicles (including vessels), tools, and measuring equipment.
Point source discharge	means any discernible, confined or discrete conveyance from which contaminants or waste are or may be discharged.
Pollute	(a) emit, discharge, deposit, or disturb, directly or indirectly, a contaminant or waste; or (b) cause, permit, or fail to prevent, directly or indirectly, the emission, discharge, deposition, disturbance or escape of a contaminant or waste.
Pollution	(a) a contaminant or waste that is emitted, discharged, deposited or disturbed or that escapes; or (b) a contaminant or waste, effect or phenomenon, that is present in the environment as a consequence of an emission, discharge, deposition, escape or disturbance or a contaminant or waste.
Premises	the premises identified in this approval which includes equipment, plant and structures, whether stationary or portable, and the land on which premises are situated.
Public entrance	access to the premises that is utilised by the public.
Putrescible waste	the component of the waste stream liable to become putrid. For example, organic matter that has the potential to decompose with the formation of malodorous substances, usually refers to vegetative, food and animal products.
Qualified person	a person registered under Section 68 of the WMPC Act.
Qualified sampler	a person who has training and experience in obtaining samples from the relevant environmental medium.
Regulations	<i>Waste Management and Pollution Control (Administration) Regulations.</i>

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Rehabilitation Plan	a written plan to ensure that the objectives of rehabilitation are achieved as set out in the NT EPA Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites in the Northern Territory.
Serious environmental harm	environmental harm that is more serious than material environmental harm and includes environmental harm that: (a) is irreversible or otherwise of a high impact or on a wide scale; (b) damages an aspect of the environment that is of a high conservation value, high cultural value or high community value or is of special significance; (c) results or is likely to result in more than \$50,000 or the prescribed amount (whichever is greater) being spent in taking appropriate action to prevent or minimise the environmental harm or rehabilitate the environment; or (d) results in actual or potential loss or damage to the value of more than \$50,000 or the prescribed amount (whichever is greater).
Solid inert waste	solid waste that has no active chemical or biological properties. These wastes do not undergo environmentally significant physical, chemical or biological transformation.
Stormwater	water flowing over ground surfaces, in natural streams and drains as a direct result of rainfall over a catchment and consists primarily of rainfall runoff.
Treated leachate	Leachate collected from the Shoal Bay Waste Management Facility that has been treated using the approved treatment plant such that the concentration of: a. PFAS are reduced to less than the marine guideline values for 95% species protection detailed in the PFAS National Environmental Management Plan, January 2018; b. E. coli is reduced to less than 10,000 CFU/100mL, as per the requirements for Class D wastewater in the Northern Territory Environmental Health Draft Guidelines for wastewater works Design Approval of Recycled Water Systems, July 2014; c. concentration of contaminants are reduced to less than the short-term use trigger values (up to 20 years) as detailed in Volume 1, Table 4.2.10 of the ANZECC/ARMCANZ; d. electrical conductivity is not greater than 21 dS/m; e. total nitrogen is not greater than 170mg/L; and f. total phosphorous in not greater than 8 mg/L.
Treated leachate disposal area	an irrigation area covering up to 8 hectares on landfill Stages 3 and 4, using prepared and ameliorated soils, monto vetiver grass (<i>Chrysopogon zizanioides</i>) and fit for purpose irrigation infrastructure to ensure treated leachate is irrigated in a manner that: a. surface runoff does not occur as a result of irrigation; b. nutrients and contaminants present in the treated leachate do not migrate to the receiving environment; c. spray drift outside of the irrigation area does not occur; and d. vetiver grass will be evaluated for its reuse potential before the first harvest and reuse suitability will be evaluated based on contaminant concentration in the biomass. If contaminated, the harvested vetiver grass will be disposed to an appropriately licenced facility.
Trigger values	assigned value for each indicator used to assess the risk to an environmental value, a value that initiates some type of pre-defined management action.

ENVIRONMENT PROTECTION APPROVAL 304 - 02

Waste	(a) a solid, a liquid or a gas; or (b) a mixture of such substances, that is or are left over, surplus or an unwanted by-product from any activity (whether or not the substance is of value) and includes a prescribed substance or class of substances.
Waste transport certificate	the NT EPA waste tracking documentation used to track listed waste being transported interstate as required in accordance with the National Environment Protection (Movement of Controlled Waste Between States and Territories) Measure.
Wastewater	water that contains a contaminant or waste.
Water	includes: (a) surface water, ground water and tidal waters; (b) coastal waters of the Territory, within the meaning of the <i>Coastal Waters (Northern Territory Powers) Act 1980</i> of the Commonwealth; and (c) water containing an impurity.
WMPC Act	the Northern Territory <i>Waste Management and Pollution Control Act</i> .

Appendix B – City of Darwin Review of EPA 304-02 Conditions



COD EPA Review Comments		
No.	EPA Reference Condition	Compliance Comment
1	The approval holder must ensure the contact details recorded in NT EPA Online for this approval are correct at all times.	Provided through EPA Online Portal
2	The approval holder must at all times have a 24 hour emergency contact.	Provided through Council registered contact with the EPA
3	The approval holder must cause clear and legible signage, in English, to be displayed in a prominent location at each public entrance to the premises that includes the following details:	Provided through site signage as witnessed by the EPA during site inspections
3.1	environment protection approval number issued under the WMPC Act; and	Provided through site signage as witnessed by the EPA during site inspections
3.2	24 hour emergency contact details.	Provided through site signage as witnessed by the EPA during site inspections
4	The approval holder must provide to the NT EPA, within 10 business days of a request, a copy of any document, monitoring data or other information in relation to the activity, in the format requested by the NT EPA.	All requests from the EPA attended to in a prompt manner, meeting the requirements of this condition.
5	All notices, reports, documents or other correspondence required to be provided as a condition of this approval, unless otherwise specified as a condition of this approval, must be provided in electronic form by uploading the document via NT EPA Online (or by emailing waste@nt.gov.au).	All documents required to be provided to the EPA have been provided along the project duration via this manner.
6	The NT EPA may require the approval holder to submit, revise or amend and resubmit any document. Where the NT EPA requires a document to be submitted or resubmitted, the approval holder must submit it to the NT EPA by the date specified by the NT EPA.	All requests from the EPA attended to in a prompt manner, meeting the requirements of this condition.
7	The approval holder must, for the duration of this approval, implement, maintain and follow a consultation and Communication Plan which includes a strategy for communicating with persons who are likely to have a real interest in, or be affected by, the activity.	Consultation Plan provided to the EPA as part of the original approval with consultation activities undertaken as per the plan.
8	The approval holder must operate and maintain a community feedback number.	Provided through Council website.
9	The approval holder must display the community feedback number:	Provided through Council website.
9.1	where the approval holder has a website, in a prominent location on the approval holder website;	Provided through Council website.



9.2	in the Consultation and Communication Plan; and	Included within the plan as provided to the EPA as part of the original approval.
9.3	in other publicly available documents relating to the activity.	Council contact details provided across multiple avenues.
10	The approval holder must maintain a Complaint Log for all complaints received by the approval holder in relation to the activity.	Complaint log maintained at the site. No complaints received.
11	The approval holder must ensure that the Complaint Log includes, for each complaint received by the approval holder, the following information:	N/A
11.1	the person to whom the complaint was made;	Noted
11.2	the person responsible for managing the complaint;	Noted
11.3	the date and time the complaint was reported;	Noted
11.4	the date and time of the event(s) that led to the complaint;	Noted
11.5	the contact details of the complainant if known, or where no details are provided a note to that effect;	Noted
11.6	the nature of the complaint;	Noted
11.7	the nature of event(s) giving rise to the complaint;	Noted
11.8	prevailing weather conditions at the time (where relevant to the complaint);	Noted
11.9	the action taken in relation to the complaint, including any follow-up contact with the complainant; and	Noted
11.10	if no action was taken, why no action was taken.	Noted
	OPERATIONAL	
12	The approval holder must ensure any plant and equipment used by the approval holder in conducting the activity:	N/A
12.1	is reasonably fit for the purpose and use to which it is put;	Please refer to WCG - Maintenance records
12.2	is maintained; and	Please refer to WCG - Maintenance records
12.3	is operated by a person trained to use the plant and equipment.	Please refer to WCG - Induction and training register
13	The approval holder must ensure that wastewater generated from washing plant and equipment associated with the activity does not cause pollution.	Please refer to WCG - operation records (please note we don't have a washing plant)
14	The approval holder must segregate waste generated by the activity in clearly designated areas for recycling, re-use or disposal.	Please refer to WCG - Induction and training register



15	The approval holder must ensure that all materials that are likely to cause environmental harm are handled and stored in areas with a containment system in accordance with the relevant Australian Standard. Where no relevant Australian Standard exists, the containment system must be sized to contain 110% of the volume of the largest container within the area.	Please refer to WCG - operation records / Maintenance records / OHS records
16	Prior to the commissioning and operation of the irrigation area, the approval holder must have completed the final landfill cap for the landfill stages that are incorporated in the irrigation area. This includes:	Complied with through provision of Interim Auditor Report for the Stage 3/4 cap provided to the EPA on 28/10/2022
16.1	satisfying all conditions associated with an environmental protection approval or licence for the capping; and	Complied with through provision of Interim Auditor Report for the Stage 3/4 cap provided to the EPA on 28/10/2022
16.2	certification from an appropriately qualified person that the design and construction meet the objectives detailed in the NT EPA 2013 Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites in the Northern Territory.	Complied with through provision of Interim Auditor Report for the Stage 3/4 cap provided to the EPA on 28/10/2022
17	The approval holder must ensure that the design and location of the irrigation area is suitable for the irrigation activities to be undertaken such that:	Please refer to WCG irrigation management plan - approved by EHS Support 1/7/2022
17.1	the integrity of the landfill cap is not compromised physically or chemically;	Please refer to WCG irrigation management plan - approved by EHS Support 1/7/2022
17.2	the topography does not promote ponding within or runoff outside of the irrigation area; and	Please refer to WCG irrigation management plan - approved by EHS Support 1/7/2022; and Interim Auditor Report for the Stage 3/4 cap provided to the EPA on 28/10/2022
17.3	adequate buffer distances are in place to ensure spray drift does not migrate outside of the site boundary.	Please refer to WCG irrigation management plan - approved by EHS Support 1/7/2022
18	Prior to construction of the activity the approval holder must develop and implement a Construction Environmental Management Plan (CEMP) for the activity that identifies potential environmental impacts associated with the activity and mitigation measures to be implemented. The CEMP must include:	Please refer to WCG CEMP, a copy of which was provided to the EPA prior to works commencing
18.1	erosion and sediment control measures;	Please refer to WCG CEMP, a copy of which was provided to the EPA prior to works commencing



18.2	emergency response plan that addresses procedures for responding to emergencies associated with the activity that may cause environmental harm;	Please refer to WCG CEMP, a copy of which was provided to the EPA prior to works commencing
18.3	environmental nuisance control measures; and	Please refer to WCG CEMP, a copy of which was provided to the EPA prior to works commencing
18.4	any other control measures to manage construction environmental impacts associated with the activity.	Please refer to WCG CEMP, a copy of which was provided to the EPA prior to works commencing
19	The approval holder must provide a Construction Quality Assurance Plan (CQAP) for the activity to the NT EPA at least 5 business days prior to commencing construction of the activity. The CQAP must:	Please refer to WCG CEMP, a copy of which was provided to the EPA prior to works commencing
19.1	include a scope of works;	Please refer to WCG CEMP, a copy of which was provided to the EPA prior to works commencing
19.2	include the final specifications and design drawings of the works;	Please refer to WCG CEMP, a copy of which was provided to the EPA prior to works commencing
19.3	provide the technical qualifications of the persons(s) who will be overseeing the CQAP;	Please refer to WCG CEMP, a copy of which was provided to the EPA prior to works commencing
19.4	describe the details of any proposed inspection, testing and verification methods (including procedures, responsibilities, frequency and reporting); and	Please refer to WCG CEMP, a copy of which was provided to the EPA prior to works commencing
19.5	include roles and responsibilities for the implementation of the CQAP.	Please refer to WCG CEMP, a copy of which was provided to the EPA prior to works commencing
20	The NT EPA may require the approval holder to revise, amend and/or resubmit the CQAP submitted under condition 19. Where the NT EPA requires the CQAP to be resubmitted, the approval holder must submit it to the NT EPA by the date specified by the NT EPA.	Noted.
21	The approval holder must design and construct the activity in a manner which ensures that:	Designs prepared, submitted and approved by the EPA. Monitoring through construction and as provided in the Monitoring Report indicate no environmental impacts.
21.1	groundwater is protected from impacts of leachate;	Designs prepared, submitted and approved by the EPA. Monitoring through construction and as provided in the Monitoring Report indicate no environmental impacts.
21.2	the wetland liner achieve a maximum permeability of not greater than 1×10^{-9} m/s; and	Designs prepared, submitted and approved by the EPA. Monitoring/testing undertaken



		through construction demonstrate minimum required permeability
21.3	the wetland liner is located above the maximum groundwater elevation with an unsaturated zone immediately below the liners of at least 2 meters.	Designs prepared, submitted and approved by the EPA. Survey undertaken through construction demonstrate minimum required separation distance
22	This approval does not permit the operation of the leachate treatment plant or disposal of treated leachate to land other than for commissioning purposes. Operation of the leachate treatment plant and disposal of treated leachate to land can only occur once an application to amend Environmental Protection Licence EPL188-02 has been approved.	Commissioning of the Leachate Treatment Plant is anticipated to continue through to approximately August 2023. An application to vary EPL 188-02 (now 188-03) is currently being prepared and anticipated to be submitted in the first quarter of 2023.
	DISCHARGES AND EMISSIONS	
23	The approval holder must ensure there is no migration or overflow of a contaminant or waste, which causes or may cause environmental harm, beyond the boundary of the land on which the premises are located. (For the avoidance of doubt, this condition is not intended to authorise the discharge of a contaminant or waste to any land or water which discharge has not been specifically authorised by another condition of this approval.)	Noted. Any breaches have been recorded in the construction management software system and reported by Council to the EPA.
24	The approval holder must not allow a contaminant or waste, which causes or may cause environmental harm, to enter water.	Noted. Any breaches have been recorded in the construction management software system and reported by Council to the EPA.
25	The approval holder must ensure that stormwater does not come into contact with a contaminant or waste, which causes or may cause environmental harm. Discharges to land for the purposes of conditions 24 to 26, inclusive, the word "land" does not include water on, above, or for the purposes of conditions 24 to 26, inclusive, the word "land" does not include water on, above, or under land.	Noted. Any breaches have been recorded in the construction management software system and reported by Council to the EPA.
26	Discharge to land is only permitted in this approval for the commissioning of irrigation equipment. Prior to commissioning the approval holder must:	Noted.
26.1	develop and implement an irrigation commissioning plan, including monitoring program, to validate that irrigation infrastructure is functioning correctly and meeting design objectives;	Please refer to WCG irrigation management plan - approved by EHS Support 1/7/2022



26.2	have completed the installation and development of all groundwater monitoring wells; and	Please refer to Monitoring Report
26.3	have completed baseline monitoring for surface water and groundwater.	Please refer to Monitoring Report
27	The approval holder must install, operate and maintain a device to measure and record, for each discharge event:	Noted. Any breaches have been recorded in the construction management software system and reported by Council to the EPA.
27.1	the time the discharge commenced and the duration of the discharge;	Details captured in the construction management software system
27.2	the discharge rate of flow; and	Details captured in the construction management software system
27.3	the discharge volume.	Details captured in the construction management software system
28	The approval holder must ensure that the discharge to land via irrigation complies with the definition of treated leachate in this approval and does not:	Noted
28.1	contain any floating debris, oil, grease, petroleum hydrocarbon sheen, scum, litter or other objectionable matter;	Noted. Any breaches have been recorded and reported by Council to the EPA. Operation sampling report will be the source of breach information
28.2	cause or generate odours that may be considered environmental nuisance;	Noted. Any breaches have been recorded and reported by Council to the EPA. Operations monitoring and complaint records will be the source of breach information
28.3	cause surface ponding or run off of wastewater;	Noted. Any breaches have been recorded and reported by Council to the EPA. Operation daily report will be the source of breach information
28.4	pollute groundwater or water within a waterway;	Noted. Any breaches have been recorded and reported by Council to the EPA. Monitoring activities will be the source of breach information
28.5	cause erosion or degradation of soil; or	Noted. Any breaches have been recorded and reported by Council to the EPA. Maintenance report will be the source of breach information
28.6	cause adverse impacts on plants or animals.	Noted. Any breaches have been recorded and reported by Council to the EPA. Operation daily report will be the source of breach information
	MONITORING	
29	29 The approval holder must conduct baseline monitoring for surface water and	Please refer to Monitoring Report



	groundwater at locations detailed in Attachment 1.	
30	The approval holder must develop, implement, maintain and follow environmental monitoring plans ("the Monitoring Plans") for construction, leachate treatment plant commissioning, irrigation infrastructure commissioning and baseline environmental monitoring from the commencement date of this approval.	Monitoring plans developed and approved by EPA prior to construction works being undertaken. Please refer to Monitoring Report for results
31	The approval holder must ensure that all samples and field environmental data are representative of the conditions at the time of sampling.	Monitoring integrated into broader site monitoring requirements. Please refer to the Monitoring Report for relevant results and associated reporting.
32	The approval holder must ensure that all samples and field environmental data are collected in accordance with recognised Australian Standards and guidelines (such as AS/NZS 5667, ANZECC /ARMCANZ)	Monitoring integrated into broader site monitoring requirements. Please refer to the Monitoring Report for relevant results and associated reporting including collection methods.
33	The approval holder must ensure that all monitoring samples are analysed at a laboratory with current NATA accreditation or equivalent, for the parameters to be measured. For the purposes of this condition, the word "land" does not include water [or air] on or above land.	Monitoring integrated into broader site monitoring requirements. Please refer to the Monitoring Report for relevant results and associated reporting including NATA accreditation of testing.
34	The approval holder must for all land based monitoring points specified in the Monitoring Plan:	N/A
34.1	install and maintain appropriate identification signage so that they are reasonably identifiable at all times; and	Signage is in place for all monitoring points and are clearly identifiable.
34.2	maintain safe access and egress, as is reasonably practicable.	Safe access to monitoring points has been available at all times with no recorded failures to access by the monitoring consultants.
35	The approval holder must ensure any samples collected in accordance with the Monitoring Plan or in connection with the activity or this approval, are obtained by, or under the supervision of a qualified sampler.	Independent consultants used for required monitoring activities. Please refer to the Monitoring Report.
36	The approval holder must ensure that, for each sample collected in accordance with the Monitoring Plan or the activity the following information must be recorded and retained:	N/A
36.1	the date on which the sample was collected;	Monitoring integrated into broader site monitoring requirements. Please refer to the Monitoring Report for relevant results and associated reporting including sampling information



36.2	the time at which the sample was collected;	Monitoring integrated into broader site monitoring requirements. Please refer to the Monitoring Report for relevant results and associated reporting including sampling information
36.3	the location at which the sample was collected;	Monitoring integrated into broader site monitoring requirements. Please refer to the Monitoring Report for relevant results and associated reporting including sampling information
36.4	the name of the person who collected the sample;	Monitoring integrated into broader site monitoring requirements. Please refer to the Monitoring Report for relevant results and associated reporting including sampling information
36.5	the chain of custody forms relating to the sample;	Monitoring integrated into broader site monitoring requirements. Please refer to the Monitoring Report for relevant results and associated reporting including sampling information
36.6	the field measurements (if any) and analytical results (if any) relating to the sample; and	Monitoring integrated into broader site monitoring requirements. Please refer to the Monitoring Report for relevant results and associated reporting including sampling information
36.7	laboratory quality assurance and quality control documentation.	Monitoring integrated into broader site monitoring requirements. Please refer to the Monitoring Report for relevant results and associated reporting including sampling information
37	The approval holder must ensure that any groundwater encountered during construction is:	Noted.
37.1	sampled for parameters as specified in table 1.	No groundwater was encountered through construction. Please refer to the construction day sheets. As such, no sampling required.
37.2	transferred to the leachate management system if it is contaminated by landfill leachate or construction activities; and	No groundwater was encountered through construction. Please refer to the construction day sheets. As such, no transfer required.
37.3	transfers are measured using a flow meter to record the volume of groundwater intercepted and transferred.	No groundwater was encountered through construction. Please refer to the construction day sheets. As such, no transfer required.
RECORDING AND REPORTING		



