



Licence number	L2978/2025/1
Licence holder	QSD Hire Pty Ltd
ACN	160 534 805
Registered business address	128 Adelaide St Maryborough QLD 4650
DWER file number	INS-0002978
Duration	29/10/2025 to 28/10/2045
Date of issue	29/10/2025
Premises details	The Landing Wastewater Treatment Plant Lot 5820 on Deposited Plan 189888 - Certificate of Crown Land Title Volume LR3098 Folio 967 being Crown Lease M528702 Part of Lot 5821 on Deposited Plan 189888 - Certificate of Crown Land Title Volume LR3093 Folio 157 being Crown Lease M586142 As defined by the coordinates in Table 2 in Schedule 2

Prescribed premises category description (Schedule 1, Environmental Protection Regulations 1987)	Assessed design capacity
Category 54: Sewage facility (a) on which sewage is treated (excluding septic tanks); or (b) from which treated sewage is discharged onto land or into waters	450 m ³ per day

This licence is granted to the licence holder, subject to the attached conditions, on 29 October 2025, by:

Abbie Crawford

Manager, Waste Industries

Officer delegated under section 20 of the Environmental Protection Act 1986

L2978/2025/1 (Granted 29/10/2025)

Licence template (IR-T06 v8.0)

Premises instrument history

Date	Reference number	Summary of changes
29/10/2025	L2978/1/2025	APP-0027570 - Licence granted.

Interpretation

In this licence:

- (a) the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;
- (b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
- (c) where tables are used in a condition, each row in a table constitutes a separate condition;
- (d) any reference to an Australian or other standard, guideline, or code of practice in this licence:
 - (i) if dated, refers to that particular version; and
 - (ii) if not dated, refers to the latest version and therefore may be subject to change over time;
- (e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and
- (f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This licence requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this licence.

Licence conditions

The licence holder must ensure that the following conditions are complied with:

Construction phase

Infrastructure and equipment

1. The licence holder must:
 - (a) construct and/or install the infrastructure;
 - (b) in accordance with the corresponding design, construction and installation requirements; and
 - (c) at the corresponding location shown in Figure 1 and Figure 2 in Schedule 1
 - (d) by the corresponding date
 as set out in Table 1.

Table 1: Decommissioning, design, construction, and installation requirements

Infrastructure and equipment	Decommissioning, design, construction and installation requirements	Timeframe
Treatment ponds 1, 2 and 3	Decommissioning stage (a) Only one treatment pond must be decommissioned at any one time to ensure the Premises remains operational. (b) During the time when any treatment pond is decommissioned, the Premises must continue to only accept wastewater via a pipeline to operational treatment ponds. (c) Sewerage must be diverted to operational treatment ponds with pipework, fittings, and joints which are constructed of impervious material which is tested and visually inspected to confirm they are free from leaks and defects prior to use. Construction & Installation (d) Once decommissioned and desludged, geotechnical investigation must occur within each treatment pond to determine groundwater levels, soil type and to ensure suitability of the subbase. (e) Must be lined with a minimum 1.5 mm thick HDPE liner that has a permeability of less than 2×10^{-10} m/s or equivalent. (f) HDPE liner must be double-sided textured HDPE and meet the minimum requirements listed in Table 2(b) of the GRI - GM13 Standard Specification for the relevant thickness of HDPE liner. (g) Subgrade preparation, any underdrainage measures to ensure 2 m minimum groundwater separation and HDPE liner installation must be in accordance with the minimum requirements contained in Table 12 of Schedule 3 and the minimum control and quality requirements contained in Table 4 of Schedule 4.	Must be completed by 28 October 2028

Infrastructure and equipment	Decommissioning, design, construction and installation requirements	Timeframe
	(h) Must be constructed to direct outflow from each pond to the subsequent pond in a manner that provides maximum retention time within the previous pond.	

Construction of groundwater monitoring wells

2. The licence holder must design, construct, and install groundwater monitoring wells in accordance with the requirements specified in Table 2:

Table 2: Infrastructure requirements – groundwater monitoring wells

Infrastructure	Design, construction, and installation requirements	Timeframe
Groundwater monitoring well(s): MB1 MB2 MB3 As depicted on Figure 1 in Schedule 1.	<u>Well design and construction:</u> Designed and constructed in accordance with <i>ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores</i>. Well screens must target the part, or parts, of the aquifer most likely to be affected by contamination¹. Where temporary/seasonal perched features are present, wells must be nested, and the perched features individually screened. <u>Logging of borehole:</u> Soil samples must be collected and logged during the installation of the monitoring wells. A record of the geology encountered during drilling must be described and classified in accordance with the Australian Standard Geotechnical Site Investigations AS1726. Any observations of staining / odours or other indications of contamination must be included in the bore log. <u>Well construction log:</u> Well construction details must be documented within a well construction log to demonstrate compliance with <i>ASTM D5092/D5092M-16</i>. The construction logs shall include elevations of the top of casing position to be used as the reference point for water-level measurements, and the elevations of the ground surface protective installations. <u>Well development:</u> All installed monitoring wells must be developed after drilling to remove fine sand, silt, clay and any drilling mud residues from around the well screen to ensure the hydraulic functioning of the well. A detailed record should be kept of well development activities and included in the well construction log. <u>Installation survey:</u> the vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently mapped by a suitably qualified surveyor. <u>Well network map:</u> a well location map (using aerial image overlay) must be prepared and include the location of all monitoring wells in the monitoring network and their respective identification numbers.	Must be completed by 28 October 2026

Note 1: refer to Section 8 of Schedule B2 of the *Assessment of Site Contamination NEPM* for guidance on well screen depth and length.