38	The approval holder must keep records of all non-compliances with this approval. These records must be adequate to enable the approval holder to comply with the non-compliance notification conditions of this approval.	Noted. Any breaches have been recorded in the construction management software system and reported by Council to the EPA.
39	The approval holder must notify the NT EPA of any non-compliance with this approval by completing the Non-Compliance Notification via NT EPA Online (or by emailing waste@nt.gov.au), as soon as practicable after (and in any case within 24 hours after) first becoming aware of the non-compliance.	Noted. Any breaches have been recorded in the construction management software system and reported by Council to the EPA.
40	The approval holder must include in the notification of non-compliance the following information:	N/A
40.1	when the non-compliance was detected and by whom;	Noted. Any breaches have been recorded in the construction management software system and reported by Council to the EPA.
40.2	the date and time of the non-compliance;	Noted. Any breaches have been recorded in the construction management software system and reported by Council to the EPA.
40.3	the actual and potential causes and contributing factors to the non-compliance;	Noted. Any breaches have been recorded in the construction management software system and reported by Council to the EPA.
40.4	the risk of environmental harm arising from the non-compliance;	Noted. Any breaches have been recorded in the construction management software system and reported by Council to the EPA.
40.5	the action(s) that have or will be undertaken to mitigate any environmental harm arising from the non-compliance;	Noted. Any breaches have been recorded in the construction management software system and reported by Council to the EPA.
40.6	corrective actions that have or will be undertaken to ensure the non-compliance does not reoccur;	Noted. Any breaches have been recorded in the construction management software system and reported by Council to the EPA.
40.7	if no action was taken, why no action was taken; and	Noted. Any breaches have been recorded in the construction management software system and reported by Council to the EPA.
40.8	a date when an incident investigation report will be submitted to the NT EPA.	Noted. Any breaches have been recorded in the construction management software system and reported by Council to the EPA.
41	The approval holder must ensure that all interceptions with groundwater are recorded, including the following information for each:	No groundwater was encountered through construction. Please refer to the construction day sheets. As such, no sampling required.
41.1	the time and date and GPS coordinates of where groundwater was intercepted;	No groundwater was encountered through construction. Please refer



		to the construction day sheets. As such, no sampling required.
41.2	the volume intercepted and transferred and where it was transferred; and	No groundwater was encountered through construction. Please refer to the construction day sheets. As such, no sampling required.
41.3	analytical results from sampling undertaken as a condition of this approval.	No groundwater was encountered through construction. Please refer to the construction day sheets. As such, no sampling required.
42	The approval holder must complete and provide to the NT EPA, within 20 business days of completion of the activity, a Monitoring Report for all environmental monitoring carried out under this approval The approval holder must ensure the monitoring report:	Please refer to the Monitoring Report included in this submission.
42.1	is prepared in accordance with the requirements of the NT EPA 'Guideline for Reporting on Environmental Monitoring';	Please refer to the Monitoring Report included in this submission.
42.2	includes a tabulation in Microsoft Excel format of all monitoring data required as a condition of this approval;	Please refer to the additional information provided as part of this submission.
42.3	includes an assessment of environmental impact from the activity.	Please refer to the Monitoring Report included in this submission.
43	The NT EPA may require the approval holder to revise or amend and resubmit any Monitoring Report. Where the NT EPA requires the Monitoring Report to be resubmitted, the approval holder must submit it to the NT EPA by the date specified by the NT EPA.	Noted.
44	The approval holder must submit to the NT EPA, at the completion of the activity, a review of the completed activity with certification from a qualified person(s) that the works conducted:	Please refer to the independent advice provided for each element along with the overall assessment provided by Mr Zane Gibson
44.1	were constructed in accordance with the plans provided in condition 19 or as revised under condition 20;	Please refer to the independent advice provided for each element along with the overall assessment provided by Mr Zane Gibson
44.2	'as constructed' will deliver the intended performance; and	Please refer to the independent advice provided for each element along with the overall assessment provided by Mr Zane Gibson
44.3	are compliant with condition 21 of this approval.	Please refer to the independent advice provided for each element along with the overall assessment provided by Mr Zane Gibson
45	Where the completed activity was not constructed in accordance with the plans provided under condition 18 or condition 19, the approval holder must submit to the NT EPA amended plans reviewed by a qualified	As constructed information provided as part of this submission along with sign off from qualified persons as per condition 124.



	person (s), to reflect the design 'as constructed'.	
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Appendix C – Independent Assessment of Construction works against designs



Date 24/10/22

Attention: Nik Kleine, Geoff Webster

City Of Darwin
GPO Box 84
Darwin NT 0801

Dear Nik, Geoff

RE: EP304-2 compliance review

This letter confirms that the Leachate Treatment Plant constructed at the Shoal Bay Waste Management Facility (SBWMF), in Holmes, NT has been audited and meets the requirements addressing the following relevant approval conditions in the license of EPA304 - 02:

- 44 The approval holder must submit to the NT EPA, at the completion of the activity, a review of the completed activity with certification from a qualified person(s) that the works conducted:
- 44.1 were constructed in accordance with the plans provided in condition 19
- 44.2 'as constructed' will deliver the intended performance; and
- 44.3 are compliant with condition 21 of this approval.

All relevant documentation relating to the above is included in the attached submission provided on the 12th of October 2022, including the following 'As Constructed' documentation

- Auditors sign off (this letter)
- Design report
- Drawings and PIDs
- Function description
- Management plans
- Operation and Maintenance manual
- Process commissioning reports.

Yours Sincerely,



Zane Gibson

MIEAust # 3511201, CPeng , RPEQ #13167, MAIPM
M. +61-420 958 373 (AU), zane.gibson67@gmail.com
155 Kingsley Terrace, Manly, Brisbane, Queensland, 4179U20, 55 Royal Street, Perth, WA, 6004

Attention: Nik Kleine, Geoff Webster
City Of Darwin
GPO Box 84
Darwin NT 0801

24th October 2022

Dear Nik, Geoff

RE: EP304-2 compliance review

The Water and Carbon Group confirms that EPA 304-1 clauses 12, 13 and 14, as listed below, has been fulfilled during the construction and commissioning works of Shoal Bay Leachate Treatment Plant.

12 The approval holder must ensure any plant and equipment used by the approval holder in conducting the activity:

12.1 is reasonably fit for the purpose and use to which it is put;

12.2 is maintained; and

12.3 is operated by a person trained to use the plant and equipment.

13 The approval holder must ensure that wastewater generated from washing plant and equipment associated with the activity does not cause pollution.

14 The approval holder must segregate waste generated by the activity in clearly designated areas for recycling, re-use or disposal.

The Water and Carbon Group confirms that the implementation of the above will continue during the operation phase of the leachate treatment plant

- Appendix A summarises the list of supportive documentation produced to date

Best Regards,



Jean-Marc Laurillard
Project Manager

EPA304-2 WCG letter Condition 12_13_14

F-07 Daily

[illegible]

4/06/2022	Simon Toomey (The Water & Carbon Group)
3/06/2022	Simon Toomey (The Water & Carbon Group)
2/06/2022	Simon Toomey (The Water & Carbon Group)
2/06/2022	Simon Toomey (The Water & Carbon Group)
1/06/2022	Simon Toomey (The Water & Carbon Group)
31/05/2022	Simon Toomey (The Water & Carbon Group)
30/05/2022	Simon Toomey (The Water & Carbon Group)
28/05/2022	Simon Toomey (The Water & Carbon Group)
27/05/2022	Simon Toomey (The Water & Carbon Group)
26/05/2022	Jean-Marc Laurillard (The Water & Carbon Group)
26/05/2022	Simon Toomey (The Water & Carbon Group)
25/05/2022	Simon Toomey (The Water & Carbon Group)
24/05/2022	Simon Toomey (The Water & Carbon Group)
23/05/2022	Simon Toomey (The Water & Carbon Group)
21/05/2022	Simon Toomey (The Water & Carbon Group)
20/05/2022	Simon Toomey (The Water & Carbon Group)
19/05/2022	Simon Toomey (The Water & Carbon Group)
18/05/2022	Simon Toomey (The Water & Carbon Group)
17/05/2022	Simon Toomey (The Water & Carbon Group)
16/05/2022	Simon Toomey (The Water & Carbon Group)
14/05/2022	Simon Toomey (The Water & Carbon Group)
13/05/2022	Simon Toomey (The Water & Carbon Group)
12/05/2022	Simon Toomey (The Water & Carbon Group)
11/05/2022	Simon Toomey (The Water & Carbon Group)
10/05/2022	Simon Toomey (The Water & Carbon Group)
9/05/2022	Simon Toomey (The Water & Carbon Group)
7/05/2022	Simon Toomey (The Water & Carbon Group)

[illegible]

[illegible]

Daily Prestart Form
20.10.21
Daily Prestart Form
Daily Prestart Form - 18.10.21
Daily Prestart Form
Daily Prestart Form -15/10/21

20/10/2021 Masashi Date-Shppard (The Water & Carbon Group)
19/10/2021 Cliff Duckworth (The Water & Carbon Group)
18/10/2021 Cliff Duckworth (The Water & Carbon Group)
16/10/2021 Cliff Duckworth (The Water & Carbon Group)
15/10/2021 Cliff Duckworth (The Water & Carbon Group)

14/10/2021 Masashi Date-Shappard (The Water & Carbon Group)

[illegible]

18/08/2021 Simon Toomey (The Waters & Graham Group)

[illegible]

16/08/2021	Simon Toomey (The Water & Carbon Group)
9/08/2021	Simon Toomey (The Water & Carbon Group)
3/08/2021	Simon Toomey (The Water & Carbon Group)
27/07/2021	Simon Toomey (The Water & Carbon Group)
19/07/2021	Simon Toomey (The Water & Carbon Group)
13/07/2021	Simon Toomey (The Water & Carbon Group)
5/07/2021	Simon Toomey (The Water & Carbon Group)
30/06/2021	Simon Toomey (The Water & Carbon Group)
24/06/2021	Simon Toomey (The Water & Carbon Group)
24/06/2021	Simon Toomey (The Water & Carbon Group)
7/06/2021	Simon Toomey (The Water & Carbon Group)
31/05/2021	Simon Toomey (The Water & Carbon Group)
27/05/2021	Simon Toomey (The Water & Carbon Group)
28/06/2021	Sean Karimi (The Water & Carbon Group)

F-16 Plant Pre Commencement Checklist and Inspection	F-26 Hazardous Chemical Risk Assessment	Caterpillar Wheeled Loader 990H	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-16 Plant Pre Commencement Checklist and Inspection	F-26 Hazardous Chemical Risk Assessment	KCB 260T Truck Loader	14/01/2021	Simon Toomey (The Water & Carbon Group)
F-16 Plant Pre Commencement Checklist and Inspection	F-26 Hazardous Chemical Risk Assessment	Rockam VR850 Rock Hammer	14/01/2021	Simon Toomey (The Water & Carbon Group)
F-16 Plant Pre Commencement Checklist and Inspection	F-26 Hazardous Chemical Risk Assessment	Kobelco Excavator SK330	14/01/2021	Simon Toomey (The Water & Carbon Group)
F-16 Plant Pre Commencement Checklist and Inspection	F-26 Hazardous Chemical Risk Assessment	Excavator Hyundai R210LC-9	14/01/2021	Simon Toomey (The Water & Carbon Group)
F-16 Plant Pre Commencement Checklist and Inspection	F-26 Hazardous Chemical Risk Assessment	Hazardous Chemical Risk Assessment	15/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment - Hydrochloric Acid 33%	Hazardous Chemical Risk Assessment	25/10/2021	Cliff Duckworth (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment - Megapoxy H - Part B	Hazardous Chemical Risk Assessment	25/10/2021	Cliff Duckworth (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment - Megapoxy H	Hazardous Chemical Risk Assessment	25/10/2021	Cliff Duckworth (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Fopforce Aqua Termiticide & insecticide	6/09/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Epiroc Epoxy Mastic Metal Primer	6/09/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Hazardous Chemical Risk Assessment	6/09/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Biforce 100SE Termiticide and insecticide	4/09/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	BP Diesel Fuel	4/09/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Zinsser JL 6K Auto Smart Prime	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Kuala Kota Kare Solvent Degreaser	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	White Knight Ultra Pave Accent	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	White Knight Guard Epoxy Enamel Aluminum Aerosol	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	VHT Flameproof Coatings	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Septonex Wheel Silver	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Valvoline Premium Blue 8500 15W-40 Oil	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Unleaded Petrol	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	BP Unleaded Petrol	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Titan Liquid Hand Soap	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Septone Aerosol Wax & Grease Remover	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Sunshield Low Sheen Paint	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Superforce Detergent	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Tectyl S06-Aerosol	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Septone Rust Converter	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Scotts Spray and Wipe	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Series 500 Type Shine 400gm	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Price Chemicals Hydrochloric Acid 28-36%	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	QD Xtreme Enamel Paint	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Yates Double Strength Ratkax	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Air Liquide Propane	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Protek Type P Green Solvent Cement	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Parmament Pro Block Sunscreen SPFSO+	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	NovaGuard 845 Base White Paint	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Signamar 550 Annelio RL 1021 Paint	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Reuil BE Fire Extinguisher	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Prestolit ABE Fire Extinguisher	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Mortain Outdoor Fly and Mosquito Spray	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	mortech Fish Oil Aerosol 400gm	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Nason 750 82 ZX 2P EP Activator 4L	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Topcoat ST100-G10 C20LT High OH PU	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Activator ST200-S45 CSLT ZX PU HS	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Earth Choice Kitchen Cleaner	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Nulon Shift Ya Bastard	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	R5 Pro D Limonene Cleaning Agent	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Watly Poly UTM 400 Paint	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Polygate Foraming Wheel Cleaner	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	737 Thinner	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	40S Aerosol 300 Rapid Dry Enamel Paint	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Aerogel Odorless Low Irritant Aerosol	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	CR Aerostart	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Agnews Water Putty	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Oxygen Algal3 Lasal2003	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Anchor Lacquer Spray Paint	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Ardrox 8501 Aerosol	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Armor All Multi-Purpose Auto Cleaner Spray	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Armor All Ultra Wash & Wax	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Armor All Ultra Wash & Wax	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Auto Smart All King Cleaner	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Auto Smart Jelsol Graffiti Remover	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Auto Smart Purple Stuff Polish	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Autosol Chrome & Metal Polish	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Balshan White Survey Paint 350gm	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Danabao Boat Every Day Clear Spray SPF 50+ sunscreen	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Bar's Bug's	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Berger 659-Line Solarscreen Gloss Paint	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Aluminum Dioxidizer	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Castrol CHF Hydraulic Fluid	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Castrol Hyspin AWH 68 Hydraulic Fluid	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Castrol Premium Heavy Duty Grease	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Castrol RX Diesel 15W-40 Oil	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Castrol SX Grease#2	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	BP Diesel Fuel	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Coles Super Strength Diluishing Liquid	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	317-Line Dulux Duramax Paint	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	SBD-LineDulux Perforament paint	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Dupli-color Vinyl Paint	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Dy-Mark Spray&Mark Std all Colours	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Hazardous Chemical Risk Assessment	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	JasolEC 14 Autofeed Warewashing rinse aid	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Evergreen Fast Action Roundup Weedkiller	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Extol Anti Bacteria Spray 300grm Aerosol	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Jasol Firedog	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Flex Lag Activator	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Gasimate Butane	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Earth Choice Glass Surface and Window Cleaner	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Harvey No Rinse Sanitizer	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Oven and Grill Cleaner	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Duplicolor touch up pen 12ml	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Green Stuff	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Alkaline Coil Cleaner	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Castrol Hyspin AWH-M68 Hydraulic Fluid	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Simple Green Glass Cleaner Concentrate	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Kool Brite Sanitizer	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	CSB Kerosene	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Coles Ultra Disinfectant Eucalyptus	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Kitten Ultra Claxs Cleaner	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Septone Lemon Brite Laundry Powder	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Loctite Silver Grade Anti Seil	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Liquefied Petroleum Gas	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Luxury Paints Gloss Enamel 42/48 Series	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Maxi Block SPF 30 Sunscreen	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Meguiars G130 Metal Polish	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-20 Hazardous Chemical Risk Assessment	F-20 Hazardous Chemical Risk Assessment	Site Safety Induction	15/10/2021	Cliff Duckworth (The Water & Carbon Group)
F-03 Site Safety Induction	F-03 Site Safety Induction	Site Safety Induction 3	24/08/2021	Simon Toomey (The Water & Carbon Group)
F-03 Site Safety Induction	F-03 Site Safety Induction	Site Safety Induction 2	24/08/2021	Simon Toomey (The Water & Carbon Group)
F-03 Site Safety Induction	F-03 Site Safety Induction	New-Kin Safety Induction	16/06/2021	Simon Toomey (The Water & Carbon Group)
F-11 Fire Extinguisher Register	F-11 Fire Extinguisher Register	Fire Extinguisher Register 1 & 21	24/08/2021	Simon Toomey (The Water & Carbon Group)
F-02 10 SWMS Power Tools	F-02 10 SWMS Power Tools	F-02 10 SWMS Power Tools & Hand Tools	10/06/2021	Paul Patterson (The Water & Carbon Group)
F-19 Hazardous Chemical Register	F-19 Hazardous Chemical Register	Page 7	9/06/2021	Paul Patterson (The Water & Carbon Group)
F-19 Hazardous Chemical Register	F-19 Hazardous Chemical Register	Page 6	21/01/2021	Simon Toomey (The Water & Carbon Group)
F-19 Hazardous Chemical Register	F-19 Hazardous Chemical Register	Page 6	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-19 Hazardous Chemical Register	F-19 Hazardous Chemical Register	Page 6	20/01/2021	Simon Toomey (The Water & Carbon Group)
F-19 Hazardous Chemical Register	F-19 Hazardous Chemical Register	Page 3	19/01/2021	Simon Toomey (The Water & Carbon Group)
F-19 Hazardous Chemical Register	F-19 Hazardous Chemical Register	Page 3	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-19 Hazardous Chemical Register	F-19 Hazardous Chemical Register	Page 2	18/01/2021	Simon Toomey (The Water & Carbon Group)
F-19 Hazardous Chemical Register	F-19 Hazardous Chemical Register	Page 1	18/01/2021	Simon Toomey (The Water & Carbon Group)



Harris Kmon Solutions Pty Ltd

ABN: 48 605 604 144

PO Box 213

PALMERSTON NT 0831

21 October 2022

Jean-Marc Laurillard
Project Manager
The Water & Carbon Group
By email: j-m.laurillard@watercarbon.com.au

Dear Jean

Re: Shoal Bay Leachate Treatment Plant – Independent structural inspections summary

Thank you for the opportunity to work on this project.

1. Background

Harris Kmon Solutions ('HKS') were engaged to undertake independent third party inspections of structural works for the Shoal Bay Leachate Plant which included construction of new tanks, bunded areas, buildings and sheds.

HKS have issued 68 inspection reports throughout the project. Below is a summary of these reports.

This summary supersedes the previously submitted brief inspection letter issued on 1 March 2022 which included only the first 53 reports.

2. Summary of reports

2.1 Chemical unloading bay bunded area

Inspection number	Inspection area	Status
1	Slab reinforcement	No outstanding issues.
3	Slab reinforcement reinspection	
44	Final inspection	

2.2 Molasses tank bunded area

Inspection number	Inspection area	Status
2	Slab reinforcement	No outstanding issues.
3	Slab reinforcement reinspection	
43	Final inspection	

2.3 SBR Tank 1

Inspection number	Inspection area	Status
4	Perimeter beam reinforcement	No outstanding issues.
5	Base slab reinforcement	
6	Lower wall reinforcement	
7	Top wall reinforcement	
45	Final inspection	

2.4 SBR Tank 2

Inspection number	Inspection area	Status
8	Perimeter beam reinforcement	No outstanding issues.
9	Base slab and wall reinforcement	
13	Top wall reinforcement	
46	Final inspection	

2.5 Operations Building

Inspection number	Inspection area	Status
10	Internal ground slab	No outstanding issues.
11	Internal ground slab reinspection	
17	Block work	
27	Roof framing	
35	External ground slab	
49	Final inspection	

2.6 Aeration shed

Inspection number	Inspection area	Status
22	Ground slab	No outstanding issues.
25	Framing	
28	Prelim final inspection	
39	Final inspection	

2.7 LEEF(PFAS) shed

Inspection number	Inspection area	Status
14	Ground slab	Outstanding issues incl column bases (Refer insp. report 53). Issues resolved since insp. report 53 include concrete strength*, bonding agent**, missing screws** and suitability of roofing screw assembly#.
21	Ground slab reinspection	
34	Shed framing inspection	
41	Prelim final inspection	
53	Final inspection	

2.8 Chemical shed

Inspection number	Inspection area	Status
12	Ground slab	Issues resolved since insp. report 52 incl. concrete strength*, bonding agent**, wall cladding overhang and suitability of roofing screw assembly#. No outstanding issues.
23	Shed Framing	
32	Shed framing reinspection	
40	Prelim final inspection	
52	Final inspection	

2.9 DAF shed

Inspection number	Inspection area	Status
18	Ground slab	Outstanding issues column bases (Refer inspection report 51). Issues resolved since insp. report 51 incl. suitability of roofing screw assembly#.
33	Shed framing	
42	Prelim final inspection	
51	Final inspection	

2.10 Recirculation tank

Inspection number	Inspection area	Status
29	Framing	No outstanding issues.
30	Prelim final inspection	
37	Final inspection	

2.11 MBBR Tank

Inspection number	Inspection area	Status
15	Perimeter beam	No outstanding issues.
16	Tank lower wall	
19	Tank top wall	
47	Final inspection	

2.12 Balance Tank

Inspection number	Inspection area	Status
20	Base slab	No outstanding issues.
24	Perimeter beam	
26	Balance tank wall	
28	Final inspection	

2.13 Main bund wall

Inspection number	Inspection area	Status
31	Footing	No outstanding issues.
36	Wall reinforcement	
38	Sump reinforcement	
50	Final inspection	

2.14 Containerised switch room

Inspection number	Inspection area	Status (minor defect)
54	Footings	Outstanding issues - Concrete delivery docket to be provided to confirm the grade of concrete. Refer inspection report 63.
63	Final inspection	

2.15 Access stairs

Inspection number	Inspection area	Status
55	Access stair footing layout B	Outstanding issues incl. concrete strength, differential deflections on the mesh panels, non-compliance with stair risers, single screws instead of two screws for floor brace straps. Refer inspection report 66.
56	Access stair footing layout A	
60	Access stairs – framing	
66	Access stairs – final	

2.16 Internal pump and control panel

Inspection number	Inspection area	Status (minor defect)
57	Internal pump and control panel slabs	Outstanding issues - Concrete delivery docket to be provided to confirm the grade of concrete. Refer inspection report 64.
64	Internal pump and control panel slabs – final	

2.17 Exterior pump

Inspection number	Inspection area	Status (minor defect)
58	Exterior pump slab	Outstanding issues - Concrete delivery docket to be provided to confirm the grade of concrete. Refer inspection report 58.

2.18 Aeration pipes T- frame

Inspection number	Inspection area	Status (minor defect)
59	T – frame slab	Outstanding issues - Concrete delivery docket to be provided to confirm the grade of concrete. Refer inspection report 65.
65	T – frame final	

2.19 CP600 Pivot slab

Inspection number	Inspection area	Status (minor defect)
61	Pivot slab	Outstanding issues - Concrete delivery docket to be provided to confirm the grade of concrete. Refer inspection report 67.
67	Pivot slab final	

2.20 Generator enclosure (Construction was incomplete and ongoing)

Inspection number	Inspection area	Status
62	Slab and bored pier	Outstanding issues incl. lack of protective coating repairs, wrong orientation of girts etc. Refer inspection report number 68.
68	Framing	

As noted there are still some items we consider to be outstanding on the LEEF shed, DAF shed, Access stairs and Generator enclosure which require resolution from the designer/contractor.

Other inspections including containerised switch rooms, internal pump slab and control panel slab, exterior pump slab, Aeration T pipe frames and CP600 Pivot slab are noted as outstanding due to unavailability of concrete delivery dockets or concrete test results for review.

Note:

* Indicates that concrete delivery dockets for LEEF, Chemical and DAF shed slab pours were made available for review subsequent to issue of inspection reports. These indicate a concrete grade of N25 as specified on the drawings.

** Indicates that client has confirmed the application of bonding agent and installation of additional screws as required per drawings refer email correspondence dated 12/10/2022.

Indicates client has confirmed the installation of roof screw assembly and 300 mm wall cladding overhang is as per design and S40 design was provided to confirm that design meets all relevant Australian standards.

If required, HKS can provide an additional review to close out these noted issues.

If you require any further information at this stage, please do not hesitate to contact me at elisha.harris@hksolutions.com.au or on 0402 042 044.

Regards



Elisha Harris

Director / Structural Engineer

HKSolutions

12 October 2022

Our Ref: NT21074_L001 Rev 0

Dave Leinster
 The Water & Carbon Group
 Solutions Development Manger
 via email: d.Leinster@waterandcarbon.com.au

Dear Dave,

Re: Shoal Bay Leachate Treatment Plant – Independent Civil Inspections Summary

1. Background

Byrne Consultants were engaged to undertake independent third-party inspections to audit the civil construction works undertaken for the Shoal Bay Leachate Plant.

Byrne Consultants have undertaken 19 inspections throughout the project. Below is a summary of these reports. Reports are provided in Attachment 1.

2. Summary of reports

Inspection No. and Date	Byrne Representative	Activity	Inspection	Status
1 - 31/05/21	Gary Boyle	Earthworks	Topsoil Strip, Clearing and Grubbing	Pass
2 - 08/06/21	Paul Brandis	Earthworks/Wetlands	Bulk Earthworks - Foundation Proof Roll prior to Filling	Fail
3 - 15/06/21	Paul Brandis	Earthworks/Wetlands	Bulk Earthworks - Foundation Proof Roll prior to Filling	Pass
4 - 21/06/21	Paul Brandis	Earthworks	Bulk Earthworks - Subgrade Proof Roll	Fail
5 - 23/06/21	Nick Sullivan	Earthworks	Bulk Earthworks - Subgrade Proof Roll	Pass
6 - 30/06/21	Nick Sullivan	Wetlands, and Treated Leachate Mains	Subgrade Proof Roll, and Bedding/Pipe Install	Pass
7 - 13/07/21	Nick Sullivan	Treated Leachate Mains/Water Mains	Bedding/Pipe Install	Pass
8 - 14/07/21	Nick Sullivan	Treated Leachate Mains/Water Mains	Bedding/Pipe Install	Pass

Darwin

T8, Ground Floor
 60 Winnellie Road,
 Winnellie NT 0820
 P: (08) 8947 2476

Gold Coast

Building 1, Level 2
 124/34 Glenferrie Drive,
 Robina QLD 4226
 P: (07) 5628 2794

Sunshine Coast

Tenancy 6, Beerwah Plaza
 68 Simpson Street,
 Beerwah QLD 4519
 P: (07) 5329 4507

Townsville

Suite 7
 41-51 Sturt Street
 Townsville QLD 4810
 P: (07) 4440 5203

Inspection No. and Date	Byrne Representative	Activity	Inspection	Status
9 - 19/07/21	Nick Sullivan	Treated Leachate Mains/Water Mains	Bedding/Pipe Install	Pass
10 - 20/07/21	Nick Sullivan	Treated Leachate Mains/Water Mains	Bedding/Pipe Install	Pass
11 - 04/08/21	Nick Sullivan	RCB Culverts	Culvert Foundation (2 No Culvert Base Slab Pre-Pour)	Pass
12 - 17/08/21	Nick Sullivan	Wetlands	Engineered Fill Proof Roll	Pass
13 - 20/08/21	Nick Sullivan	Wetlands	Engineered Fill Proof Roll	Pass
14 - 24/08/21	Nick Sullivan	Culverts	Culvert Install (prior to backfilling)	Pass
15 - 24/08/21	Nick Sullivan	Access Road	Foundation Proof Roll	Pass
16 - 25/08/21	Nick Sullivan	Treated Leachate Mains	Trench Foundation Inspection	Pass
17 - 27/08/21	Nick Sullivan	Wetlands anchor Trench Access Road	Trench foundation inspection Basecourse proof roll	Pass
18 - 10/09/21	Nick Sullivan	Access Road	Wearing Course	Pass
19 - 20/09/21	Nick Sullivan	Wetlands	Outlet Headwall installation & Over-installation	Pass

As identified in the table above, two inspections failed and were subsequently re-inspected and passed. All other inspections passed.

3. Closing

If you require any further information at this stage, please do not hesitate to contact me at p.brandis@byrneconsultants.com.au or on +61 411 560 831.

Yours sincerely,



Paul Brandis
Senior Civil Engineer
 MIEAust, CPEng, NER, RPEQ, CPESC

Attachment 1 – Civil Inspection Reports

Appendix D – Construction and Environmental Management Plan



Shoal Bay Waste Management Facility



Shoal Bay Leachate Management Facility Construction Environmental Management Plan



Project Title	SHOAL BAY LEACHATE MANAGEMENT FACILITY
Project Location	Shoal Bay Waste Management Facility, Holmes, NT.
Main Contractor details	The Water and Carbon Group Pty Ltd
Main Contractor ABN/ACN	ABN: 17 125 935 855
Construction Manager	Simon Toomey
Client	City of Darwin
Planned commencement dates and project schedule	16 November 2020

Report Disclaimer

This report has been prepared by The Water and Carbon Group Pty Ltd upon instructions and information supplied by City of Darwin

The Water and Carbon Group should be consulted to ascertain the suitability of the information contained herein. The Water and Carbon Group accepts no responsibility for the application of the contents of this report by a third party who has not verified the use of this report for their purposes with the Water and Carbon Group.

VERS.	ISSUED TO	PREPARED	REVIEWED	APPROVED	DATE
Draft	C.Duckworth	P.Patterson	C.Duckworth		25.10.20
Rev0	City of Darwin	S.Costello	C.Duckworth	C.Duckworth	18.11.20
Rev1	City of Darwin	M. Lovell	JM. Laurillard	JM. Laurillard	01.09.22



INTEGRATED QUALITY, SAFETY & ENVIRONMENTAL POLICY

The Water and Carbon Group (WCG) is a sustainable engineering firm operating in the water, waste and environmental services industries. With our core company values of vision, respect and legacy, we thrive to offer our clients the solutions that will meet their triple bottom line now and into the future.

This policy covers all WCG's activities, departments, sites, and is intended to support the strategic direction of WCG by being the foundation in which all workers care for our customers, each other the environment and promotes continuous improvement to keep WCG moving forward to being an innovative industry leader.

All employees and subcontractors working for WCG are to deliver a quality product and service to our customers, in a safe and environmentally friendly manner:

- Be aware of, and protect the environment from, our environmental impacts, whilst enhancing environmental performance;
- Endeavor to continually improve our Integrated Management System (IMS) and the quality of the products/services we provide every day, through consultation and participation of workers, workers representatives, interested parties and our customers;
- Comply with legislation and other compliance requirements as identified within the IMS;
- All personnel are to be trained, competent and confident to perform their role;
- Use respect when communicating and consulting with customers and each other;
- Safely operate each day whilst providing and continually improving the safe and healthy working environment for our workmates, visitors and the public, including the prevention of work-related injury and ill health by eliminating of hazards and reducing risks; and
- Establish and review quality, safety and environmental objectives (within Toolbox) that are measurable (including those that commit to preventing pollution, continually improve the effectiveness of the IMS, and eliminate work related injury and illness).

This Integrated Quality, Safety and Environmental Policy is to be 'lived' at all levels within WCG. All supervisors and managers are to ensure this policy is communicated, understood and demonstrated by all employees and subcontractors working for or on behalf of WCG, every day.

Signed: 
Jim Hunter, CEO

Abbreviations and Definitions

Summary	Details
ANZECC	Australian and New Zealand Environment and Conservation Council
AS 1940	Australian Standard 1940-2004 The Storage and Handling of Flammable and Combustible Liquids
CEMP	Construction Environmental Management Plan
EPL	Environmental Protection License
EPA	Environmental Protection Authority
EPA	Environmental Protection Approval
SMP	Safety Management Plan
CoD	City of Darwin
WCG	The Water and Carbon Group
MSP	Management System Procedure
TMP	Traffic Management Plan



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1. Introduction

This document constitutes the Construction Environmental Management Plan for the Shoal Bay Waste Management Facility (SBWMF) Leachate Management System (LMS). It comprises a presentation of the project background and objectives, outlines the regulatory framework within which the project sits, and describes all the environmental management activities and control measures that will be implemented to avoid or minimise environmental impacts.

The EMP will be implemented for the duration of the construction phase, as authorised by the Environmental Protection License.

1.1. Purpose

This Environmental Management Plan (EMP) outlines the environmental objectives to be achieved to minimise environmental impacts arising during construction of the LMS. It is the primary objective that all environmental impacts during construction are avoided or minimised as far as practicable.

It is the purpose of this EMP to:

- Identify the actions to be undertaken to manage the environmental impacts of the construction works.
- Ensure the statutory environmental requirements for the project are addressed.
- Ensure that the management actions are in accordance with accepted City of Darwin standards.

1.2. Objectives

The key objectives of this EMP are to:

- Ensure that all the project activities include measures to effectively manage potential and actual impacts to the environment and community;
- Implement WCG Integrated Safety, Quality and Environmental Policy (POL-01), and City of Darwin Environmental policy;
- Implement a system for legislative and contractual compliance;
- Establish mitigation and management measures to achieve the environmental requirements of the Project activities, having regard to the risks posed to the environment;
- Develop, implement and monitor management measures;
- Enable continual improvement.



1.3. Supporting Documents

This EMP has been prepared using and in accordance with the following supporting documents:

- Construction Safety Management Plan
- Construction Traffic Management Plan
- Stakeholder Consultation and Communication Plan
- Shoal Bay Waste Management Facility Environmental Management Plan
- Northern Territory Environmental Protection Authority Act 2012
- Northern Territory Environmental Protection Authority Regulations 2012
- Waste Management and Pollution Control Act 1998
- Waste Management and Pollution Control (Administration) Regulations 1998
- International Standards Organisation (ISO)14001 Environmental Management Systems with Guidance for Use; and
- AS/NZS ISO 31000– Risk Management – Principles and Guidelines
- Environmental Protection Authority EPA 304 (Appendix A).



2. Project Information

2.1. Project Summary

WCG has been engaged with CoD in the development of a leachate treatment solution for the SBWMF since 2016. Over the past four years, and through a rigorous tender process, WCG was engaged to develop and test a leachate and PFAS treatment solution to meet the unique needs of the landfill. Upon construction, the system will be able to progressively treat the legacy leachate accumulated within the landfill cells and the leachate storage ponds, as well as ongoing production of leachate over the coming years. This unique project will deliver outstanding environmental outcomes for Darwin by significantly reducing the risks for future uncontrolled releases of leachate and associated contaminants, with a system designed to minimise waste production and energy usage.

2.2. Project Location and Site Layout

The operational area of the SBWMF is located within the southern part of the property and is bound to the north and east by floodplains, wetlands and mangroves of Leanyer Swamp, to the south by Holmes Jungle Nature Reserve and to the west by bushland. The nearest residential area to the SBWMF is the suburb of Karama, about 0.7km to the south west with a bushland buffer in between.



Figure 1: Shoal Bay Waste Management Facility (NearMaps 2020)



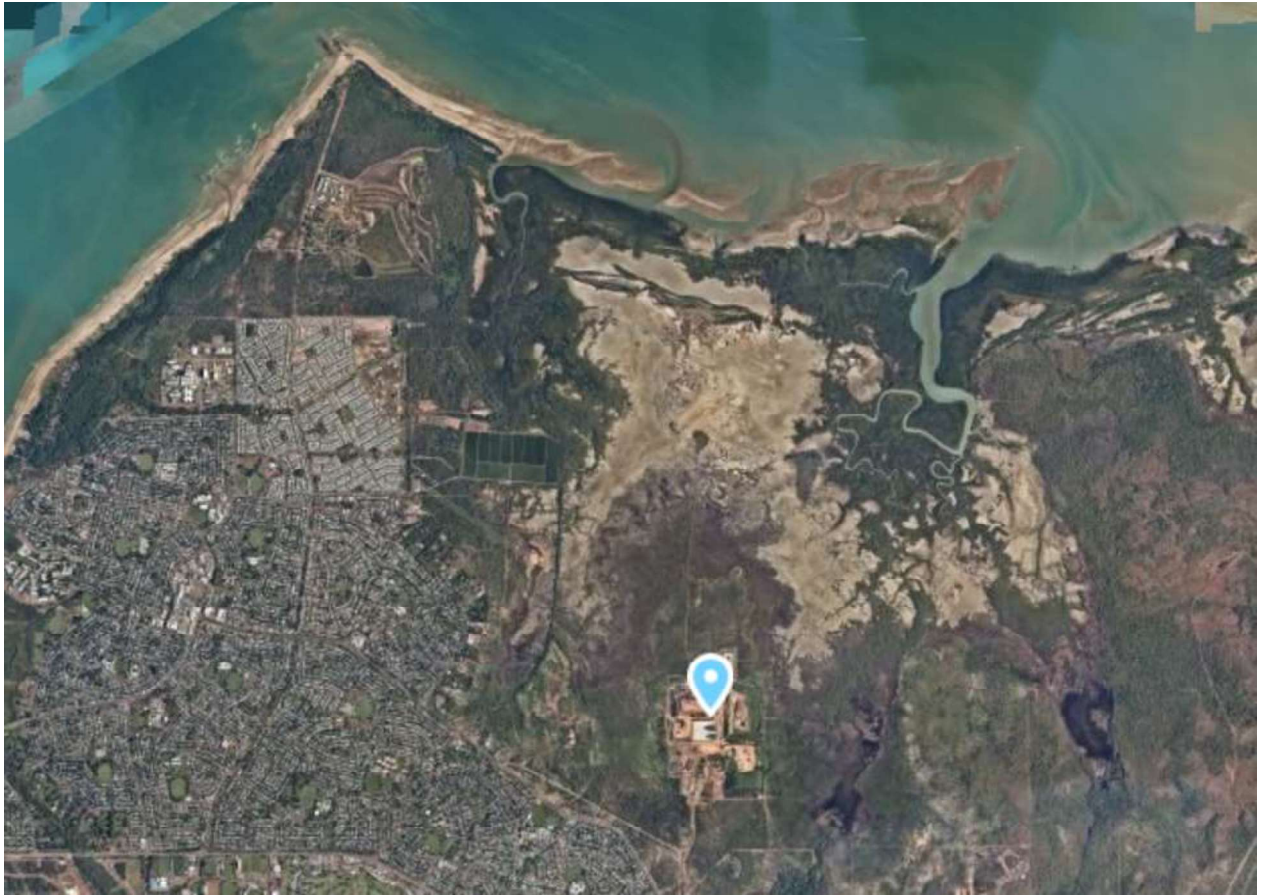


Figure 2: Location of Shoal Bay Waste Management Facility (NearMaps 2020)



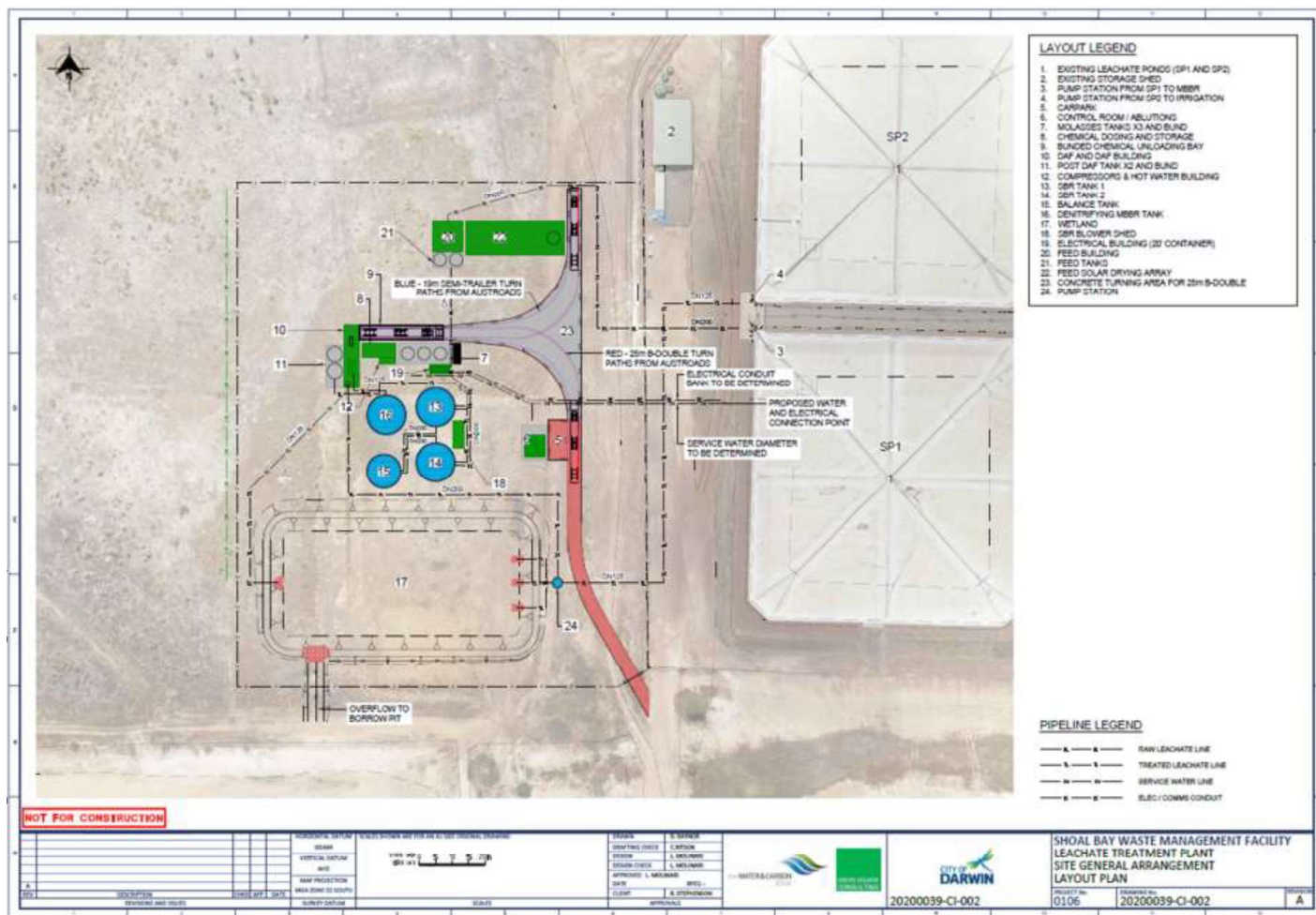


Figure 3: General Site Layout



2.3. Project Team Structure

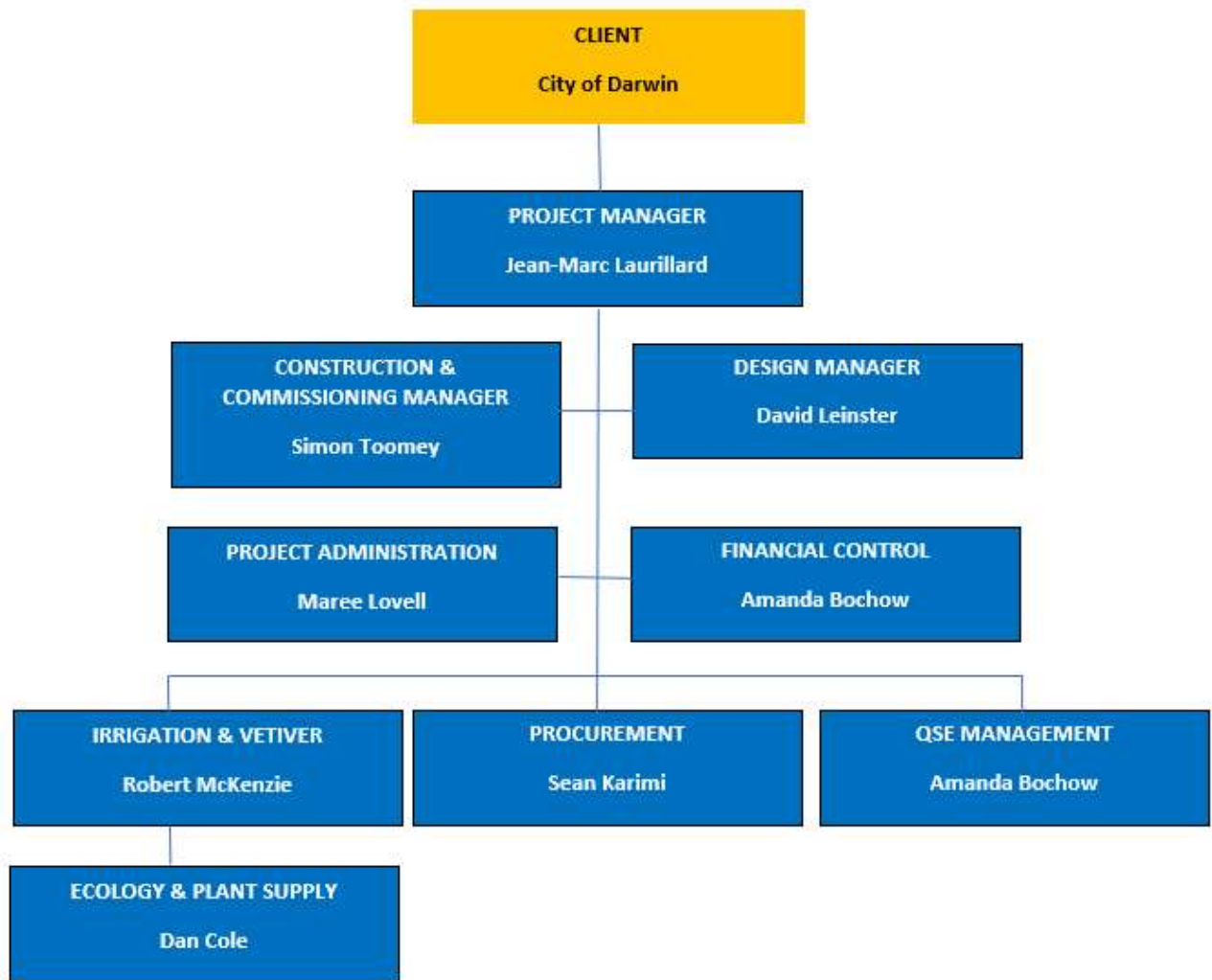


Figure 4: Project Team Structure



2.4. Project Representatives

Table 1: Project Representatives

Position	Name	Contact Details
City of Darwin – Project Manager	Nik Kleine	0438 001 359
WGC - Project Manager	Jean-Marc Laurillard	0425 024 983
WCG - Design Manager	David Leinster	0429 445 579
WCG – Construction Manager	Simon Toomey	0418 510 239
WCG - Procurement	Sean Karimi	0421 511 939
WCG - Site Engineer	David Leinster	0429 445 579
WCG – Quality Safety and Environmental Officer	Amanda Bochow	0474 304 287
SBWMF Landfill Manager Veolia	Nick Walker	0447 969 847