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3. The licence holder must, within 90 calendar days of the monitoring wells being constructed, submit to the CEO a well construction report evidencing compliance with the requirements of condition 2.

Compliance reporting

4. The licence holder must within 30 days of each item of infrastructure required by condition 1 being constructed:
- (a) undertake an audit of their compliance with the requirements of condition 1; and
 - (b) prepare and submit to the CEO a Critical Containment Infrastructure Report on that compliance.
5. The Critical Containment Infrastructure Report required by condition 4, must include as a minimum:
- (a) a CQA Validation Report, written and certified by a suitably qualified independent civil or geotechnical engineer that includes but is not limited to:
 - (i) certification that each item of infrastructure or component thereof, as specified in condition 1, have been constructed and installed in accordance with the minimum requirements specified in condition 1 and Table 3 of Schedule 3;
 - (ii) documentation of the quality of the completed works;
 - (iii) certification that each item of critical containment infrastructure or component thereof, has complied with the relevant construction quality assurance requirements detailed in condition 1 and Table 4 of Schedule 4.
 - (iv) documentation of all repairs conducted during the installation and testing of each item of infrastructure.
 - (b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 1.
 - (c) photographic evidence of the installation of the infrastructure.
 - (d) be signed by a person authorised to represent the licence holder and contains the printed name and position of that person.
6. The licence holder may only commence operations for an item of infrastructure identified in condition 1:
- (a) where the Critical Containment Infrastructure Report as required by condition 4 has been submitted by the licence holder for that item of infrastructure; and
 - (b) where the CEO has notified the licence holder that the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 4 meets the requirements of that condition; or
 - (c) where at least 20 business days have passed after the Critical Containment Infrastructure Report for that item of infrastructure as required by condition 4 has been submitted to the CEO.

Infrastructure and equipment

7. The licence holder must ensure that the infrastructure and equipment listed in Table and located at the corresponding infrastructure location shown in Figure 1 and Figure 2 in Schedule 1 is maintained and operated in accordance with the corresponding operational requirement set out in Table 3.

Table 3: Infrastructure and equipment requirements

Infrastructure and equipment		Operational requirement
1.	Wastewater treatment plant (WWTP)	(a) Must be able to receive and treat a sewage inflow of up to 450 m³ per day. (b) Must have sufficient capacity to contain a 1 in 10-year 72-hour storm event. (c) Overtopping of the ponds must not occur. (d) The integrity of all containment infrastructure and pipelines must be maintained free from leaks and defects. (e) Vegetation and floating debris (emergent or otherwise) must be prevented from growing or accumulating onto pond surfaces and embankments. (f) The base of all ponds must be located more than 2 m above the maximum wet season water table in the alluvial aquifer; or effective underdrainage measures installed and maintained in accordance with the minimum requirements contained in Table 12 of Schedule 3 .
2.	Pond 1, 2 & 3 – Treatment ponds	(a) By 28 October 2028 be lined with a minimum 1.5 mm thick HDPE liner to achieve a permeability of less than 2×10^{-10} m/s, constructed in accordance with condition 1. (b) A top of embankment freeboard height equal to or greater than 500 mm must be maintained on all ponds. (c) Must be operated in series. (d) Outflow from Pond 3 must be directed to Infiltration Pond 4. (e) Untreated or partially treated wastewater must not enter Infiltration Ponds 4 and 5.
3.	Ponds 4 & 5 - Infiltration ponds	(a) Must be operated in series. (b) A top of embankment freeboard height equal to or greater than 500 mm must be maintained on all ponds. (c) Outflow from Infiltration Pond 4 must be directed to Infiltration Pond 5. (d) The base of the ponds must be maintained to prevent cracking, drying and/or vegetation growth.
4.	'Composite PittBoss' evaporators	(a) One evaporator is to be operated in each of Treatment Ponds 1, 2 & 3. (b) Four evaporators are to operated in each of Infiltration Ponds 4 & 5.

Infrastructure and equipment		Operational requirement
5.	Fencing and site security	(a) A 1.8 m high site perimeter fence and lockable access gates must be erected and maintained to prevent unauthorised access to the premises. (b) Entrance gates to the premises must be securely locked when the premises is unattended. (c) Regular inspections must be undertaken of all security measures and damage repaired within 10 working days of identification.
6.	Groundwater monitoring bores Bore 1 Bore 2 Bore 3	(a) Must be maintained in good working order to allow representative groundwater samples to be taken.