2.5. 24 Hours Emergency Contact

Simon Toomey
Construction and Commissioning Manager
s.toomey@waterandcarbon.com.au
0418 510 239

2.6. Construction Activities and Hours

The project construction and operation works include:

- Civil works
- Underground & above ground pipe laying
- Construction of tanks, sheds, operations building
- Roads, concrete slabs & bunds
- Electrical & communications
- Wetland & vetiver grass nursery

The construction hours will be from **6am to 6 pm, 6 days a week**. Works on Sundays or outside of these hours will be undertaken in consultation with City of Darwin, if required.



2.7. Existing Services onsite

No existing electrical, communications, water or sewer network assets were identified within the footprint of the project site by a Dial Before You Dig request or within site services information provided by The City of Darwin. However, during the installation of the water main from the central ring main to the construction footprint and during the installation of the High Voltage supply line through the centre of the broader landfill several services have been identified. Due to the age of the landfill and the nature of some of the site documents stored on site it is essential care is taken when working in the broader landfill in areas designated in handover to WCG. Services identified in the broader area include:

- New Construction Area in the North West of site: None Currently Identified.
- All areas outside of the North West of site: Electrical (LV, HV), Water, Leachate, Landfill Gas, Stormwater, Communications Line, Telstra Line, Roadways, Groundwater Monitoring Bores, Swale Drains, Cell Liners, Former Unidentified Waste Storage Areas.



3. Statement of Responsibilities

3.1. General

WCG is committed to achieving sustainable outcomes from the construction and operational activities of the LMS, by managing these in an environmentally sensitive manner and preventing pollution and minimising hazards. Continual improvement in environmental performance will be achieved by setting objectives, measuring progress and communicating results.

3.2. Main Contractor

The Main Contractor (WCG) commits to:

- Minimising the environmental impact of the project through design and appropriate risk management and mitigation measures and in particular, to minimise adverse impacts on the environment and adjacent property from construction activity, visual intrusion, noise and waste disposal
- Ensuring that the way in which the site is operated does not put the wider environment and community at risk
- Consulting with contractors on environmental issues
- Complying with relevant health and safety legislation

3.3. Subcontractors

Subcontractors are required to be aware of and comply with WCG environmental policy and to cooperate in achieving sustainable project outcomes. A copy will be kept on site and available for viewing. All employees of subcontractors will participate in a Site Specific Induction with WCG which will ensure they are fully aware of their obligations in regard to the health and safety plan and policies. Daily pre-starts will be conducted each morning prior to commencing any on site activities.

Subcontractors shall comply with all current relevant legislation, guidelines, standards and industry practices including but not limited to the Northern Territory Environmental Protection Authority Act (2012), Waste Management and Pollution Control Act 1998 and associated regulations as well as the WCG and the SBWMF EMP. The WCG has a 'Zero Harm' philosophy towards Work Health and Safety and the Environment. All work practises and methodologies adopted for the day to day contract activities by WCG staff and approved sub-contractors shall comply with such requirements.

In particular, the Subcontractor shall:

- Comply with environmental procedures and risk mitigation measures



- Undertake all reasonable effort to reduce risk to the environment and mitigate risk
- If there is likelihood of damage occurring to the environment as a result of activities, notify their supervisor, and take appropriate corrective action including ceasing work activities, procedures or similar corrective actions
- Ensure communication regarding all incidents occurs through to the Site Manager
- Share lessons and contribute to the Project's knowledge



4. Legal and Contractual Requirements

4.1. Relevant Legislation

The key Commonwealth and Northern Territory legislation applicable to the operation of LMS is outlined in the table below.

Table 2: Applicable Legislation for the Shoal Bay Leachate Treatment Facility

Environmental Aspect	Applicable legislation
Dangerous Goods	• <i>Dangerous Goods Act (NT)</i> • <i>Road Transport (Dangerous Goods) Act 1995 (NT)</i> • <i>Dangerous Goods (Storage and Handling) Regulations 2000 (NT)</i> • <i>Road Transport Reform (Dangerous Goods) Act 1995 (Cwlth)</i>
Flora & Fauna (including weeds & pests)	• <i>Soil Conservation and Land Utilisation Act (NT)</i> • <i>Weeds Management Act (NT)</i>
Heritage	• <i>Australian Heritage Commission Act 1975 (Cwlth)</i> • <i>Heritage Act (NT)</i> • <i>National Heritage Trust of Australia Act 1997 (Cwlth)</i> • <i>Aboriginal Land Act</i> • <i>Northern Territory Aboriginal Sacred Sites Act</i>
Noise	• <i>Waste Management and Pollution Control Act (NT)</i> • <i>Environmental Protection (Noise) Regulations, 1997</i> • <i>Noise Management Framework Guidelines (Northern Territory)</i> • <i>Noise guidelines for development site in the Northern Territory, May 2014</i>
Waste & Hazardous Waste	• <i>Work Health and Safety (National Uniform Legislation) Act (NT)</i> • <i>Waste Management and Pollution Control Act (NT)</i> • <i>AS/NZS ISO 31000– Risk Management – Principles and Guidelines</i> ○ <i>Northern Territory Environmental Protection Authority Regulations 2012</i> ○ <i>Northern Territory Environmental Protection Authority Act 2012</i>
Water (surface & groundwater)	• <i>Marine Pollution Act (NT)</i> • <i>Water Act (NT)</i> • <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018)</i>



Environmental Aspect	Applicable legislation
Contaminated Land	- Northern Territory Contaminated Land Guideline (NT, 2017) - NSW Guidelines for the NSW Site Auditor Scheme (NSW, 2017) - Environmental auditor (contaminated land): Guidelines for issue of certificates and statements of environmental audit (VIC, 2015). - National Environmental Protection (Assessment of Site Contamination) Measure 1999 (amended 2013)

All works undertaken at the LMS will be planned, resourced and implemented in accordance with all relevant legal and regulatory requirements.



4.2. Environmental Protection Approval

The activities within the SBWMF are authorised under the Landfill's Environmental Protection Licence. To authorise the construction activities linked to the Leachate Management System, the NT EPA issued City of Darwin an Environmental Protection Approval (EPA304, see Appendix A). The EPA regulates the activities linked to the construction of the LSM at the SBWMF and outlines conditions which must be met in order to remain compliant under the Act.

Please refer to [Appendix A - Environmental Protection Approval 304](#) (NT EPA).

This management plan aims to ensure that all the conditions imposed by the Environmental Protection Approval are met and maintained throughout the duration of the project.

WCG will ensure that all staff will be trained and aware of the Environmental Protection Approval under which the activities on site will be authorised, and its requirements through the following, as appropriate:

- Site Induction
- Daily Prestart Meetings
- Toolbox Talks
- Onsite Signage

4.3. Site Inductions

All project personnel, subcontractors and consultants will be required to undertake a site induction which will, as a minimum, address the following environmental topics:

- Details of the EPL and conditions and consequences of non-compliance with the EPL
- The significant environmental risks and details of the EMP
- Location of significant environmental sensitive areas
- Emergency Response Plan, procedures, where posters are located (e.g. the action to be taken in emergencies, communication lines and contact details for emergency services and site representatives)



4.4. Environmental Awareness

Ongoing environmental awareness will be maintained through the use of visual aids and signage so as to be visible to the general public and users of LMS. Site specific environmental information and lessons learnt will be disseminated through the project team and the Contractor through the use of pre-start messages and toolbox talks to ensure all parties are kept informed.



5. Environmental Risks and Management

5.1. Risk Assessment

Environmental Risks arising from this project have been identified, recorded, rated and analysed in the Project Risk Register.

A list of the environmental risks which have been identified for this project are outlined below, the environmental objectives, control measures and performance criteria which will be implemented to mitigate the risks are outlined in [Section 5.2](#):

- Noise and Vibration
- Dust and Air Quality
- Surface Water Contamination
- Impact on Fauna
- Impact on Flora
- Hydrocarbon and Chemical Spill
- Leachate Spill
- Vegetation Clearing

5.2. Environmental Management

This section outlines the management and mitigation measures that have been developed to address the environmental issues identified as part of the risk assessment process. Objectives and control methods are provided to minimise any adverse effects on the environment and to ensure compliance with legal and other requirement



5.2.1.Erosion and Sediment Control

Environmental Objectives
The Objective is to protect open drains and natural drainage lines from sedimentation deposits by minimising erosion of land and transportation of sediments during construction
Control Measures
The following measures should be undertaken to minimise erosion: - Land clearance should be kept to a minimum (within the site boundary only) - Clearing areas of highly erodible soils and steep slopes that are prone to water and wind erosion should be avoided wherever possible. - Areas that have been cleared shall have a dust suppressing agent applied to them if they are being periodically worked on to minimise erosion. - Keep vehicles to well-marked and graded access roads. - Divert clean stormwater from the parts of the site which have exposed soil - Stormwater drainage is to exit the site via a sedimentation control installation such as silt fencing or sedimentation basins/tanks/ponds. When sediment traps are up to 1/3 full of silt, the silt should be removed. - Timber, logs and rubbish should be removed from the site so soil removal should not be interfered with. - All excavated material should be temporarily stockpiled on the high side of the trench for periods less than a month. - Where practicable, all trenches should be backfilled at the end of the working day. - Machine activity to be kept away from drainage lines unless absolutely necessary and then machine activity is to be kept to a minimum. - Construction Plan and machinery to remain wherever possible within the construction site for the duration of the contract, thus limiting the transfer of mud from the site and the potential transport of weeds to and from the site.
Performance Criteria
No sediment deposits and erosion of lands and transportation of sediments during construction



5.2.2. Air Quality

Environmental Objectives
- To minimise/avoid the health risks or loss of amenity due to the emission of dust to the environment and the loss of soil from the environment. - To ensure there is no health risk or loss of amenity due to the dust generation and emission of exhaust gases to the environment.
Control Measures
- Implement dust suppression measures such as promptly watering exposed areas when visible dust is observed. - Vehicles and machinery to be maintained regularly and serviced to the manufacturer's specification. - All vehicles, plant and machinery to be fitted with appropriate emission control equipment - Locate stockpiles where they are protected from wind - If required, use geotextile fabric to cover stockpiles and un-vegetated areas. - Minimise the number of stockpiles, the area and the time stockpiles are exposed. - Smooth surfaces should be deep ripped and left rough and cloddy to reduce wind velocity at the soil surface.
Performance Criteria
No dust complaints and smothering of surrounding vegetation during construction.

5.2.3. Noise and Vibration

Environmental Objectives
To ensure that noise and vibration does not adversely impact on nearby residents.
Control Measures
- Limit construction operations to the hours 6am to 6pm Monday to Saturday. - Advise CoD if works need to be conducted outside of hours so that local residents can be notified if required. - Ear protection PPE to be made available to employees. Subcontractors to provide their own PPE.
Performance Criteria
No noise and vibration complaints from nearby residents.



5.2.4. Construction Waste Management

Environmental Objectives
To minimise generation of solid wastes from construction activities and to dispose of generated solid waste appropriately.
Control Measures
- All solid wastes should be placed in appropriately designed disposal containers and areas during construction. - Any solid waste or spoil material should be removed from site disposed of appropriately. - Weeds are to be disposed of offsite in appropriate disposal facilities. - Wastes should be collected for recycling and or disposal and redirected to the landfill. Approval/prior-arrangement from Veolia/ City of Darwin will be required. - Ensure that wastes onsite are covered if possible - Vehicle and Machinery oil should be collected and disposed of appropriately to an approved facility.
Performance Criteria
All construction wastes are managed and disposed of appropriately and in compliance with legislative requirements.

5.2.5. Hydrocarbon and Chemical Management

Environmental Objectives
To ensure that chemicals and hydrocarbons are stored and handled appropriately to prevent contamination to groundwater or soil
Control Measures
- Minimise chemicals and hydrocarbons stored on site - Store dangerous chemicals, separated and signed as required by relevant codes and standards. - Store hydrocarbons and other hazardous materials in appropriately bunded structures away from creeks and drainage lines. - Bunds should be impervious to prevent spilled product from escaping - Any spillage should be cleaned up immediately, recorded, and reported as required. - Maintain and display Safety Data Sheets with Hydrocarbons and Chemicals. - Maintain a register of chemicals and other potentially hazardous substances for easy access by site personnel. - Restrict the area in which hazardous chemicals are stored during construction works.



Re-fuelling should be limited to equipment on hardstand areas where possible, it is to be undertaken away from drainage structures where any spills can be cleaned up prior to release.
Performance Criteria
No contamination of groundwater or soil from hydrocarbon or chemical spills within the site boundary.

5.2.6. Stockpile Management

Environmental Objectives
To manage soil stockpiles to minimise dust, erosion and sediment impacts
Control Measures
- Minimise the number of stockpiles, and the area and time stockpiles are exposed to the environment - Locate stockpiles away from drainage lines, at least 10m away from natural waterways and where they should be less susceptible to wind erosion - Ensure that stockpiles have slopes no greater than 2:1 (horizontal: vertical). - Stabilise stockpiles that should remain bare for more than 28 days. - Establish sediment controls around un-stabilised stockpiles - Suppress dust generation from stockpiles as circumstances demand. - Stockpiles should not be located under the drip line of trees.
Performance Criteria
Stockpiles do not create dust, erosion and sedimentation impacts off site.

5.2.7. Vegetation Clearing

Environmental Objectives
To prevent unauthorised clearing of vegetation beyond the project boundaries.
Control Measures
- Prior to any clearing works, clearing zones shall be delineated on works plans and surveyed on-site with pegs and flagging in all areas to prevent unauthorised clearing. - Clearing must be undertaken under the supervision of the Construction Manager. - All site personnel are to be aware of the project site boundaries (Induction) - No clearing activities are to be carried outside of the project boundaries. - Cleared vegetation must not be pushed or dumped on vegetation to be retained outside the approved clearing footprint area.
Performance Criteria
No unauthorised clearing of vegetation beyond the project boundary.



5.2.8. Weed and Hygiene Management

Environmental Objectives
To minimise the spread of weeds and dieback
Control Measures
- Prior to commencing work on site, all construction equipment and trucks shall be free of soil and plant material. - All machinery and plant will be cleaned of soil and plant material prior to entering and leaving the site. Cleaning should occur at designated clean down points. Any plant not arriving clean will be sent away. - Clean down points are to be located at entry and exit points to the construction works.
Performance Criteria
No breaches of control measures outlined above

5.2.9. Fauna Management

Environmental Objectives
To protect native fauna from being trapped, injured or killed
Control Measures
- All open trenches should be inspected prior to commencement of work each day for trapped vertebrate fauna such as frogs, reptiles, birds or mammals - If trapped fauna are found in open trenches then the Construction Manager should be contacted to organise removal. - Wherever possible ensure that all trenches are backfilled within 24 hours. - If any snakes are sighted, the Construction Manager should be contacted to organise removal. - If injured or dead fauna are found during the works, the Construction Manager should be contacted to log a report using the "Observations" tool within Procore.
Performance Criteria
No native fauna injured or killed as a result of construction activities.



5.3. Roles and Responsibilities



Environmental Management control	Who is responsible?	Type of action and records
General site issue and management controls		
Compliance with Environmental Protection legislation, regulations, standards, codes of practice and site safety rule	WCG Project Manager WCG Construction Manager, Subcontractors, All parties attending site.	Surveillance and observation The Contractor shall comply with all current relevant legislation, guidelines, standards and industry practices and WCG and City of Darwin Environmental Management Systems at all times
Conduct site induction training for all personnel to explain the requirements of the EMP and emergency procedures.	Construction Manager	- Site induction for all staff, subcontractors and visitors. - Site Safety Induction Record & Declaration
Ensure emergency procedures are display in office shed	Construction Manager	Emergency procedures
Assessment of subcontractors environmental performance on the job	Construction Manager	Review and copy retained of subcontractors Safe Work Method Statements Regular compliance auditing
Establish a register for complaints before works commence and maintain it for the full duration of the work	Construction Manager	Complaints register
Monitor environmental Hazards	Construction Manager and All staff working on site	- Surveillance and observation - Environmental Hazard Alert Register
Monitor environmental Incidents identification, assessment and control	Construction Manager and All staff working on site	- Surveillance and observation - Environmental Hazard Alert Register - Site Environmental Hazard Inspection Checklist (weekly during construction, monthly during operation) - Environmental Incident Management Form
Environmental Monitoring and Reporting	Construction Manager	- Weekly Site Safety and Environmental Inspection Checklist - Daily Prestart Meetings - Toolbox Talks - Daily Checks and Plant Pre-commencement checklists
Air quality		
Ensure that all vehicles entering and leaving site and carrying a load are covered to prevent dust emission	Construction Manager Truck drivers	Visual assessment recorded using the Site Safety and Environmental Checklist



Environmental Management control	Who is responsible?	Type of action and records
Initiate dust control	Construction Manager	Visual assessment recorded using the Site Safety and Environmental Checklist
Stockpile management	Construction Manager Machinery Operators	Plant Pre-commencement checks Site Walkovers Site Safety and Environmental Inspection Checklist Site Inductions Prestart Meetings
Noise		
Ensure activities are restricted to the stated working hours. All activities undertaken outside these hours will be subject to approval from the Construction Manager	Construction Manager All employees	- Maintain control of entrance and exit of construction area. - All employees will be made aware of noise management requirements during the induction.
Assess all activities against potential noise generation for when proposed outside standard working hours.	Construction Manager	- Review of SWMS - Monitoring of activities on site - Site Safety and Environmental Inspections
Flora and Fauna		
Delineate and maintain boundary of the construction area to indicate no-go zone	Construction Manager	Visual assessment recorded using the Site Safety and Environmental Checklist
Inspect trenches and work site for trapped fauna	Construction Manager All employees	Visual assessment recorded using the Site Safety and Environmental Checklist
Organise Fauna removal as required	Construction Manager	- Visual assessment before commencing works - Site Safety and Environmental Inspections - Site Walkover
Water Quality		
Ensure sediment and erosion control measures are installed before commencing land disturbance	Construction Manager	Visual assessment recorded using the Site Safety and Environmental Checklist



Environmental Management control	Who is responsible?	Type of action and records
Check and maintain erosion control measures, stockpile management	Construction Manager All employees	- Visual assessment recorded using the Site Safety and Environmental Checklist - Prestart Meetings - Site Inductions - Site Walkovers
Soil, ground, surface water monitoring	Construction Manager City of Darwin	- Visual assessment recorded using the Site Safety and Environmental Checklist (WCG) - Water sampling (CoD)
Waste management		
Ensure waste is disposed in compliance with this plan	Construction Manager All employees	Visual assessment recorded using the Site Safety and Environmental Checklist
Waste Disposal	Project Manager Construction Manager All employees	Waste to be classified, transported, tracked and disposed of through suitably approved waste providers in accordance with relevant legislation.
Hazard Management		
Ensure fuels, oil and chemicals are stored in compliance with this plan and the SMP	Construction Manager All employees	Visual assessment recorded using the Site Safety and Environmental Checklist
Ensure that a spill kit is available and maintained	Construction Manager	Visual assessment recorded using the Site Safety and Environmental Checklist
Weed Management		



Environmental Management control	Who is responsible?	Type of action and records
All construction equipment and trucks shall be free of soil and plant material.	Construction Manager Machinery Operators Subcontractors	Plant Pre-commencement checks Site Walkovers Site Safety and Environmental Inspection Checklist Site Inductions Prestart Meetings
All machinery and plant will be cleaned of soil and plant material prior to entering and leaving the site. Cleaning should occur at designated clean down points	Construction Manager Machinery Operators	Plant Pre-commencement checks Site Walkovers Site Safety and Environmental Inspection Checklist Site Inductions Prestart Meetings



6. Inspections and Reporting

6.1. Inspections

Environmental Inspections will be conducted throughout the construction phase in the form of a combined Site Safety and Environmental Inspection, using the Site Safety and Environmental Inspection Checklist Form via Procore.