Waste acceptance and processing

8. The licence holder must only accept onto the premises waste of a type that:

- (a) does not exceed the rate at which that waste is received; and
- (b) meets the relevant acceptance specification

as set out in Table .

Table 4: Waste acceptance criteria

Waste type	Quantity Limit	Acceptance specification
Sewage	450 m ³ /day	Accepted via a sewerage inflow pipe into Treatment Pond 1 In the instance that Treatment 1 is offline for relining works (as specified in Condition 1) acceptance is via a sewerage inflow pipe into Treatment Pond 2.

9. The licence holder must ensure that the waste accepted onto the premises is only subjected to the processes set out in Table 5 and in accordance with any process requirements described in Table 5.

Table 5: Waste processing

Waste type	Process	Process requirements
Sewage	Physical and biological treatment	Treatment of sewage waste must not exceed the treatment capacity of 450m ³ per day.
Treated wastewater	Disposal of treated wastewater via evaporation & infiltration	Disposal of treated wastewater by evaporation & infiltration in Infiltration Ponds 4 & 5.
Sewage sludge	Storage and processing	Sludge must be dewatered within the pond being desludged prior to disposal offsite to a licensed facility.

Emissions and discharges

General

- 10.** The licence holder must immediately recover, or remove and dispose of, spills of sewage, treatment chemicals, fuel, or other environmentally hazardous materials, whether inside or outside an engineered containment system.
- 11.** The licence holder must:
- (a) prevent stormwater run-off from becoming contaminated by the activities and operations undertaken at the premises; and
 - (b) prevent stormwater entering ponds or causing erosion of outer pond embankments.

Monitoring

Waste inputs and outputs

- 12.** The licence holder must undertake monitoring of inputs and outputs in accordance with Table 6.

Table 6: Monitoring of inputs and outputs

Input/Output	Monitoring point reference	Parameter & Unit	Frequency	Averaging period
Sewage	Sewage inflow meters FM1 & FM2 (refer Figure 2)	Volume: m ³ /day (cumulative)	Continuous	Monthly
Treated wastewater	Treated wastewater outlet FM3 (refer Figure 2)			

Treated wastewater

- 13.** The licence holder must monitor emissions of treated wastewater in accordance with the requirements specified in Table 7.

Table 7: Emissions and discharge monitoring

Monitoring location	Parameter	Unit	Frequency	Method
Treated wastewater outlet FM3 (refer Figure 2)	pH ¹	-	Monthly	Spot sample in accordance with AS/NZS 5667.1 and AS/NZS 5667.10
	EC ¹	µS/cm		
	Biological Oxygen Demand BOD ₅	mg/L		
	Total Suspended Solids (TSS)			
	Total Dissolved Solids (TDS)			

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Monitoring location	Parameter	Unit	Frequency	Method
	Ammonium nitrogen (NH ₄ -N)			
	Nitrate + Nitrite as nitrogen (NO _x -N)			
	Total Kjeldahl Nitrogen (TKN)			
	Total Nitrogen (TN)			
	Filterable Reactive Phosphorus (FRP)			
	Total Phosphorus (TP)			
	<i>E. coli</i>	CFU or MPN /100mL		

Note 1: In-field non-NATA accredited analysis permitted.

Ambient monitoring

- 14.** The licence holder must monitor groundwater for concentrations of the identified parameters in accordance with the requirements specified in Table 8.

Table 8: Ambient groundwater monitoring

Monitoring location	Parameters	Unit	Frequency	Method
Field measurements				
Bore 1 Bore 2 Bore 3 (refer Figure 1 and 2)	Standing water level ¹	mbgl and mAHD	Quarterly	Spot sample collected and preserved in accordance with AS/NZS 5667.1 and AS/NZS 5667.11
	pH ¹	-		
	EC ¹	µS/cm		
	Redox ¹	mV		
	DO ¹	mg/L		
General water quality parameters				
Bore 1 Bore 2 Bore 3 (refer Figure 1 and 2)	Biochemical oxygen demand (BOD ₅)	mg/L	Quarterly	Spot sample collected and preserved in accordance with
	Total dissolved solids (TDS)			

Monitoring location	Parameters	Unit	Frequency	Method
	Total Suspended Solids (TSS)			AS/NZS 5667.1 and AS/NZS 5667.11
	Major Cations (Ca, Mg, Na, K)			
	Major Anions (Cl, SO4, bicarbonate, carbonate)			
	Ammonium nitrogen (NH4-N)			
	Nitrate + Nitrite as nitrogen (NOx-N)			
	Total Kjeldahl Nitrogen (TKN)			
	Total Nitrogen (TN)			
	Filterable Reactive Phosphorus (FRP)			
	Total phosphorus (TP)			
Pathogens				
Bore 1 Bore 2 Bore 3 (refer Figure 1 and 2)	E. coli	CFU or MPN / 100 mL	Quarterly	Spot sample collected and preserved in accordance with AS/NZS 5667.1 and AS/NZS 5667.11
Metals (dissolved)				
Bore 1 Bore 2 Bore 3 (refer Figure 1 and 2)	Arsenic	mg/L	Biannually	Spot sample collected and preserved in accordance with AS/NZS 5667.1 and AS/NZS 5667.11
	Chromium VI			
	Cobalt			
	Copper			
	Iron			
	Ferrous Iron			
	Manganese			

Note 1: In-field non-NATA accredited analysis permitted.