These Inspections will be conducted on a **weekly** basis, and recorded and stored using the above mentioned form in Procore.

Please refer to [Appendix G – F-23 Safety and Environmental Inspection Checklist](#)

6.2. Document and Record Management

To facilitate the communication, as well as the Document and Record Management aspects of the project, WCG has implemented the use of the [Procore](#) across our project operations.

All project related communications and record keeping (both internal and external) will go through the various relevant modules within Procore, including but not limited to:

- Correspondence
- Incidents
- Observations
- Emails
- RFI's
- Defects Lists
- Variations
- Change Events
- Drawings
- Documents.



The Construction Manager is responsible for ensuring that all necessary documentation relating to quality, safety and environmental management is retained and maintained through Procore.

A copy of this EMP will be maintained on site, in the Site Office. Any amendments of this CEMP shall be duly signed and authorised by the relevant manager and shall comply with all client and statutory requirements. All Contractors shall be supplied a copy of any revisions that may affect their scope of works.



7. Emergency Planning and Response

This section outlines the procedures in place in case of an emergency with the potential to cause environmental harm.

WCGs Management System Procedure for Emergency Response Planning is provided in [Appendix H – MSP-17 Emergency Response Planning](#)

7.1. Emergency Response Plans

7.1.1. Fire Prevention

The Fire Prevention Management Plan (Table 3), includes the aspects such as the risk of fires within the treatment facility area and the risk of bushfires to the landfill area generally.

Table 3: Fire Prevention Management Plan

Environmental Performance	
Environmental Performance Objectives	To minimise fire risk from and to the treatment facility area through inspection and preventative maintenance and acceptable housekeeping practices
Environmental Performance Standards	Risk of fire impacting site and escalating consequences from site flammables is reduced to as low as reasonably practical
Environmental Measurement Criteria	Emergency response planning considers and implements fire risk measures.

Activity	Mitigation Measure	Frequency
Fire Risk within facility	- Daily site housekeeping to minimise risk of ignition sources - Management of workplace housekeeping inspections will be recorded and actioned - Orderly storage of flammable materials separate from ignition sources or hot works areas according to AS 1940 - All fires will be treated in accordance with the Emergency Response Plan - Regular serviceability inspections of fire-fighting equipment - Smoking is not permitted - Use of a Hot Work permit system to plan for and manage hot work within the LMS - Employees in high risk roles to be trained in the use of fire-fighting equipment	As stated



Bushfire Risk to facility	• Maintain a fuel break surrounding the treatment ponds: 4 m fire break and access track around site • Assist the Landfill operations staff to coordinate any fire watch or preventative measures. • Maintain adequate fire breaks between and around treatment ponds to ensure that any fire cannot damage the lining material • Monitor the potential for bushfires adjacent to the landfill on high risk days (daily)	Ongoing
Emergency Response	• If a fire occurs, alert the local fire brigade, landfill operations staff, workplace evacuated. • Shutdown the treatment process if possible. • Follow the CoD Disaster Emergency Management and contact CoD immediately	Immediately

7.1.2. Cyclone emergency response

The Cyclone Emergency Response Plan (refer to the table below), addresses the risk of cyclones impacting the project operational area.

Table 4: Cyclone Management Plan

Environmental Performance		
Environmental Performance Objectives	• To minimise Cyclone risk from and to the treatment facility area through inspection and preventative maintenance and acceptable housekeeping practices	
Environmental Performance Standards	• Risk of cyclone damage to the LMS and potential impacts to the environment are reduced to as low as reasonably practical	
Environmental Measurement Criteria	• Emergency response planning considers and implements cyclone risk management measures.	



Activity	Mitigation Measure	Frequency
Cyclone Watch Issued	In the event a cyclone watch is issued for the area, this indicates that gales or strong winds can be expected in one to two days' time. The following procedure should be followed in the event that a cyclone watch is issued. • Ensure all operators and site visitors are accounted for and crossed checked against the visitor register. • Keep a close watch on the radio/television and or Consult with the local emergency authorities for cyclone update as to the danger of the cyclone • NT Fire and Emergency Services: 131 444 • Advise all operators and any personnel on site as to the current state of the cyclone • Prepare vehicles(s), access roads and gates for immediate evacuation in case of emergency evacuation • This includes an emergency kit: 10L water, first aid kit, torch • Prepare site and commence plant shut down as per the Operation and Maintenance Manual.	As per occurrence
Cyclone Warning Issued	In the event that a cyclone warning has been issued and a site evacuation must be undertaken: • Ensure all operators and site visitors are accounted for and crossed checked against the visitor register • Shut down the plant as per the O&M manual, along with the site shed and office • Prepare emergency kit • With all accounted for, evacuate the site via the access route • Follow all directions as per local emergency authorities and listen to radio/tv for advice when it is safe to return outside	As per occurrence

7.1.3.Flood emergency response

The Flood Emergency Response Plan (refer to the table below), addresses the risk of flooding impacting the project operational area.

Table 5: Flooding Management Plan

Environmental Performance	
Environmental Performance Objectives	• To minimise Flooding risk from and to the treatment facility area through inspection and preventative maintenance and acceptable housekeeping practices
Environmental Performance Standards	• Risk of flood damage to the LMS and potential impacts to the environment are reduced to as low as reasonably practical
Environmental Measurement Criteria	• Emergency response planning considers and implements flood risk management measures.



Activity	Mitigation Measure	Frequency
Flood Watch Issued	In the event a flood watch is issued for the area, this indicates an area is at risk of becoming flooded in the near future, and the access roads to the site might become compromised. • Ensure all operators and site visitors are accounted for and crossed checked against the visitor register. • Keep a close watch on the radio/television and or Consult with the local emergency authorities for flood update. • NT Fire and Emergency Services: 131 444 • Advise all operators and any personnel on site as to the current state of the flooding. • Monitor road closures and Government advice • Prepare vehicles(s), access roads and gates for immediate evacuation in case of emergency evacuation • Prepare site and commence plant shut down as per the Operation and Maintenance Manual.	As per occurrence
Site becomes flooded or access roads are closed	In the event the site becomes flooded, and/or access roads are closed, preventing evacuation, contact emergency services immediately on 000. If the condition permits, prepare site and commence plant shut down as per the Operation and Maintenance Manual.	As per occurrence

In the event of an emergency impacting the safety and wellbeing of LMS personnel, the LMS Emergency Response Plan should be followed.

7.2. Emergency Drills

WCG will conduct an emergency response drill at a minimum of six (6) monthly intervals. All results of drills or actual events will be recorded and reviewed during the project meetings and/or the Monthly WCG Operations Review Meetings, as appropriate.

7.3. Muster Points

The Main First Aid muster point is located at the site office, and will be indicated via appropriate signage. Staff and subcontractors will be informed of the location during the site induction process.

For all other emergencies, the muster point will be located at the main entry gate. In case of an emergency, all site personnel is to make their way as soon and safely as possible, to this location for head counts and to receive further instructions.





Figure 5: Emergency Muster Point and First Aid Location



8. Community Feedback and Complaints

The Water and Carbon Group is committed to our Quality, Safety and Environmental Management Systems, and values the opportunity for continuous improvement.

Please refer two WCG procedures, which outline our internal feedback and complaints handling processes:

- Appendix F – MSP-22 Incident Reporting
- Appendix - MSP-07 Managing Issues

These processes will be applicable to all feedback and complaints received by WCG employees or subcontractors.

The Construction Manager is responsible for the reporting of feedback and complaints, as required by the circumstances, to the City of Darwin, who as the licence holder will subsequently be responsible for reporting to the EPA.

All complaints received by the client and passed on to WCG from the client will be managed as per MSP-22 and MSP-07.



Appendix A – Environmental Protection Approval 304 (NT EPA)



ENVIRONMENT PROTECTION APPROVAL

(Pursuant to section 34 of the *Waste Management and Pollution Control Act*)

Approval Holder	City of Darwin*
Approval Number	EPA304
Registered Business Address	City of Darwin* 1 Harry Chan Avenue Darwin NT 0800
ABN	11 503 313 301
Premises Address	Lot 03952 Town of Sanderson plan(s) S 79/149A VANDERLIN DR, HOLMES
Anniversary Date:	19 August
Commencement Date:	19/08/2020
Expiry Date:	18/08/2022
Scheduled Activity	Constructing, installing or carrying out works in relation to premises, other than sewage treatment plants, for the storage, re-cycling, treatment or disposal of listed wastes on a commercial or fee for service basis.
Description	This approval is for the construction and commissioning of a leachate treatment plant and irrigation area at the Shoal Bay Waste Management Facility (SBWMF) consisting of the following: a. PFAS foam fractionation; b. foamate storage and drying of foamate produced by the PFAS foam fractionation; c. moving bed biofilm reactor (MBBR); d. dissolved air floatation (DAF); e. sludge storage and drying facility for sludge from the DAF;

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- f. bunded areas for chemical storage including sodium hydroxide and ethanol;
- g. constructed and lined wetland planted with *Phragmites vallatoria*;
- h. 5 ML treated leachate storage pond;
- i. treated leachate disposal area covering 8 hectares, planted with monte vetiver grass (*Chrysopogon zizanioides*);
- j. associated infrastructure including pumps, pipelines, firefighting tanks, basins, bunds, control room, sheds, fencing, signage, carpark, roads and irrigation infrastructure.

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- 1 Attachment 1 - Environmental Monitoring Locations

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INFORMATION ABOUT THIS APPROVAL

- This approval does not in any way relieve the approval holder from its obligations to comply with the *Waste Management and Pollution Control Act* (WMPC Act), including the general environmental duty in section 12 of the WMPC Act and the duty to notify of incidents causing or threatening to cause pollution under section 14 of the WMPC Act.

Duration of an approval (section 41 of the WMPC Act)

- An approval will remain in force until:
 1. its expiry date; or
 2. a licence for the premises to which the approval relates comes into force; or
 3. where no expiry date is stated in the approval, two years.
- The approval holder may apply to the NT EPA for an extension or reduction of the period specified on an approval.

Amendment or Revocation of conditions of an approval (section 37 of the WMPC Act)

- The approval holder may apply to amend or revoke a condition of this approval.
- A fee applies and the application must be made using the designated form via NT EPA Online.
- The NT EPA may also amend or revoke a condition of this approval as set out in section 38 of the WMPC Act.

Transfer of an approval (section 46 of the WMPC Act)

- The approval holder can apply to transfer their approval to another person.

Extension of an approval (section 41 of the WMPC Act)

- The approval holder may apply to extend their approval not earlier than 90 days, and not later than 30 days , before their approval expires.
- A fee applies and the application must be made via NT EPA Online.

Public Register

- A copy of environment protection approvals and any plans for environmental management, required as a condition of an environment protection approval, will be placed on a register in accordance with section 9 of the WMPC Act.
- A copy of the Annual Return will be placed on the register.
- The NT EPA makes this register freely available from the NT EPA website.

Environment Protection Objectives (Part 4 of the WMPC Act), and Water Quality Standards (section 73 of the *Water Act*)

- An Environment Protection Objective (EPO) is a statutory instrument to establish principles on which:
 - a. environmental quality is to be maintained, enhanced, managed or protected;
 - b. pollution, or environmental harm resulting from pollution, is to be assessed, prevented, reduced, controlled, rectified or cleaned up; and
 - c. effective waste management is to be implemented or evaluated.
- In accordance with section 18 of the WMPC Act a beneficial use, quality standard, criteria or objective declared under section 73 of the *Water Act* and in force is an environment protection objective for the purposes of the WMPC Act.

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- The following EPOs and Beneficial Use Declarations (BUDs) are relevant to this approval:

Environmental Interests

- This section highlights sensitivity of the surrounding land use and environment associated with the location of the approved activity.
- Sites of Conservation Significance (SOCS), including
 - Shoal Bay SOCS number 8; and
 - Darwin Harbour SOCS number 6.
- No Ramsar wetlands

Cultural Interests

- It is the approval holder's responsibility to contact the Aboriginal Areas Protection Authority and ensure that any Authority Certificates required as a result of conducting the activity are obtained and complied with.

ENVIRONMENT PROTECTION APPROVAL 304

RULES FOR INTERPRETING THE CONDITIONS OF THIS APPROVAL

- Where there is a discrepancy between the conditions of this approval and any plan, standard, guideline or other document referred to in this approval, the conditions of this approval prevail to the extent of the inconsistency.
- Any reference to any standard (Australian or international) in this approval means the relevant parts of the current version of that standard.
- A reference to any guideline or code of practice (or to the relevant parts of any guideline or code of practice) in this approval means the current version of the guideline or code of practice.
- Under section 39 of the WMPC Act, any contravention of or failure to comply with this approval by the approval holder may be an offence.
- In determining whether the approval holder has committed an offence, the approval holder may be liable for the conduct of its directors, employees or agents.
- The approval holder should ensure that each of its directors, employees, contractors or agents are aware of, and comply with, this approval.
- In this approval, unless the contrary intention appears, words that are defined in the WMPC Act are intended to have the meaning given to them in that Act.

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APPROVAL CONDITIONS

GENERAL

- 1 The approval holder must ensure the contact details recorded in NT EPA Online for this approval are correct at all times.
- 2 The approval holder must at all times have a 24 hour emergency contact.
- 3 The approval holder must cause clear and legible signage, in English, to be displayed in a prominent location at each public entrance to the premises that includes the following details:
 - 3.1 environment protection approval number issued under the WMPC Act; and
 - 3.2 24 hour emergency contact details.
- 4 The approval holder must provide to the NT EPA, within 10 business days of a request, a copy of any document, monitoring data or other information in relation to the activity, in the format requested by the NT EPA.
- 5 All notices, reports, documents or other correspondence required to be provided as a condition of this approval, unless otherwise specified as a condition of this approval, must be provided in electronic form by uploading the document via NT EPA Online (or by emailing waste@nt.gov.au).
- 6 The NT EPA may require the approval holder to submit, revise or amend and resubmit any document. Where the NT EPA requires a document to be submitted or resubmitted, the approval holder must submit it to the NT EPA by the date specified by the NT EPA.
- 7 The approval holder must, for the duration of this approval, implement, maintain and follow a Consultation and Communication Plan which includes a strategy for communicating with persons who are likely to have a real interest in, or be affected by, the activity.
- 8 The approval holder must operate and maintain a community feedback number.
- 9 The approval holder must display the community feedback number:
 - 9.1 where the approval holder has a website, in a prominent location on the approval holder website;
 - 9.2 in the Consultation and Communication Plan; and
 - 9.3 in other publicly available documents relating to the activity.
- 10 The approval holder must maintain a Complaint Log for all complaints received by the approval holder in relation to the activity.
- 11 The approval holder must ensure that the Complaint Log includes, for each complaint received by the approval holder, the following information:
 - 11.1 the person to whom the complaint was made;
 - 11.2 the person responsible for managing the complaint;
 - 11.3 the date and time the complaint was reported;
 - 11.4 the date and time of the event(s) that led to the complaint;
 - 11.5 the contact details of the complainant if known, or where no details are provided a note to that effect;

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- 11.6 the nature of the complaint;
- 11.7 the nature of event(s) giving rise to the complaint;
- 11.8 prevailing weather conditions at the time (where relevant to the complaint);
- 11.9 the action taken in relation to the complaint, including any follow-up contact with the complainant; and
- 11.10 if no action was taken, why no action was taken.

OPERATIONAL

- 12 The approval holder must ensure any plant and equipment used by the approval holder in conducting the activity:
 - 12.1 is reasonably fit for the purpose and use to which it is put;
 - 12.2 is maintained; and
 - 12.3 is operated by a person trained to use the plant and equipment.
- 13 The approval holder must ensure that wastewater generated from washing plant and equipment associated with the activity does not cause pollution.
- 14 The approval holder must segregate waste generated by the activity in clearly designated areas for recycling, re-use or disposal.
- 15 The approval holder must ensure that all materials that are likely to cause environmental harm are handled and stored in areas with a containment system in accordance with the relevant Australian Standard. Where no relevant Australian Standard exists, the containment system must be sized to contain 110% of the volume of the largest container within the area.
- 16 Prior to the construction of the irrigation area, the approval holder must develop and implement a soil amelioration strategy prepared by a suitably qualified agronomist.
- 17 Prior to construction of the activity the approval holder must develop and implement a Construction Environmental Management Plan (CEMP) for the activity that identifies potential environmental impacts associated with the activity and mitigation measures to be implemented. The CEMP must include:
 - 17.1 erosion and sediment control measures;
 - 17.2 emergency response plan that addresses procedures for responding to emergencies associated with the activity that may cause environmental harm;
 - 17.3 environmental nuisance control measures; and
 - 17.4 any other control measures to manage construction environmental impacts associated with the activity.
- 18 The approval holder must provide a Construction Quality Assurance Plan (CQAP) for the activity to the NT EPA at least 5 business days prior to commencing construction of the activity. The CQAP must:
 - 18.1 include a scope of works;
 - 18.2 include the final specifications and design drawings of the works;
 - 18.3 provide the technical qualifications of the persons(s) who will be overseeing the CQAP;

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- 18.4 describe the details of any proposed inspection, testing and verification methods (including procedures, responsibilities, frequency and reporting); and
- 18.5 include roles and responsibilities for the implementation of the CQAP.
- 19 The NT EPA may require the approval holder to revise, amend and/or resubmit the CQAP submitted under condition 18. Where the NT EPA requires the CQAP to be resubmitted, the approval holder must submit it to the NT EPA by the date specified by the NT EPA.
- 20 The approval holder must design and construct the activity in a manner which ensures that:
 - 20.1 groundwater is protected from impacts of leachate;
 - 20.2 treated leachate pond and wetland liners achieve a maximum permeability of not greater than $1 \times 10^{-9} \text{m/s}$; and
 - 20.3 treated leachate pond and wetland liners are located above the maximum groundwater elevations with an unsaturated zone immediately below the liners of at least 2 meters.

DISCHARGES AND EMISSIONS

- 21 The approval holder must ensure there is no migration or overflow of a contaminant or waste, which causes or may cause environmental harm, beyond the boundary of the land on which the premises are located. (For the avoidance of doubt, this condition is not intended to authorise the discharge of a contaminant or waste to any land or water which discharge has not been specifically authorised by another condition of this approval.)
- 22 The approval holder must not allow a contaminant or waste, which causes or may cause environmental harm, to enter water.
- 23 The approval holder must ensure that stormwater does not come into contact with a contaminant or waste, which causes or may cause environmental harm.

Discharges to land

For the purposes of conditions 24 to 26, inclusive, the word "land" does not include water on, above, or under land.

- 24 Discharge to land is only permitted in this approval for the commissioning of irrigation equipment. Prior to commissioning the approval holder must:
 - 24.1 develop and implement an irrigation commissioning plan, including monitoring program, to validate that irrigation infrastructure is functioning correctly and meeting design objectives;
 - 24.2 have completed the installation and development of all groundwater monitoring wells; and
 - 24.3 have completed baseline monitoring for vegetation, soils, surface water and groundwater, including the collection of 12 months of monitoring data for surface water and groundwater.
- 25 The approval holder must install, operate and maintain a device to measure and record, for each discharge event:
 - 25.1 the time the discharge commenced and the duration of the discharge;
 - 25.2 the discharge rate of flow; and
 - 25.3 the discharge volume.

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- 26 The approval holder must ensure that the discharge to land via irrigation complies with the definition of treated leachate in this approval and does not:
- 26.1 contain any floating debris, oil, grease, petroleum hydrocarbon sheen, scum, litter or other objectionable matter;
 - 26.2 cause or generate odours that may be considered environmental nuisance;
 - 26.3 cause surface ponding or run off of wastewater;
 - 26.4 pollute groundwater or water within a waterway;
 - 26.5 cause erosion or degradation of soil; or
 - 26.6 cause adverse impacts on plants or animals.

MONITORING

- 27 The approval holder must conduct baseline monitoring for soils, vegetation, surface water and groundwater at locations detailed in Attachment 1.
- 28 The approval holder must develop, implement, maintain and follow environmental monitoring plans ("the Monitoring Plans") for construction, leachate treatment plant commissioning, irrigation infrastructure commissioning and baseline environmental monitoring from the commencement date of this approval.
- 29 The approval holder must ensure that all samples and field environmental data are representative of the conditions at the time of sampling.
- 30 The approval holder must ensure that all samples and field environmental data are collected in accordance with recognised Australian Standards and guidelines (such as AS/NZS 5667, ANZECC/ ARMCANZ)
- 31 The approval holder must ensure that all monitoring samples are analysed at a laboratory with current NATA accreditation or equivalent, for the parameters to be measured.
- For the purposes of this condition, the word "land" does not include water [or air] on or above land.
- 32 The approval holder must for all land based monitoring points specified in the Monitoring Plan:
- 32.1 install and maintain appropriate identification signage so that they are reasonably identifiable at all times; and
 - 32.2 maintain safe access and egress, as is reasonably practicable.
- 33 The approval holder must ensure any samples collected in accordance with the Monitoring Plan or in connection with the activity or this approval, are obtained by, or under the supervision of a qualified sampler.
- 34 The approval holder must ensure that, for each sample collected in accordance with the Monitoring Plan or the activity the following information must be recorded and retained:
- 34.1 the date on which the sample was collected;
 - 34.2 the time at which the sample was collected;
 - 34.3 the location at which the sample was collected;
 - 34.4 the name of the person who collected the sample;
 - 34.5 the chain of custody forms relating to the sample;

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- 34.6 the field measurements (if any) and analytical results (if any) relating to the sample; and
- 34.7 laboratory quality assurance and quality control documentation.

35 The approval holder must ensure that any groundwater encountered during construction is:

- 35.1 sampled for parameters as specified in table 1.

Table 1. Field parameters and analytical suite for monitoring intercepted groundwater

Field Parameters	Laboratory Parameters
pH	Major ions (Ca, Mg, Na, K, CO ₃ , HCO ₃ , Cl, SO ₄)
Electrical Conductivity	Nutrients (nitrate, nitrite, ammonia, total nitrogen, total phosphorus)
Temperature	total and dissolved Al, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Zn
Dissolved Oxygen	Chemical Oxygen Demand
	Total Organic Carbon
	Total Recoverable Hydrocarbons
	Total Phenolics
	Benzene, Toluene, Ethylbenzene, Xylene and Naphthalene
	PFAS

- 35.2 transferred to the leachate management system if it is contaminated by landfill leachate or construction activities; and
- 35.3 transfers are measured using a flow meter to record the volume of groundwater intercepted and transferred.

RECORDING AND REPORTING

- 36 The approval holder must keep records of all non-compliances with this approval. These records must be adequate to enable the approval holder to comply with the non-compliance notification conditions of this approval.
- 37 The approval holder must notify the NT EPA of any non-compliance with this approval by completing the Non-Compliance Notification via NT EPA Online (or by emailing waste@nt.gov.au), as soon as practicable after (and in any case within 24 hours after) first becoming aware of the non-compliance.
- 38 The approval holder must include in the notification of non-compliance the following information:
 - 38.1 when the non-compliance was detected and by whom;
 - 38.2 the date and time of the non-compliance;
 - 38.3 the actual and potential causes and contributing factors to the non-compliance;
 - 38.4 the risk of environmental harm arising from the non-compliance;
 - 38.5 the action(s) that have or will be undertaken to mitigate any environmental harm arising from the non-compliance;
 - 38.6 corrective actions that have or will be undertaken to ensure the non-compliance does not reoccur;
 - 38.7 if no action was taken, why no action was taken; and
 - 38.8 a date when an incident investigation report will be submitted to the NT EPA.

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- 39 The approval holder must ensure that all interceptions with groundwater are recorded, including the following information for each:
- 39.1 the time and date and GPS coordinates of where groundwater was intercepted;
 - 39.2 the volume intercepted and transferred and where it was transferred; and
 - 39.3 analytical results from sampling undertaken as a condition of this approval.
- 40 The approval holder must complete and provide to the NT EPA, within 20 business days of completion of the activity, a Monitoring Report for all environmental monitoring carried out under this approval. The approval holder must ensure the monitoring report:
- 40.1 is prepared in accordance with the requirements of the NT EPA 'Guideline for Reporting on Environmental Monitoring';
 - 40.2 includes a tabulation in Microsoft Excel format of all monitoring data required as a condition of this approval;
 - 40.3 includes an assessment of environmental impact from the activity.
- 41 The NT EPA may require the approval holder to revise or amend and resubmit any Monitoring Report. Where the NT EPA requires the Monitoring Report to be resubmitted, the approval holder must submit it to the NT EPA by the date specified by the NT EPA.
- 42 The approval holder must submit to the NT EPA, at the completion of the activity, a review of the completed activity with certification from a qualified person(s) that the works conducted:
- 42.1 were constructed in accordance with the plans provided in condition 18 or as revised under condition 19;
 - 42.2 'as constructed' will deliver the intended performance; and
 - 42.3 are compliant with condition 20 of this approval.
- 43 Where the completed activity was not constructed in accordance with the plans provided under condition 18 or condition 19, the approval holder must submit to the NT EPA amended plans reviewed by a qualified person (s), to reflect the design 'as constructed'.

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END OF APPROVAL CONDITIONS

This approval is not valid unless signed below:



Paul Purdon
Executive Director Environment Protection
Delegate of the Northern Territory
Environment Protection Authority
Dated: 24/08/2020

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DEFINITIONS

All terms in the Approval which are defined in the *Waste Management and Pollution Control Act* have the meaning given in that Act unless otherwise or further defined in this section.

DEFINITION	In this approval, unless a contrary intention appears:
24 hour emergency contact	the phone number of a person who can be contacted at any time and be capable of responding to and providing information about any incident associated with the activity.
Activity	the Scheduled activity as described on the covering page of this approval.
Air	includes any layer of the atmosphere.
Annual fee	yearly fee payable in respect of the activity as specified in the WMPC Act and the Regulations.
Annual Return	an NT EPA prescribed format for demonstrating and reporting compliance with the conditions of this approval and providing information on waste volumes for the preceding 12 month period.
ANZECC/ARMCANZ	Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, 2000: National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting.
Asbestos containing material	any material that contains asbestos.
Business days	a day not Saturday, Sunday or a public holiday, in the Northern Territory.
Community feedback number	a telephone number enabling members of the public to contact, at any time, a person or voice mail system that can accept, on behalf of the approval holder, enquiries or complaints about the activity, and to which the approval holder must respond.
Complaint Log	a register of complaints to be maintained by the approval holder that records the details of each complaint received in relation to the activity.
Consultation and Communication Plan	a written plan documenting proposed consultation and communications for the activity before, during and after the activity which includes a strategy for communicating with members of the public who are likely to have a real interest in, or be affected by, the activity.
Contact details	includes the 24 hour emergency contact, and name, position title and phone number of a representative of the approval holder who can be contacted about the approval and activity.
Contaminant	a solid, liquid or gas or any combination of such substances and includes: (a) noise, odour, heat and electromagnetic radiation; (b) a prescribed substance or prescribed class of substances; and (c) a substance having a prescribed property or prescribed class of properties.
Discharges	allow a liquid, gas or other substance to flow out from where it has been confined.
Disposal schedule	a plan for disposing of asbestos containing material such that asbestos containing material is not stored in perpetuity.

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Emergency Response Plan	a written plan documenting the approval holder's procedures for responding to emergencies caused by, resulting from or associated with the activity and that may cause environmental harm.
Environmental audit	has the meaning given in section 47 of the WMPC Act.
Environmental harm	(a) any harm to or adverse effect on the environment; or (b) any potential harm (including the risk of harm and future harm) to or potential adverse effect on the environment, of any degree or duration and includes environmental nuisance.
Environmental nuisance	means: (a) an adverse effect on the amenity of an area that: (i) is caused by noise, smoke, dust, fumes or odour; and (ii) unreasonably interferes with or is likely to unreasonably interfere with the enjoyment of the area by persons who occupy a place within the area or are otherwise lawfully in the area; or (b) an unsightly or offensive condition caused by contaminants or waste.
Incident	includes: (a) an accident, emergency or malfunction; and (b) a deliberate action, whether or not that action was taken by the person conducting the activity in the course of which the incident occurred.
Land	includes water and air on, above or under land.
Landfill cell	a purpose built area for the disposal of waste within a landfill.
Landfill Closure and Post Closure Plan	a written plan which specifies the landfill closure and post-closure activities as set out in the NT EPA Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites in the Northern Territory.
Leachate	any liquid produced by the action of water percolating through waste, and that contains contaminants.
Leachate treatment plant	a facility designed for the treatment of leachate produced by the Shoal Bay Waste Management Facility consisting of: a. PFAS foam fractionation; b. foamate storage and drying of foamate produced by the PFAS foam fractionation; c. moving bed biofilm Reactor (MBBR); d. dissolved air floatation (DAF); e. sludge storage and drying facility for sludge from the DAF; f. bunded areas for chemical storage including sodium hydroxide and ethanol; g. constructed and lined wetland planted with <i>Phragmites Vallatoria</i>; h. associated infrastructure including pumps, pipelines, basins, bunds, firefighting tanks, control room, sheds, fencing, signage, carpark and roads.
Listed waste	a waste included under Schedule 2 of the Regulations.
Litter	litter, garbage, rubbish, refuse or waste matter, and includes the body of a dead animal.
Maintain	kept in a manner that it does not present or cause a risk of environmental harm or a hazard to persons or property or, for the purposes of documents including plans, a process of reviewing and amending documentation to ensure it is relevant.

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Material environmental harm	environmental harm that: (a) is not trivial or negligible in nature; (b) consists of an environmental nuisance of a high impact or on a wide scale; (c) results, or is likely to result, in not more than \$50,000 or the prescribed amount (whichever is greater) being spent in taking appropriate action to prevent or minimise the environmental harm or rehabilitate the environment; or (d) results in actual or potential loss or damage to the value of not more than \$50,000 or the prescribed amount (whichever is greater).
NATA	National Association of Testing Authorities, Australia.
Non-compliance	failure or refusal to comply, whether by act or omission, with obligations or requirements and includes any exceedance of a approval limit.
Non-compliance notification	an NT EPA prescribed format for notifying the NT EPA of a non-compliance.
NT EPA Online	online system for Environment Protection Approval (EPL), Environment Protection Approval (EPA) and Waste Discharge Approval (WDL) lodgement and maintenance
NT EPA Online Vehicle Register	the vehicle register found at NT EPA Online.
Plant and equipment	all material items used in association with the activity, including (but not limited to) storage vessels and containers, pipe work and hosing, vehicles (including vessels), tools, and measuring equipment.
Point source discharge	means any discernible, confined or discrete conveyance from which contaminants or waste are or may be discharged.
Pollute	(a) emit, discharge, deposit, or disturb, directly or indirectly, a contaminant or waste; or (b) cause, permit, or fail to prevent, directly or indirectly, the emission, discharge, deposition, disturbance or escape of a contaminant or waste.
Pollution	(a) a contaminant or waste that is emitted, discharged, deposited or disturbed or that escapes; or (b) a contaminant or waste, effect or phenomenon, that is present in the environment as a consequence of an emission, discharge, deposition, escape or disturbance or a contaminant or waste.
Premises	the premises identified in this approval which includes equipment, plant and structures, whether stationary or portable, and the land on which premises are situated.
Public entrance	access to the premises that is utilised by the public.
Putrescible waste	the component of the waste stream liable to become putrid. For example, organic matter that has the potential to decompose with the formation of malodorous substances, usually refers to vegetative, food and animal products.
Qualified person	a person registered under Section 68 of the WMPC Act.
Qualified sampler	a person who has training and experience in obtaining samples from the relevant environmental medium.
Regulations	<i>Waste Management and Pollution Control (Administration) Regulations.</i>
Rehabilitation Plan	a written plan to ensure that the objectives of rehabilitation are achieved as set out in the NT EPA Guidelines for the Siting, Design and Management of Solid Waste

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Disposal Sites in the Northern Territory.

Serious environmental harm	environmental harm that is more serious than material environmental harm and includes environmental harm that: (a) is irreversible or otherwise of a high impact or on a wide scale; (b) damages an aspect of the environment that is of a high conservation value, high cultural value or high community value or is of special significance; (c) results or is likely to result in more than \$50,000 or the prescribed amount (whichever is greater) being spent in taking appropriate action to prevent or minimise the environmental harm or rehabilitate the environment; or (d) results in actual or potential loss or damage to the value of more than \$50,000 or the prescribed amount (whichever is greater).
Solid inert waste	solid waste that has no active chemical or biological properties. These wastes do not undergo environmentally significant physical, chemical or biological transformation.
Stormwater	water flowing over ground surfaces, in natural streams and drains as a direct result of rainfall over a catchment and consists primarily of rainfall runoff.
Treated leachate	Leachate collected from the Shoal Bay Waste Management Facility that has been treated using the approved treatment plant such that the concentration of: a. PFAS are reduced to less than the marine guideline values for 95% species protection detailed in the PFAS National Environmental Management Plan, January 2018; b. E. coli is reduced to less than 10,000 CFU/100mL, as per the requirements for Class D wastewater in the Northern Territory Environmental Health Draft Guidelines for wastewater works Design Approval of Recycled Water Systems, July 2014; c. concentration of contaminants are reduced to less than the short-term use trigger values (up to 20 years) as detailed in Volume 1, Table 4.2.10 of the ANZECC/ARMCANZ; d. electrical conductivity is not greater than 21 dS/m; e. total nitrogen is not greater than 170mg/L; and f. total phosphorous in not greater than 8 mg/L.
Treated leachate disposal area	an irrigation area covering 8 hectares using prepared and ameliorated soils, monto vetiver grass (<i>Chrysopogon zizanioides</i>) and fit for purpose irrigation infrastructure to ensure treated leachate is irrigated in a manner that: a. surface runoff does not occur as a result of irrigation; b. nutrients and contaminants present in the treated leachate do not migrate to the receiving environment; c. spray drift outside of the irrigation area does not occur; and d. vetiver grass will be evaluated for its reuse potential before the first harvest and reuse suitability will be evaluated based on contaminant concentration in the biomass. If contaminated, the harvested vetiver grass will be disposed to an appropriately licenced facility.
Treated leachate storage	constructed pond designed to store 5ML of treated leachate. Designed and constructed to meet the minimum requirements of leachate retention as defined in the NT EPA Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites, January 2013
Trigger values	assigned value for each indicator used to assess the risk to an environmental value,

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a value that initiates some type of pre-defined management action.

Waste	(a) a solid, a liquid or a gas; or (b) a mixture of such substances, that is or are left over, surplus or an unwanted by-product from any activity (whether or not the substance is of value) and includes a prescribed substance or class of substances.
Waste transport certificate	the NT EPA waste tracking documentation used to track listed waste being transported interstate as required in accordance with the National Environment Protection (Movement of Controlled Waste Between States and Territories) Measure.
Wastewater	water that contains a contaminant or waste.
Water	includes: (a) surface water, ground water and tidal waters; (b) coastal waters of the Territory, within the meaning of the <i>Coastal Waters (Northern Territory Powers) Act 1980</i> of the Commonwealth; and (c) water containing an impurity.
WMPC Act	the Northern Territory <i>Waste Management and Pollution Control Act</i> .

Appendix B – MSP-01 Management System Overview





Status: Draft

Revision:

Revision Date: 29 Oct, 2020

MSP-01 Management System Overview

Scope:

The Water and Carbon Group (WCG) delivers end-to-end solutions utilizing proprietary technologies servicing the water, waste, environmental & remediation markets, as well as an offering of specialty products.

Our unique approach integrates process and ecological engineering disciplines across our core business units: Wastewater, PFAS Remediation, Carbon, Ecology and Specialty Products.

We combine natural assets & proprietary technologies with conventional engineering producing:

- lower cost;
- less energy-dependent; and
- integrated natural assets that create co-benefits for the community and the environment.

The integrated management system applies to all activities and sites.

Management System Overview:

Management system documentation has been prepared to provide details of the integrated quality, safety and environmental management system that we operate within our organisation, conforming to the requirements of:

- ISO 9001 Quality management systems
- ISO 45001 Occupational health and safety management systems
- ISO 14001 Environmental management systems

This documentation provides information on the processes we follow to ensure that products and services are delivered to our clients in accordance with the contractual requirements relevant at time of order, in compliance with our regulatory obligations, and to protect the health and safety of personnel, and to minimise environmental impacts.

Our Integrated Quality Safety and Environmental Policy outlines our commitment to customer satisfaction and to protecting the health and safety of personnel, and describes our priorities for protecting the environment. Policies and Management System Procedures including this one, are communicated to staff and are available to other interested parties on request.

Responsibility for the overall control and management of the integrated management system in our organisation is shared between management staff with areas of responsibility aligned to their role:

- Jim Hunter, CEO - strategic direction, resourcing
- Amanda Bochow - Finance
- David Leinster, Solutions Development Manager - design related activities
- Sarah Costello, Manager of Business and Sustainability - General QA/QC & Environmental

The Process Map provides overall guidance of the structure of this Management System, including the identification and interaction of the various business processes. An overview of key customer-related processes are shown in the centre of the process map. These processes are controlled as documented in the Operations Manual. Quality, safety and environmental management system processes are covered in Management System Procedures numbered 'MSP-nn' and appear around the outside of the process map.

The management structure of the company is shown in the Organisational Structure chart. Individual work activities, responsibilities and authorities are detailed in Job Descriptions, and maintained in the Training module of Toolbox software. New employees undergo induction training following an Employee Induction Checklist to ensure all personnel develop an awareness of company policies and systems. Further training and mentoring of staff to develop necessary skills is provided as needed to ensure the expertise and ongoing professional development of our staff.

Plant and equipment are controlled according to our Maintenance & Calibration procedure, and undergo regular inspection and maintenance in order to keep them fit-for-purpose, and in a safe operating condition. Measuring equipment is subject to calibration requirements to ensure validity of results. Infrastructure and the work environment is maintained to ensure conformity of products and services, and to minimise risks to health and safety.

The Water and Carbon Group will from time to time outsource various services, following processes described in the Control of Suppliers/Subcontractors procedure. External providers of products and services are selected according to their ability to fulfil requirements and to minimise risks to quality, safety, and the environment. Controls are established in proportion to these risks and the performance of suppliers and subcontractors is monitored and evaluated to ensure delivery in conformance with requirements and to the satisfaction of our customers.

The Water and Carbon Group consults and co-ordinates the management of work health and safety with workers, service partners, and relevant interested parties, to maintain a safe and healthy workplace. This consultation process assists in the identification of hazards and WHS risks, and involves workers in determining suitable control measures to address potential problems.

The Water and Carbon Group uses the Procore project management software to assist in the delivery of our projects. Procore is used as a central project management platform which centralizes the access, storage and update of project financials, project documentation and document control, tendering management as well as incidents and hazards reporting during the course of a project. Procore can be accessed via computers, tablets or mobile phones.

Incidents and Issues related to quality, safety and environmental are reported and managed according to our procedures for Incident Reporting, Control of Non-conformance, and Corrective Action to ensure that identified problems are documented, responded to appropriately, and reported to management and in accordance with legislative obligations. These records are managed in Procore for issues and matters relating to a particular project, or within the Toolbox software for any other matter which is not directly related to a project.

Organization level documentation for our management system is contained and controlled in an online compliance management system known as Quality Systems Toolbox ('Toolbox') and is available online to nominated staff members,

here: <https://toolbox.qualitysystems.com>

Project level documentation is stored in the relevant project folder within the Procore project management software and is available online to nominated staff members and subcontractors here <https://www.procore.com/en-au>

Where necessary, hard copies are distributed to site personnel and may be displayed around the office and project sites in appropriate locations.

Management system planning is integrated with business strategic planning to address risks and opportunities, meet our compliance obligations, and ensure intended outcomes. Quality, Safety and Environmental objectives form an integral part of our compliance management system and are regularly reviewed and adjusted on an ongoing basis, as we work to continually improve our system and services.

The system and procedures are reviewed on a regular basis during the Internal Audit and Management Review processes.