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General

- 15.** The licence holder must ensure that all water sample analysis undertaken pursuant to conditions 13 and 14 is undertaken by a holder of a current accreditation from NATA for the methods of analysis relevant to the corresponding parameter.
- 16.** The licence holder must ensure that
- (a) monitoring is undertaken in each monthly period such that there are at least 15 days in between the days on which samples are taken in successive months;
 - (b) monitoring is undertaken in each quarterly period such that there are at least 45 days in between the days on which samples are taken in successive quarters;
 - (c) monitoring is undertaken in each six-monthly period such that there are at least 5 months in between the days on which samples are taken in successive periods of six months; and
- 17.** The licence holder must ensure that all monitoring equipment used to comply with conditions 12, 13, and 14 is operated and calibrated in accordance with the manufacturer's specifications.

Records and reporting

Records

- 18.** The licence holder must record the following information in relation to complaints received by the licence holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the premises:
- (a) the name and contact details of the complainant, (if provided);
 - (b) the time and date of the complaint;
 - (c) the complete details of the complaint and any other concerns or other issues raised; and
 - (d) the complete details and dates of any action taken by the licence holder to investigate or respond to any complaint.
- 19.** The licence holder must maintain accurate and auditable books including the following records, information, reports, and data required by this licence:
- (a) the calculation of fees payable in respect of this licence;
 - (b) the works conducted in accordance with condition 3 of this licence;
 - (c) any maintenance of infrastructure that is performed in the course of complying with conditions of this licence;
 - (d) monitoring programs undertaken in accordance with conditions 12, 13 and 14 of this licence; and
 - (e) complaints received under condition 18 of this licence.
- 20.** The books specified under condition 19 must:
- (a) be legible;
 - (b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval;
 - (c) be retained by the licence holder for the duration of the licence; and
 - (d) be available to be produced to an inspector or the CEO as required.

Reporting

- 21.** The licence holder must:
- (a) undertake an audit of their compliance with the conditions of this licence during the preceding annual period; and
 - (b) prepare and submit to the CEO by no later than 31 August after the end of that annual period an Annual Audit Compliance Report in the approved form.
- 22.** The licence holder must submit to the CEO by no later than 31 August 2027 after and then biennially thereafter, an Environmental Report for the previous two annual periods (or part thereof) for the conditions listed in Table 9, and which provides information in accordance with the corresponding requirement set out in Table 9.

Table 9: Environmental report requirements

Condition	Requirement ¹
7 and 9	(a) A summary of inspections and maintenance performed to address the requirements of Table 3 and Table .
8 and 12	(b) A summary of the waste acceptance and removal at the premises presented in table format.
13	(a) A clear statement of the scope of work carried out; (b) A description of the field methodologies employed; (c) volume (in m³ or kL) of treated wastewater transferred to Infiltration Ponds 4 & 5, and monthly cumulative volumes; (d) A tabulated summary of results, as well as all raw data provided in an accompanying Microsoft Excel spreadsheet digital document/file (or a compatible equivalent digital document/file), with all results being clearly referenced to laboratory certificates of analysis; (e) an interpretive summary and assessment of results against previous monitoring results and relevant limits within the licence; (f) an interpretive summary and assessment of the results against relevant assessment levels for water, as published in the Guideline Assessment and management of contaminated sites; and (g) trend graphs to provide a graphical representation of historical results and to support the interpretive summary
14	(a) A clear statement of the scope of work carried out; (b) A description of the field methodologies employed; (c) A summary of the field and laboratory quality assurance / quality control (QA/QC) program; (d) copies of the field monitoring records and field QA/QC documentation; (e) A tabulated summary of results, as well as all raw data provided in an accompanying Microsoft Excel spreadsheet digital document/file (or a compatible equivalent digital document/file), with all results being clearly referenced to laboratory certificates of analysis; (f) A diagram with aerial image overlay showing all monitoring locations and depicting groundwater level contours, flow direction and hydraulic gradient (relevant site features including discharge points and other potential sources of contamination must also be shown);

Condition	Requirement ¹
	(g) an interpretive summary and assessment of the results against relevant assessment levels for water, as published in the Guideline Assessment and management of contaminated sites; (h) an interpretive summary and assessment of results against previous monitoring results; and (i) trend graphs to provide a graphical representation of historical results and to support the interpretive summary
18	(a) A summary of complaints received, and any action taken to investigate or respond to any complaint.
-	(a) A summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period, including any actions taken.

Note 1: General guidance on report presentation can be found in the department's *Guideline: Assessment and management of contaminated sites*.

Notifications

23. The licence holder must ensure that the parameters listed in Table 10 are notified to the CEO in accordance with the notification requirements of Table 10.

Table 10: Notification requirements

Condition or table	Parameter	Notification requirement	Format or form
-	Taking process equipment offline for maintenance works that may result in increased odour emissions	No less than 72 hours in advance of works	Submitted via email to info@dwer.wa.gov.au
Condition 9 Table	Desludging	No less than 14 calendar days in advance of desludging activities	Submitted via email to info@dwer.wa.gov.au , containing the following information: (i) when desludging is proposed to occur; (ii) the desludging method; (iii) action to mitigate potential odour impacts; and (iv) the method by which the community will be advised of the desludging activities.
-	Any discharge or spills outside of containment infrastructure	Within 14 days	To the Environment Watch hotline, via: - environmentwatch@dwer.wa.gov.au ; and - 1300 784 782
-	Fire	Within 14 days of any unauthorised fire	

Definitions

In this licence, the terms in Table 11 have the meanings defined.

Table 11: Definitions

Term	Definition
ACN	Australian Company Number
Annual Audit Compliance Report (AACR)	means a report submitted in a format approved by the CEO (relevant guidelines and templates may be available on the Department's website).
annual period	a 12 month period commencing from 1 July until 30 June of the immediately following year.
AS1726	Means the Australian Standard AS1726 <i>Geotechnical site investigations</i>
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 <i>Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples</i>
AS/NZS 5667.10	means the Australian Standard AS/NZS 5667.10 <i>Water Quality – Sampling – Guidance on sampling of waste waters</i>
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 <i>Water Quality – Sampling – Guidance on sampling of groundwaters</i>
ASTM D792	means the ASTM International Standard ASTM D792 Standard Test Methods for Density and Specific Gravity (relative Density) of Plastics by Displacement
ASTM D1004	means the ASTM International Standard ASTM D1004 Standard Test Method for Tear Resistance (Graves Tear) of Plastic Film and Sheeting
ASTM D1505	means the ASTM International Standard ASTM D1505 Standard Test Method for Density of Plastics by the Density-Gradient Technique
ASTM D1603	means the ASTM International Standard ASTM D1603 Standard Test Method for Carbon Black Content in Olefin Plastics
ASTM D4833	means the ASTM International Standard ASTM D4833 Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products
ASTM D5092/D5092M-16	means the ASTM International Standard ASTM D5092/D5092M-16 Standard Practice for Design and Installation of Groundwater Monitoring Wells
ASTM D5397	means the ASTM International Standard ASTM D5397 Standard Test Method for Evaluation of Stress Crack Resistance of Polyolefin Geomembranes Using Notched Constant Tensile Load Test
ASTM D5596	means the ASTM International Standard ASTM D5596 Standard Test Method for Microscopic Evaluation of the Dispersion of Carbon Black in Polyolefin Geosynthetics

Term	Definition
ASTM D5885	means the ASTM International Standard ASTM D5885 Standard Test Method for Oxidative Induction Time of Polyolefin Geosynthetics by High-Pressure Differential Scanning Calorimetry
ASTM D5994	means the ASTM International Standard ASTM D5994 Standard Test Method for Measuring Core Thickness of Textured Geomembranes
ASTM D6693	means the ASTM International Standard ASTM D6693 Standard Test Method for Determining Tensile Properties of Nonreinforced Polyethylene and Nonreinforced Flexible Polypropylene Geomembrane
ASTM D7466	means the ASTM International Standard ASTM D7466 Standard Test Method for Measuring the Asperity Height of Textured Geomembranes
ASTM D8117	means the ASTM International Standard ASTM D8117 Standard Test Method for Oxidative Induction Time of Polyolefin Geosynthetics by Differential Scanning Calorimetry
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer of the Department. “submit to / notify the CEO” (or similar), means either: Director General Department administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919 or: info@dwer.wa.gov.au
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
CQA	construction quality assurance
construction quality assurance	means a planned system of activities that provide assurance that the subgrade and geomembrane were fabricated and installed in accordance with the requirements of the works approval and technical specifications
Construction Quality Assurance Plan	means a plan that provides procedures and activities to be undertaken to ensure the installation of liner materials meets the required technical specifications and works approval requirements, including identification of non-conformances and corrective actions to be undertaken
Critical Containment Infrastructure Report	means a report to satisfy the CEO that works of critical containment infrastructure have been constructed in accordance with the works approval
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
EP Act	<i>Environmental Protection Act 1986</i> (WA)

Term	Definition
EP Regulations	Environmental Protection Regulations 1987 (WA)
freeboard	means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point.
GRI - GM13 Standard Specification	means the Geosynthetic Research Institute GM13 Standard Specification for Test Methods, Test Properties and Testing Frequency for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes
HDPE	High-Density Polyethylene
licence	refers to this document, which evidences the grant of a licence by the CEO under section 57 of the EP Act, subject to the specified conditions contained within.
licence holder	refers to the occupier of the premises, being the person specified on the front of the licence as the person to whom this licence has been granted.
NATA	National Association of Testing Authorities
premises	refers to the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map (Figure 1) in Schedule 1 to this licence.
prescribed premises	has the same meaning given to that term under the EP Act.
sewage	means waste containing faecal matter or urine.
suitably qualified civil or geotechnical engineer	means a person who: (a) holds a Bachelor of Engineering recognised by Engineers Australia; and (b) has a minimum of five years of experience working in a supervisory area of civil or geotechnical engineering; or is otherwise approved in writing by the CEO to act in this capacity
waste	has the same meaning given to that term under the EP Act.