Appendix C - MSP-05 Planning for Quality, Safety and the Environment





Status: Released

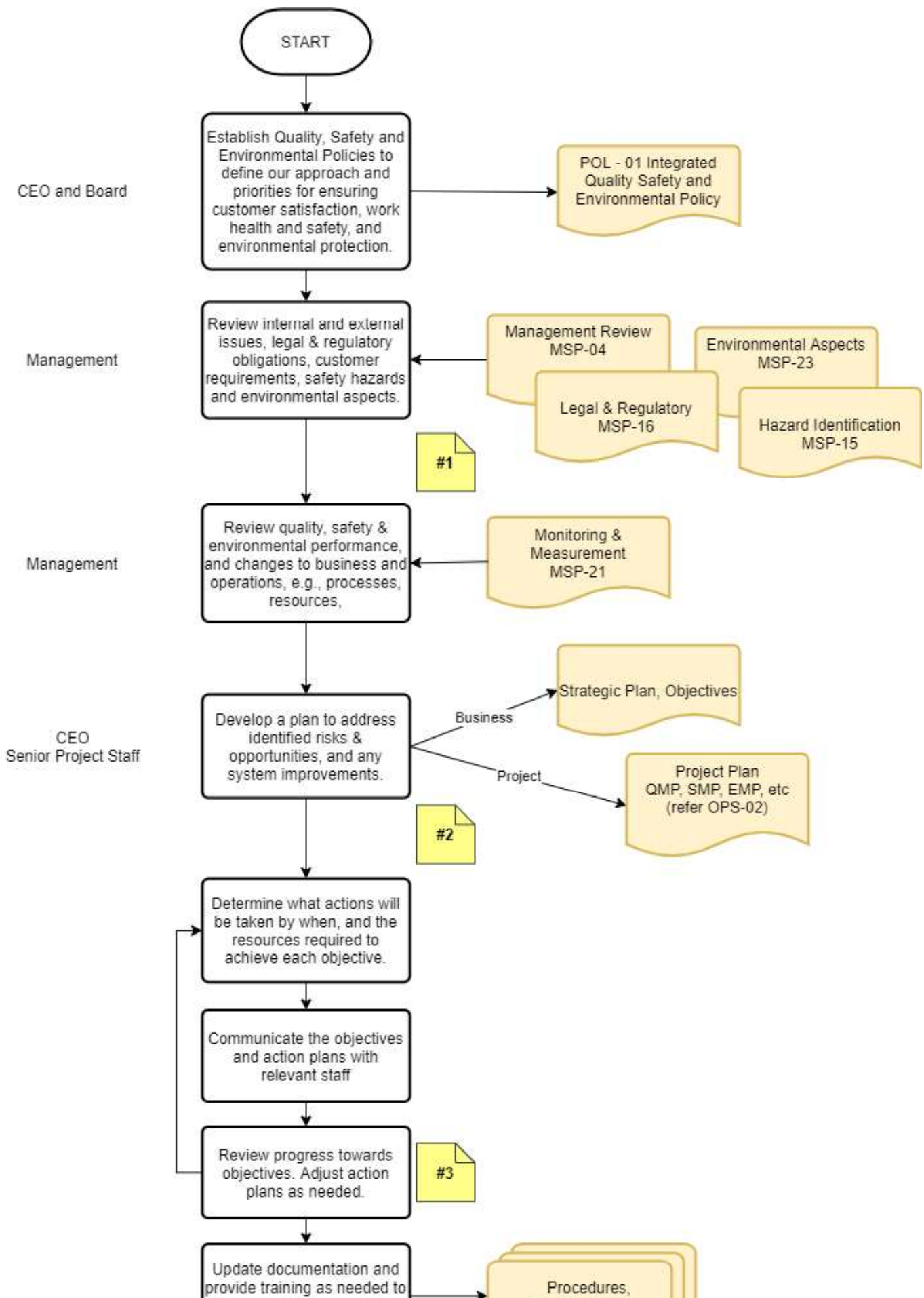
Revision:

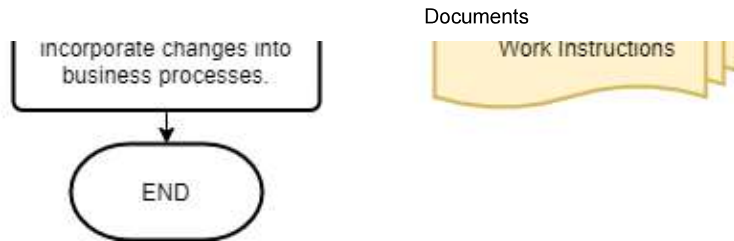
Revision Date: 24 Jun, 2020

MSP-05 Planning for Quality, Safety and the Environment

Purpose:

Describes the system for integrating quality & safety objectives and system improvements with business strategic planning to address risks and opportunities and ensure intended outcomes.



**Note #1:**

Information for review may include:

- customer requirements and feedback
- process changes
- market changes
- new product availability
- business objectives
- safety hazard identification and incidents
- consultation with, and feedback from workers
- non-conformance and corrective actions
- changes to legal and regulatory obligations
- data from process monitoring & measurement
- changes in industry practices
- analysis of competitors

Note #2:

In developing objectives and action plans the business will prioritise which risks and opportunities to address, based on factors such as:

- available resources - financial, staff, etc
- level of influence over the situation
- potential benefits or consequences
- alignment with overall business goals

Note #3:

Action plans and progress towards achieving objectives will be reviewed at least once per year during Management Review, and at other staff operational meetings as required.

Appendix D – MSP-07 Managing Issues





Status: Draft

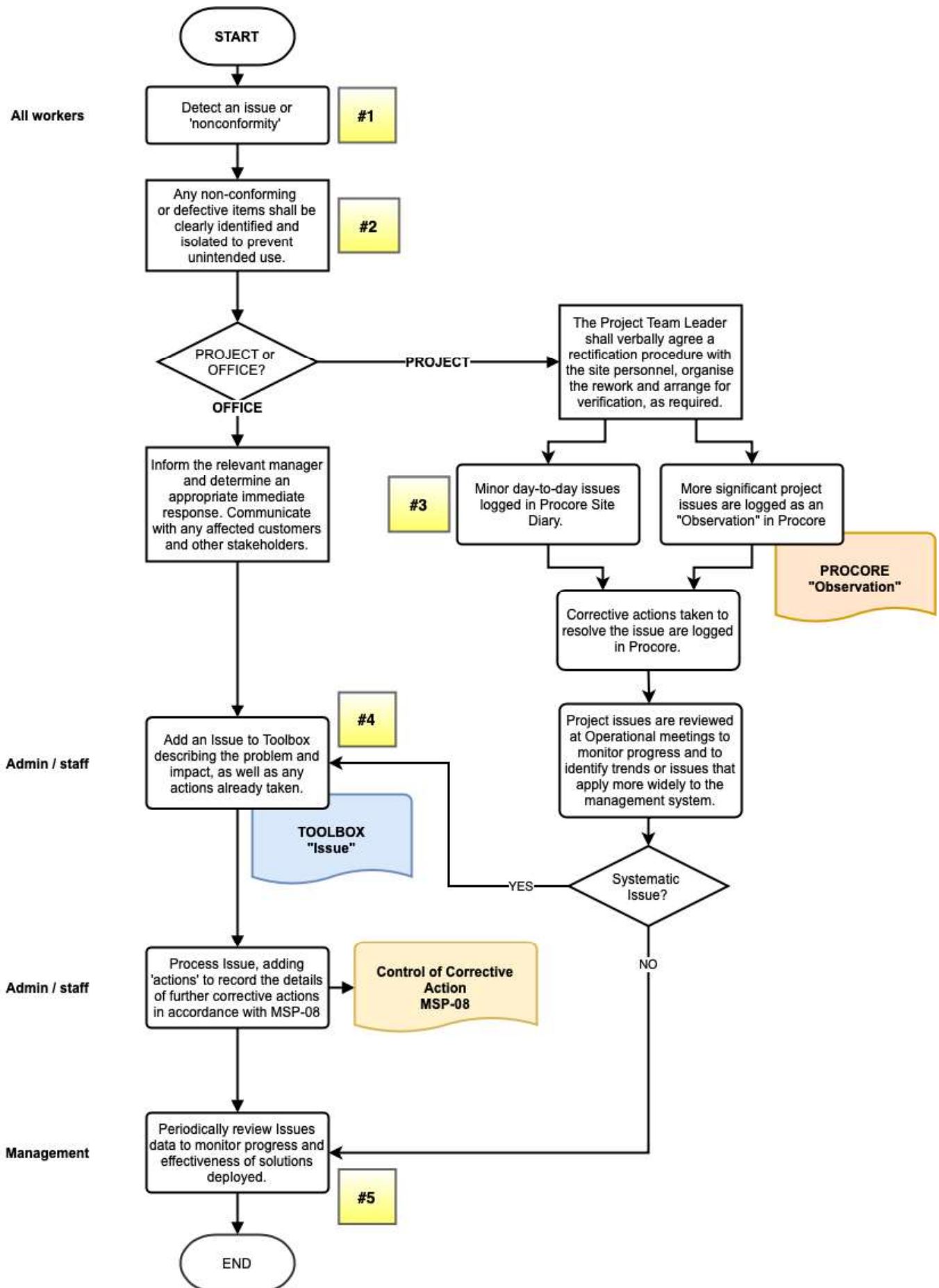
Revision:

Revision Date: 5 Nov, 2020

MSP-07 Managing Issues

Purpose:

Describes the system for ensuring that all service and product related non-conformances are promptly detected, identified and documented and that the issue is resolved satisfactorily.



NOTE #1:

A non-conformance (or 'Issue') occurs when something does not meet applicable requirements - as defined by the customer, a regulatory body, or in our own internal systems & procedures.

An Issue may be identified at any point during service delivery, construction or operation, through customer complaints, audits, incoming goods inspections, safety and site inspections.

Issues can also include:

- serious or repetitive breakdown of machinery,
- subcontractor-supplied material or services that fail to meet specifications,
- any significant variation to planned arrangements,

All personnel are responsible for detecting and reporting nonconforming products and services under their daily control.

NOTE #2:

Where non-conforming goods are identified, the product must be segregated and clearly identified as non-conforming in such a way that accidental use or supply to the customer is prevented. Large items (e.g. pallets) may remain in place.

The Project Manager decides whether nonconforming product should be:

- reworked / repaired to comply with the specified requirements. In this event the reworked product will be re-assessed prior to use.
- accepted by the Client to be used as-is, with or without concession. In this event, the customer should be fully aware of the area(s) in which the product does not meet original requirements
- returned to supplier

The decision is to be recorded together with the issue.

NOTE #3:

MINOR issues are isolated occurrences that have no effect with respect to the customer and/or creates little or no waste materials. Minor issues can be resolved immediately.

MAJOR issues may be repeated occurrences, or an issue where any of the following are true:

- delays which affect the customer's schedule by more than 24 hours
- rework, repeat service calls, or repairs
- cost overruns (which result from all other failures), or cost surprises
- relates to an environmental incident
- estimated rectification costs exceed \$250
- rejection of incoming goods or materials

Customer complaints received regarding pricing / invoicing issues or minor variations to specification are generally to be classified as **MINOR**, and these issues are to be resolved by the Project Manager. Complaints that go beyond the above criteria and which involve more serious variations to product specifications or contractual obligations are classed as **MAJOR** and shall be referred to the CEO for action.

MAJOR issues related to project activities are recorded as an Observation in PROCORE under the relevant project. MINOR project issues are recorded in the PROCORE Site Diary.

MAJOR issues that apply to activities outside of a single project are to be documented as an Issue in TOOLBOX. Minor issues related to office activities may be recorded in the Project and Operations Review Minutes.

A significant number of similar MINOR issues can signify a systemic problem, and shall be raised as an Issue in TOOLBOX.

NOTE #4:

The issue description shall clearly indicate the nature of the problem, any circumstances that may have contributed to its occurrence, and the actual impact (in terms of costs, function, time delays, customer satisfaction, safety, etc., as appropriate).

Where there was significant potential for more serious consequences, these risks should be described. The level of risk associated with the problem may affect the nature and priority of actions that are taken.

Upload any relevant files or images that help describe the problem as attachments to the Issue in TOOLBOX or the Observation in PROCORE.

NOTE #5

Project observations in PROCORE are reviewed during project team meetings to monitor progress, and to identify trends or issues arising from system failures that apply more broadly than the current project. These systematic issues are raised in Toolbox.

Project and Operations Review meetings include review of current issues in Toolbox to ensure progress on corrective actions.

Analysis of all Issues is conducted during Management Review.

Appendix E – MSP-15 Hazard Identification and Control





Status: Draft

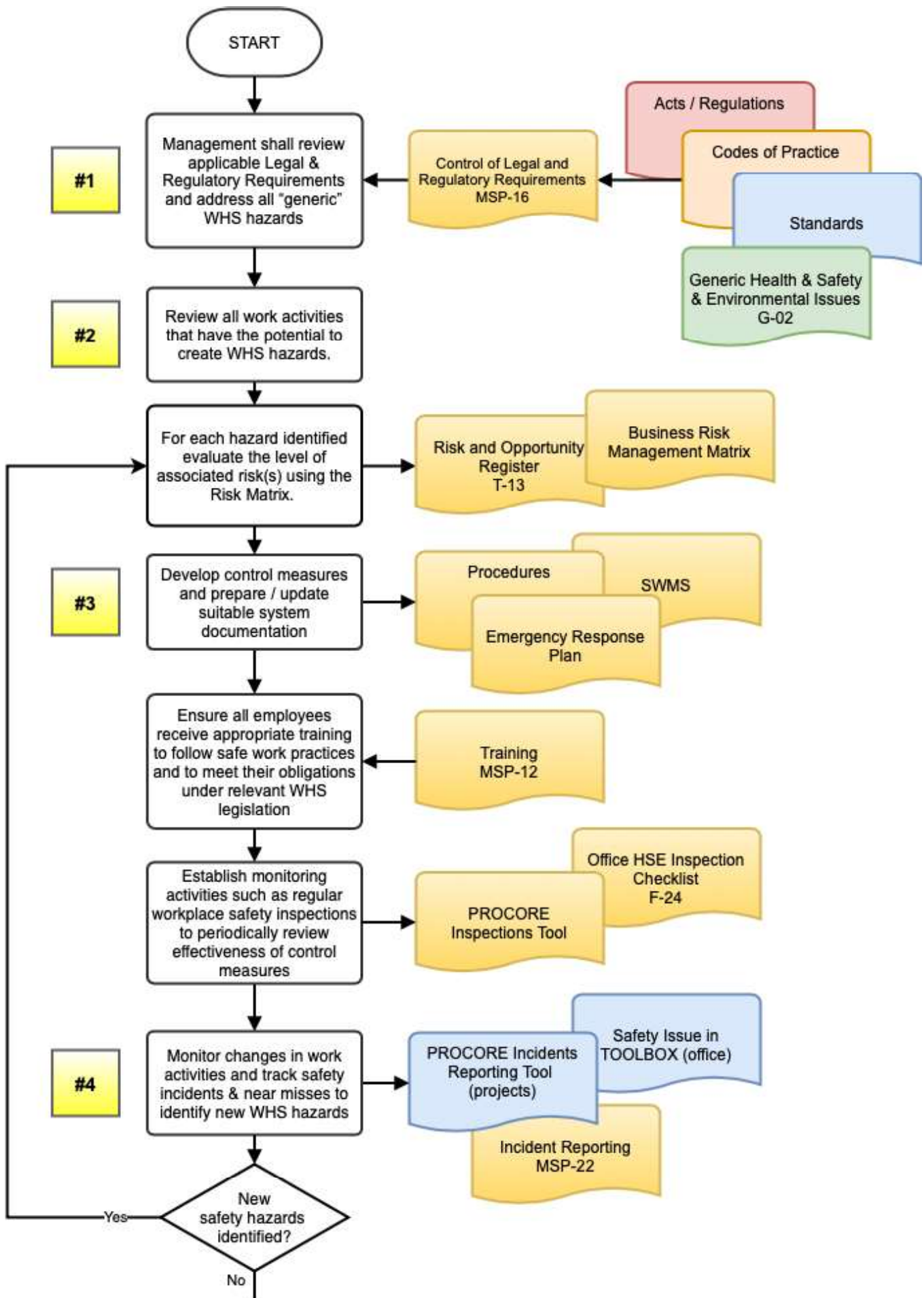
Revision:

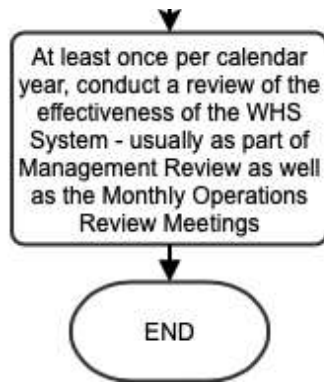
Revision Date: 2 Nov, 2020

MSP-15 Hazard Identification and Control

Purpose:

Describes the process in place at WCG to proactively identify and address hazards associated with the workplace and work conducted.



**Note # 1**

Senior management are responsible for ensuring that the organisation meets its legal and regulatory obligations for workplace health and safety under applicable Acts and Regulations.

Where available, Codes of Practice will be followed to manage known 'generic' safety risks, e.g. manual handling, electrical safety.

Note # 2

Review the workplace and work activities and consider what situation, event, or combination of circumstances, could harm a person.

Assess the likelihood of the situation occurring, and how serious the potential consequences. Higher risk hazards will need to have controls put in place to reduce the likelihood and / or consequence.

Consult workers to draw on their experience, knowledge and ideas to help identify hazards and choose effective control measures.

Example hazards at work may include noisy machinery, a moving forklift, chemicals, electricity, working at heights, bullying or violence at the workplace.

Note # 3

Control measure(s) are to be established for each safety hazard according to the Hierarchy of controls, which lists controls in order of effectiveness.

Hierarchy of controls:

- Eliminate the hazard
- Substitute with a lesser hazard
- Use engineering controls to reduce hazard
- Administrative controls such as workplace procedures and training
- PPE (Personal Protective Equipment).

Employees are to be consulted as to the practicability of the controls and to ensure that the solution is not adding a greater hazard to the workplace.

Controls may also include monitoring activities, such as physical measurements of environmental indicators (e.g. noise, air or dust sampling, wastes, energy consumption) or direct health monitoring of individuals (e.g. blood, urine, lung function tests).

Many workplace hazards and their associated risks are well known and have well established and accepted control measures. Where a Code of Practice applies to a known risk, the recommended controls must be implemented (legal requirement in QLD).

Controls should be incorporated into relevant system documentation, e.g. work instructions, procedures, SWMS, training material and site specific project documentation such as Safety Management Plans.

Note #4

Safety incidents and new hazards are reported as 'Safety' Issues in TOOLBOX for all office based issues, or using the Procore "Incidents" and "Observations" (near misses) Tools for all Project based incidents.

Review of safety issues and effectiveness of control strategies is usually performed as part of Management Review and during the Operations Review Meetings

Appendix F – MSP-22 Incident Reporting





Status: Draft

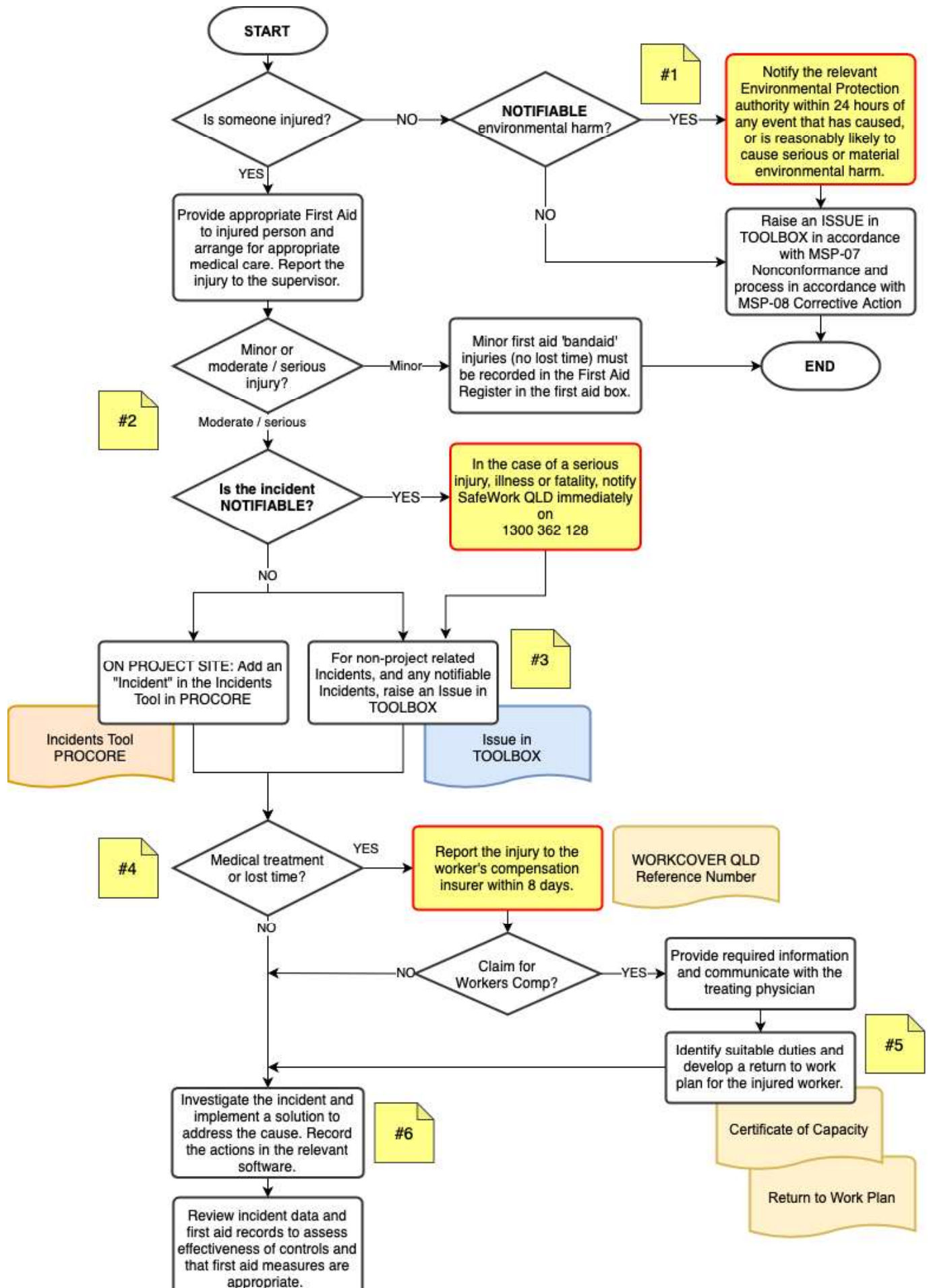
Revision:

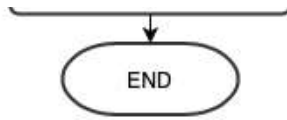
Revision Date: 5 Nov, 2020

MSP-22 Incident Reporting

Purpose:

To ensure that workplace injuries and safety/environmental incidents are responded to appropriately, documented, and reported in accordance with legislative obligations.





Note #1

The environmental protection regulator in QLD is the Department of Environment and Science

To determine whether an event or change in condition is causing or reasonably likely to cause material or serious environmental harm, it may be appropriate to have regard to:

- relevant indicators of contamination signalling the extent and nature of harm already caused
- the nature and extent of the contaminants
- the sensitivity of the local receiving environment, in terms of pathways by which contaminants could cause impacts
- the possible effects of the harm over the long-term
- any exacerbating factors such as flooding or fire
- the criteria for material and serious environmental harm under sections 16 and 17 of the EP Act.

A suitably qualified person (i.e. as a person employed or engaged by an owner or occupier) has a duty to notify the regulator within 24 hours of becoming aware of an event involving the spillage, leakage, exposure or mobilisation or other form of dispersal of a contaminant on the relevant land.