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is shown in the map below.

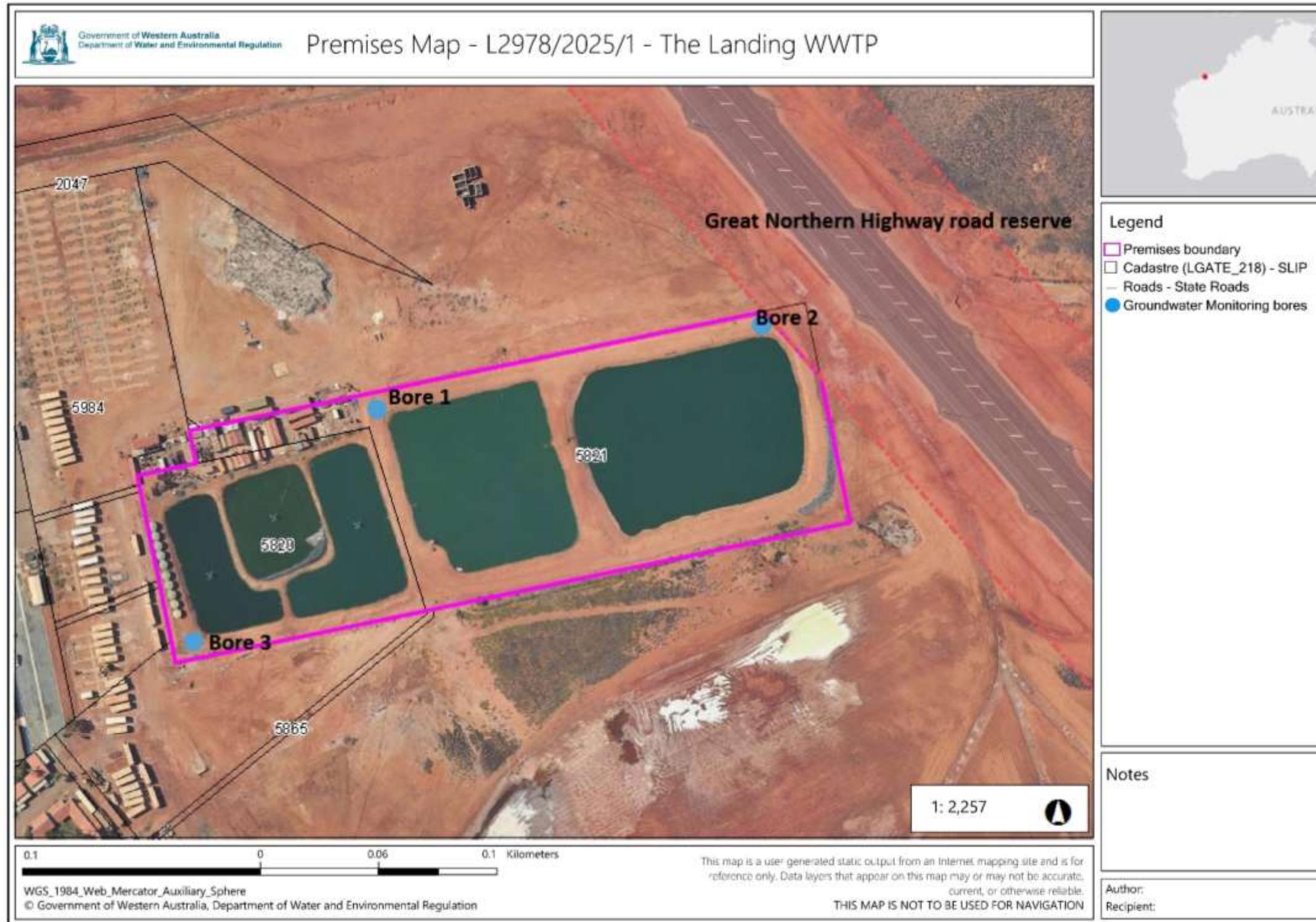


Figure 1: Map of the boundary of the prescribed premises

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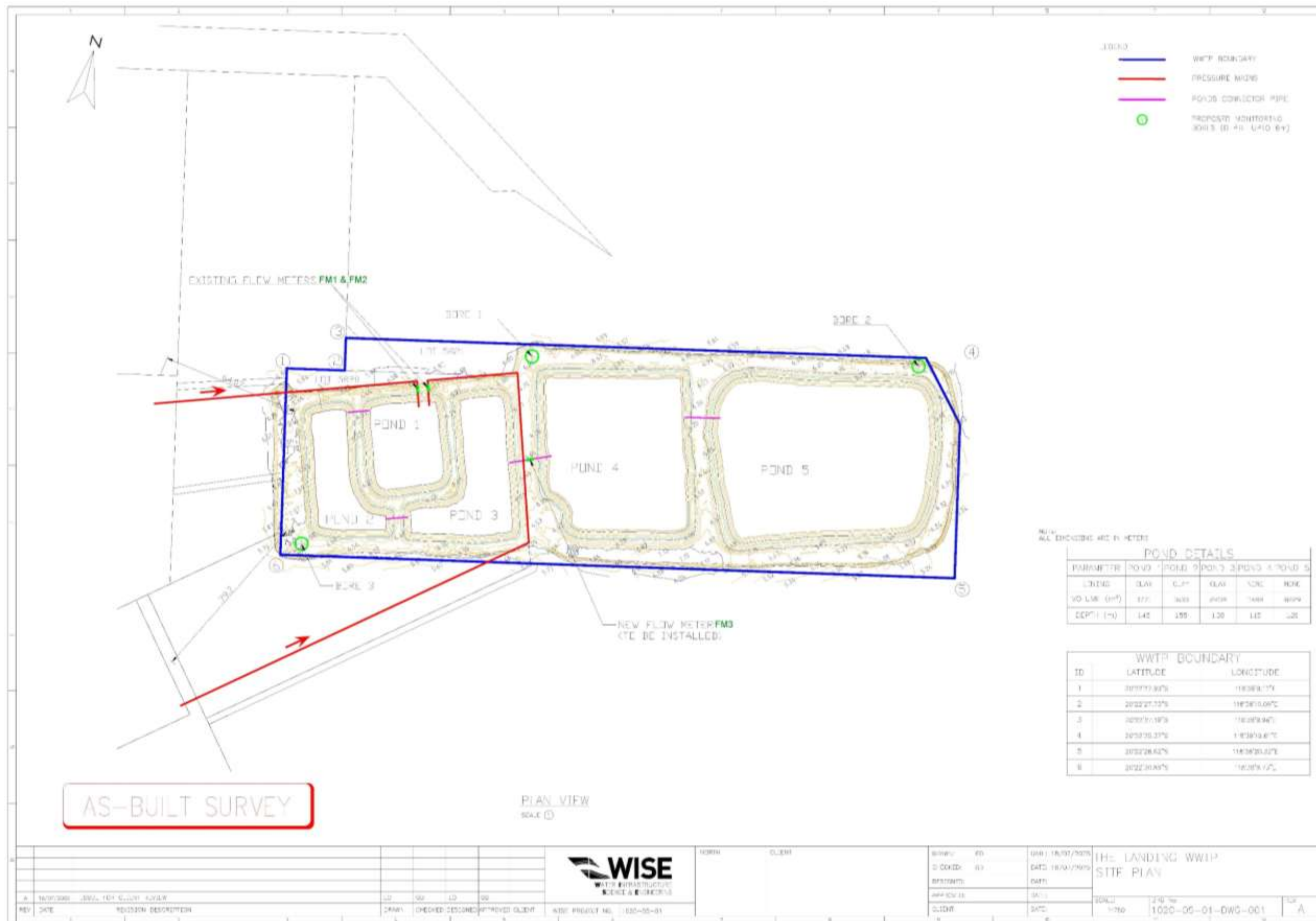


Figure 2: Site Plan

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Schedule 2: Premises boundary

The vertices of the premises boundary are the coordinates listed in Table 2.

Table 2: Premises boundary coordinates (GDA2020 MGA Zone 50)

	Eastings	Northings
1.	670754.92308	7746252.71536
2.	670757.81312	7746237.99550
3.	670731.13157	7746232.75332
4.	670747.67917	7746148.45830
5.	671053.55976	7746208.46721
6.	671040.87792	7746273.75050
7.	671015.25880	7746303.57421

Schedule 3: Liner installation requirements

In accordance with condition 1 the items and corresponding requirements described in Table 3 are the minimum requirements to be met and/or completed for the installation of the HDPE liner material in ponds.

Table 3: Minimum requirements for installation of pond HDPE liners

Item	Requirements
1. Pond base and embankment subgrade preparation	Prior to installation of the HDPE liner, the works approval holder must; (a) Ensure the underside of the lowest liner will be at least 2 m above the highest wet season watertable, which may require: i. effective underdrainage measures to be installed to prevent upward water pressure on the liner; and ii. allowance to be made for any mounding of the watertable that may result from seepage from the containment compound. (b) Excavate all unsuitable materials to a minimum depth of -300 mm from the final surface level (FSL) of the pond and replace with engineered fill material to FSL to form a suitable subgrade; (c) Moisture condition and compact the subgrade to a Standard Maximum Dry Density (SMDD) of 95% and Optimum Moisture Content (OMC) of -2% to +2%; (d) Ensure the subgrade is free from debris, vegetation, roots, sticks, sharp rocks, or other deleterious materials larger than 10 mm in any dimension, as well as free of any voids, large cracks or standing water; (e) Ensure lined pond embankments are constructed with a side slope of equal to or less than 3(H):1(V), or appropriate engineering controls to prevent liner slippage. (f) Conduct final grading of the subgrade to fill remaining voids or desiccation cracks and proof roll the entire footprint including pond floor and embankments using a smooth drum roller; (g) Ensure the prepared subgrade is protected from desiccation and flooding, and the surface is maintained in a smooth condition prior to HDPE installation.