For notifications refer to <https://www.qld.gov.au/environment/pollution/management/contaminated-land/assessing/notifications>

Note #2

Minor injuries are those that require only minimal first aid (e.g., a bandaid on a minor cut) and result in no lost time. These minor first-aid injuries must still be recorded to meet WHS regulations.

If the minor injury worsens (e.g. the cut becomes infected and needs medical treatment) or there was a significant likelihood of a more serious injury (e.g., the minor injury was caused by electricity, a hazardous piece of machinery, inhaling the vapour of a hazardous substance), then the procedure for moderate/serious injury must be followed.

Workplace Health and Safety Queensland is the workplace health and safety regulator in Queensland and must be notified of serious workplace safety incidents. A notifiable incident is a:

- death
- serious injury or illness
- dangerous incident.
- a dangerous electrical event or serious electrical incident

Also refer to: What is an incident (Worksafe QLD)

Workplace Health and Safety Queensland investigates the cause of the incident and how similar incidents can be prevented in the future.

WHSQ Incident Notification: <https://ols.workcoverqld.com.au/ols/public/incident/registration.wc> or by **phone: 1300 362 128**

Workcover Claims: <https://ols.workcoverqld.com.au/ols/public/claim/lodgement.wc>

Note #3

When reporting the Incident in PROCORE or TOOLBOX Toolbox, describe what happened and the events leading up to the incident. Include any circumstances that may have contributed to its occurrence. Where there was significant potential for more serious consequences, these risks should also be described.

Upload any relevant files or images that help describe the problem as attachments.

Avoid uploading images or information about an individual that should be kept private. Material subject to privacy concerns should be stored in the secured personnel file.

Note #4

You must report injuries to your insurer within 8 days if:

- a worker sustains an injury (personal injury, disease, aggravation of a personal injury, disease or medical condition, loss of hearing or death)
- you are aware of the injury
- the injury may be compensable.

An injury may be compensable when you and/or a worker reasonably believes the injury has arisen out of, or in the course of employment, and *any* of the following:

- the injury will require medical treatment resulting in the issue of a medical certificate **or**
- will require the worker to have time off work (beyond the day of sustaining the injury) **or**
- time away from their normal duties to recover from the injury.

If you are not sure, you should report the injury.

You must report injuries regardless of whether the worker makes a claim for workers' compensation, and even if you do not agree the injury is compensable.

(refer to Worksafe QLD for more info)

Note #5

Return to Work Plan

Worksafe QLD is responsible for coordinating the development and ongoing maintenance of a rehabilitation and return to work plan for a worker, whereas the employer is responsible for developing a suitable duties plan, based on the certificate of capacity provided by the doctor.

WCG will use the *Suitable Duties Plan* template available from Worksafe QLD

Note #6

As part of the investigation into the incident, determine if similar incidents have occurred or could occur. Consult with workers and other relevant interested parties to determine an appropriate corrective action to address the cause(s). Review and update any risk assessments associated with the incident and the hazards involved, and determine if the existing controls are sufficient.

Appendix G – F-23 Safety and Environmental Inspection Checklist



F-23 Safety and Environmental Inspection Checklist

TYPE: Safety **TRADE:** WCG internal

DESCRIPTION:

This document is a Safety and Environmental Inspection Checklist to be used by the relevant personnel conducting site safety and environmental inspections.

ATTACHMENTS:

DOCUMENTS

1.1	Is there a Safety Management Plan (SMP), covering this work, available on site? (if required)
1.2	Are Safe Work Method Statements (SWMS) available on site (Procore) for all site activities currently being undertaken assessed as having a high risk?
1.3	Does the SWMS identify site-specific hazards and controls related to the work being carried out?
1.4	Are workers on site working in accordance with their SWMS? (are they implementing the controls listed in their SWMS, and using the plant and equipment listed in their SWMS)
1.5	List Name(s) of SWMS reviewed and comments:

INDUCTION

2.1	Are there WHS Induction records available on site?
2.2	Have all workers undergone site specific induction training prior to starting work on site?

CONSULTATION

3.1	Are Toolbox Talks held prior to site works commencing, and then weekly, or more frequently as required?
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SITE AREA - SECURITY

4.1	Is the site securely fenced / barricaded / site occupants isolated from any risk?
4.2	Are all materials stored within the secured work site / site shed / vehicles?

SITE AREA - SIGNAGE

5.1	Are site safety rules available/displayed on site? (Principal Contractor site safety rules displayed when required)
5.2	Are site safety rules available/displayed on site? (Principal Contractor site safety rules displayed when required)

SITE AREA - EMERGENCY/INCIDENTS

6.1	Where is the nearest phone in case of an emergency?
6.2	Is an emergency/incident procedure displayed on site and are workers aware of the procedure?
6.3	Are there suitable fire extinguishers on site (guidance: eg. hot work minimum 4.5kg) & have fire extinguishers been serviced in last six months & tag stamped? (AS 1851.1 Maintenance of Fire Protection Equipment)
6.4	Is there an adequately stocked first aid kit on site? (equivalent to Type B kit plus items identified as required from carrying out a risk assessment) (Code of Practice: First Aid in the Workplace)
6.5	Is there a qualified first aid person on site? (one first aid person for up to 25 workers for high risk work)
6.6	Are workers trained to use the Procore Incident register tool?
6.7	Do workers have access to Procore from site to register incidents and near misses as required?

SITE AMENITIES AND WASTE DISPOSAL

7.1	(1 toilet per 20 workers) Are there washing facilities, adequate fresh cool drinking water, clean toilet, lunch and change rooms and bins available?
7.2	Is there a rubbish / waste container on site?
7.3	Is the site area clear of rubbish/scattered materials?
7.4	Is documentation available for any waste/hazardous material disposed of offsite? (eg. tip docket)

WORKING AT HEIGHTS

8.1	Prevention of falls if work area is above 2m and within 2m of the edge - are guard rails or Scaffolding or Harness being used? (harness must be attached)
8.2	Is area below (fall zone) fenced/barricaded with warning signage, or spotter below?
8.3	Are tools secured?

8.4	If team has installed Roof Safety Mesh, has a Roof Safety Mesh Handover Certificate been completed & copy left with site owner?
8.5	Are ladders in good condition, industrial rated with a visible rating sticker, secured top or bottom, extended at least 1 metre above top platform & are timber or fibreglass when working near electrical equipment? (AS1892.5 Portable ladders - Selection, safe use and care)

SCAFFOLDING

9.1	If the scaffold is under erection, has a safety barrier been set up near the scaffolding base?
9.2	Incomplete scaffold sign posted if necessary
9.3	Is proper ladder access provided to scaffold working decks (fixed top/bottom)?
9.4	Toe boards fitted when > 2m high
9.5	Is scaffolding secured against tipping?
9.6	Are the planks secure/platforms fully decked?
9.7	Has Scaffolding of 4m or more have a relevant scaff tag or handover certificate?
9.8	Are handrails, midrails and toe boards in place along the full length of working deck of the scaffold?
9.9	No gaps > 225mm between perimeter edge and scaffold. <6m metres from rail (fibre glass)

MOBILE SCAFFOLD

10.1	Do mobile scaffolds have lockable wheels & are the wheels locked?
10.2	Is safe internal ladder access available above 2m?
10.3	Is the height less than 3 times the width of the base?
10.4	Do outriggers have to be used?
10.5	Have overhead electrical hazards been considered?

HAZARDOUS CHEMICALS / SUBSTANCES

11.1	Is there a Hazardous Chemicals/Substances Register on site?
11.2	Are copies of Safety Data sheets (SDS) available on site for all substances used/stored on site?
11.3	LABELLING: Are all containers of chemicals adequately labelled? (Includes decanted materials that haven't been decanted for immediate use)

11.4	TRAINING: Have site workers read SDS and controls listed in SWMS?
11.5	VENTILATION: Is adequate ventilation provided when chemicals/gas bottles are stored in vehicles or in use?
11.6	Are appropriate control measures in place for removal of lead based paint?
11.7	Are appropriate control measures in place for asbestos removal, & work carried out by licensed person?

TOOLS / ELECTRICAL

12.1	GUARDS: Do the machines/tools on site have guards/handles fitted as per manufacturer's recommendations? (eg. grinder, circular saw)
12.2	Are electrical leads, plugs & power tools in good condition & are they tested & tagged three(3) monthly?
12.3	Are extension leads off the ground?
12.4	Are all power supply outlets protected by earth leakage devices/RCD's?
12.5	Sheds/builder's board tested on installation & then 6 monthly (or as required)?
12.6	When explosive powered tools are being used, are warning signs displayed?

PLANT & EQUIPMENT

13.1	Do plant operators have appropriate licences for licensed work?
13.2	Does all machinery have registration/permits?
13.3	Are Safety Check log books for machinery being completed?
13.4	Is traffic control in place if required?
13.5	Do backhoes/excavators/bobcats/cranes/boom pumps/ EWP's have "Beware of Electrical Hazards" signs?
13.6	Have existing services been verified & are workers aware of safe practices/regulations if working close to power lines &/or underground/hidden services? (eg. dial before you dig, service locator)
13.7	Is plant in good order (visual inspection - no oil leaks, hydraulic hoses OK etc)?
13.8	Is the Safe Working Load indicated on the boom of all cranes / EWP / lifts?
13.9	Are licensed persons involved with mobile crane movements & are slings & cranes in good order, & is there evidence of inspections of these?
13.10	Do vehicles have reverse alarms and rotating orange lights where necessary?
13.11	Are workers wearing high visibility clothing in the vicinity of traffic/mobile plant?
13.12	Are operators of EWP that can exceed 11m, licenced?

13.13	Is plant not in use switched off & key removed?
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MOBILE POWERED PLANT

14.1	Daily Inspection completed and any faults recorded
14.2	Plant Hazard Assessment completed and available (PHA Sticker)
14.3	Beacons and motion alarms are operational
14.4	Plant operations are appropriately isolated or separated from adjacent work activities
14.5	Spotter is in place for plant operations where plant operation can not be controlled by other means
14.6	Plant operators are not operating when using a mobile phone
14.7	Operator holds applicable license / competency and the competency has been verified
14.8	Plant has fire extinguisher
14.9	Appropriate traffic control signage in place

EXCAVATION AND TRENCHING WORK

15.1	Are barricades/fences/signage along/around trenches?
15.2	Are excavations >1.5m benched, battered, shored or certified by a Geotechnical Engineer to prevent collapse & is safe ladder access provided?
15.3	Is spoil deposited on downhill side of trench/excavation?

DEMOLITION WORK

16.1	Have gas, electricity and other services been located and isolated/disconnected?
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HOT WORKS AND WELDING

17.1	Hot Works Permit is current and available
17.2	Suitable fuel reduction and fire fighting provisions in place
17.3	Oxy and other bottles stored up right and secured
17.4	Oxy / Act bottles on trolley with flash back arrestors at bottle & torch + extinguisher
17.5	Welding signs are set out in appropriate locations
17.6	Weld returns completed

PERSONAL PROTECTIVE EQUIPMENT (PPE)

18.1	Are Safety Helmets & boots being worn by all persons on work site?
18.2	Are site workers wearing personal protective equipment whilst doing tasks that require it to be worn as per SWMS (eg. dust masks, gloves, eye &/or ear protection)?
18.3	Are supervisors and site workers wearing UV protective equipment / clothing / cream?

ENVIRONMENTAL MANAGEMENT

19.1	Are workers aware that they need to contact their manager / supervisor immediately if there is any incident including one that may affect the environment?
19.2	Is excess water from cleaning tools & equipment & waste contained – not washed into drains/ waterways?
19.3	Are excess materials recycled where possible?
19.4	Are trees protected during site works?
19.5	Are heritage items identified & protected during works?
19.6	Are site vehicles parked where they will not unduly impact local use of a street or grounds?
19.7	Is vehicle access restricted to one stable entry & exit point?
19.8	Is noise minimised where possible?
19.9	Is dust & other particles contained?
19.10	Is waste disposed of appropriately & in accordance with regulations/local authority requirements?
19.11	Use of hazardous substances – Painting / Cleaning Are washings contained – not disposed of down drain or near drains/waterways?
19.12	Are paints & chemicals stored in a lockable area that has an impervious floor & ventilation?
19.13	Are waste solvents, cleaners & paints sealed & disposed of in accordance with guidelines (refer local council)?
19.14	EXCAVATION AND TRENCHING: Are silt fences & other sediment control measures in place & functional, if required?
19.15	EXCAVATION AND TRENCHING: Are trenches filled in as soon as work is completed to minimise erosion?
19.16	EXCAVATION AND TRENCHING: Is any surcharge on ground removed?
19.17	DEMOLITION WORKS: Are stockpiled materials covered to prevent erosion by wind & rain, or dampened with water to reduce wind blown dust?
19.18	DEMOLITION WORKS: If dust is a problem, does the fence installed around the site have a cloth barrier to act as a windbreak?

Inspection Template

19.19	FIRE - risk of fire is minimised, fire breaks maintained
19.20	FIRE - Cutting & welding activities are appropriately monitored and 2x 9kg Fire extinguishers on hand.
19.21	FLORA - Notifiable weeds reported and managed. Notifiable plants and trees are appropriately identified and protected.
19.22	FAUNA - Injured fauna transferred to wildlife carer

Appendix H – MSP-17 Emergency Response Planning





Status: Released

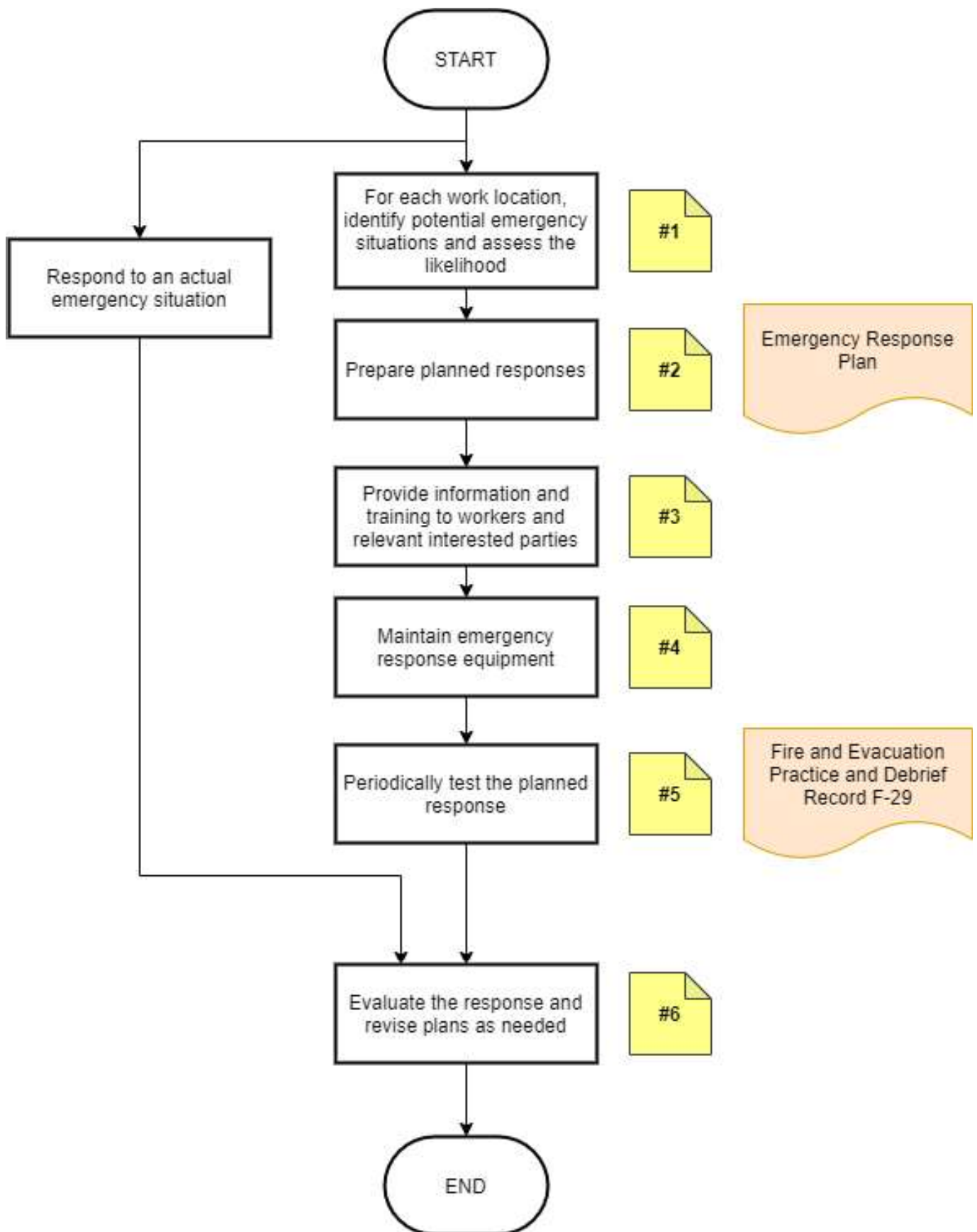
Revision:

Revision Date: 23 Oct, 2020

MSP-17 Emergency Response Planning

Purpose:

To establish a process for preparing for and responding to potential emergency situations where there is a risk to safety or the environment.



Note #1: IDENTIFY & ASSESS

It is a requirement of QLD WHS regulations that all workplaces prepare, maintain and implement an emergency plan. There is also a requirement for a fire and evacuation plan under the Building Fire Safety Regulation 2008. These plans can be combined.

WCG will have a combined Emergency Plan for:

- Head Office (coordinated with the building evacuation plans)
- Springwood Depot,
- Project Sites controlled by WCG.

Each site will have different potential emergency situations that may arise, with different likelihood and consequences, depending on the location of the site, the nature of activities, and the composition of the workforce.

Consider potential emergencies arising from:

- natural disasters such as fires, floods, pandemics, weather events;
- site specific activities such as equipment failure, operational errors, hazardous substances, explosions, accidents;
- medical emergencies such as heart attack and stroke.

Assess the likelihood of each potential emergency and consider how the emergency situation may affect health and safety of workers and other people in the area, as well as potential environmental effects.

Note #2: RESPONSE

For each emergency situation that is reasonably likely to occur and has significant potential consequences, plan a suitable response to the situation.

Emergency response plans must also include:

- evacuation procedures
- notifying emergency service organisations
- communication processes
- medical treatment and assistance

and other requirements as specified in the Building Fire Safety Regulation.

Planning also includes the provision of suitable emergency response equipment and training in the use of the equipment - such as evacuation signs, first aid kits, fire fighting equipment, spill kits, PPE, and any other equipment required for the planned response.

Note #3: TRAINING

Information, training and instruction is provided to relevant workers in relation to implementing the planned emergency procedures. At WCG, initial emergency response training is included in the Induction process.

Further training such as first aid, use of fire extinguishers, etc, is provided as needed and managed according the MSP-12 Training.

Under the Building Fire Safety Regulation, General Evacuation instructions must be given to a person who is working in the building:

- no later than 2 days after the person starts working in the building,

- at intervals of not more than 1 year,
- and within 1 month of any material change in the evacuation procedures.

First-response evacuation instructions for the building must be given to each person working in the building :

- no later than 1 month after the person starts working in the building
- at intervals of not more than 2 years.

General Evacuation Instructions:

- The location of the buildings' escape routes (fire exits and pathways to an exit).
- A procedure for conducting members of the public to an exit and then to the designated assembly area (safe place).
- Checking of all rooms (including toilets) for people (after assessing the risk from smoke or fire).
- The location of fire-fighting equipment (fire extinguishers, fire blankets & fire hose reels).
- The location of fire alarms or equipment for warning of fire (if applicable).

In addition to these, First Response instructions include

- The method of operation of fire-fighting equipment (fire extinguishers, blankets & hose reels).
- The method used to activate fire alarms or equipment for warning of fire (if applicable).

Additional training is provided to personnel with evacuation co-ordination responsibilities:

- Making the announcement for occupants of the building to evacuate.
- Contacting the Fire Service and passing on details of the emergency.
- Assessing the effectiveness of the building evacuation, with consideration as to who may be missing and where they may still be within the building. (Conducting a head count)
- Meeting the attending Fire Service Officer to pass on updated details of the emergency.

Note #4: MAINTAIN EQUIPMENT

Emergency response equipment must be regularly inspected and maintained to ensure it is in good condition in the event of an emergency.

- First Aid kits in the Office are inspected at regular Office Safety Inspections.
- Building fire protection equipment is managed by the building.
- Fire extinguishers in company vehicles are regularly checked.
- Management of Project emergency response equipment is included in the project Safety Management Plan.

Note #5: PRACTICE / TESTING

The Building Fire Safety Regulation requires that a practice evacuation of the building is carried out at intervals of not more than 1 year, and that a record must be kept.

Emergency Evacuation & Fire Drills at the head office location are scheduled by Building Management staff. Practice for other types of emergencies are arranged without notice by the Management Representative.

Records of emergency response practice events are retained in Toolbox in the Records module, under 'Evacuation Drill - Office'.

On project sites, Emergency Evacuation & Fire Drills are generally scheduled by the Principal Contractor. Refer to relevant site specific Safety Management Plans for more details. The Project Manager at each site is responsible for maintaining records of these events together with other project records.

Note #6: EVALUATION AND REVIEW

It is a legal requirement to carry out a review of the fire and evacuation plan for the building at intervals of not more than 1 year and to keep a written record of the review.

Emergency Response Procedures are reviewed after each practice and after each occurrence of incidents, accidents and emergency situations.

Records of review are retained in Toolbox in the Records module together with practice records, under 'Evacuation Drill - Office'.