Item	Requirements
2. HDPE liner installation	(a) The entire surface area of each roll must be inspected by the suitably qualified CQA engineer/consultant prior to works commencing or during unrolling/installation, to ensure that there are no tears, punctures, abrasions, indentations, cracks, thin spots or other faults in the material; (b) Installation and seaming must be undertaken by installers with extensive experience in seaming the same type of HDPE liner being installed and using the same seaming procedures to be used on site. They must hold a current independent certification for seaming and installation to a recognised industry standard (national or international); (c) The method used to unroll and deploy the panels must not score, scratch or crimp the geomembrane; (d) Must not be installed during rainfall, high winds or in the presence of standing water on the subgrade; (e) Must be installed to overlay the subgrade so that the geomembrane remains in direct contact with the subgrade, with sufficient slack given to ensure low areas in the subgrade are not bridged by the geomembrane; (f) Panel overlap zones must be no less than 100 mm and orientated so the overlap is in the down sloping direction and across the pond base; (g) Panel connecting seams between embankment and base panels must be located on the base of the pond at least 1.5 m from the toe of the embankment; (h) Panels installed on pond embankments must be fixed in anchor trenches; (i) Panels must be free of holes, blisters, blemishes, striations, bubble, roughness, contaminants and permanently attached raw materials; and (j) The installation must be undertaken in accordance with any additional minimum requirements specified by the manufacturer.
3. Anchor trenches	(a) Must be set back at least 1.0 m from the top edge of the pond embankment; and (b) Must be backfilled with engineered fill while liner materials are in the relaxed state, in full contact with subgrade and without wrinkles or folds.
4. Welding methods	(a) Only thermal welding methods shall be used; (b) Welding of all main joints between adjacent panels must be conducted using dual-track fusion welding; (c) Extrusion welding must only be conducted for repair work or around pipeline penetrations; and (d) Extrusion welding must be undertaken using material that has the same resin type and physical properties of the HDPE.

Item		Requirements
5.	Inspection and repair	Following installation of the HDPE liner, the works approval holder must; (a) identify any damage to the HDPE by inspecting the surface of the liner for rips, tears and displaced panels; (b) conduct appropriate repairs to any damage identified through the inspection; and (c) document the results of the inspection, and if required, any repairs done to the liner.

Schedule 4: Liner quality control and quality assurance requirements

The items and corresponding requirements described in Table 4 are the minimum quality control and assurance activities that must be undertaken for the installation of the HDPE liner material in ponds.

Table 4: Minimum requirements for quality control and assurance for pond HDPE liner installation

Item		Requirements																				
1	Manufacturer Quality Control and Assurance	(a) HDPE panel rolls must be supplied, tested and certified by the manufacturer in accordance with the <i>GRI - GM13 Standard Specification</i> to confirm that the following material properties meet the requirements of the relevant specification for the HDPE liner: (i) Thickness, asperity height and formulated density; (ii) Tensile properties; (iii) Tear, puncture and stress crack resistance; (iv) Carbon black content and dispersion; (v) Oxidative Induction Time; (vi) Oven aging at 85⁰C; and (vii) Ultra-violet resistance; and (b) A statement on the origin of the resin used in the HDPE, its identification (type and lot number), its production date and the maximum amount of recycled polymer material added to the raw resin must be provided by the manufacturer.																				
2	Conformance testing after shipment	(a) The works approval holder must undertake conformance testing of HDPE liner material prior to installation of the liner and following delivery of the HDPE liner rolls to the premises, for the properties listed below, using the corresponding test method and testing frequencies listed below. <table><tr><th>Property</th><th>Test method</th><th>Testing frequency</th></tr><tr><td>Thickness</td><td>ASTM D5994</td><td>Each roll</td></tr><tr><td>Asperity Height</td><td>ASTM D7466</td><td>Two samples</td></tr><tr><td>Density</td><td>ASTM D1505 or ASTM D792</td><td rowspan="5">One per 5,000 m² or every five rolls delivered to the premises, whichever is the higher number of tests</td></tr><tr><td>Tensile properties in each direction - strength at break - strength at yield - elongation at break - elongation at yield </td><td>ASTM D6693 type IV</td></tr><tr><td>Puncture resistance</td><td>ASTM D4833</td></tr><tr><td>Tear resistance</td><td>ASTM D1004</td></tr><tr><td>Carbon black content</td><td>ASTM D1603</td></tr></table>	Property	Test method	Testing frequency	Thickness	ASTM D5994	Each roll	Asperity Height	ASTM D7466	Two samples	Density	ASTM D1505 or ASTM D792	One per 5,000 m ² or every five rolls delivered to the premises, whichever is the higher number of tests	Tensile properties in each direction - strength at break - strength at yield - elongation at break - elongation at yield	ASTM D6693 type IV	Puncture resistance	ASTM D4833	Tear resistance	ASTM D1004	Carbon black content	ASTM D1603
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Item		Requirements		
		Carbon black dispersion	ASTM D5596	One sample every 10,000 m ² , resin type or manufacturing run
		Stress crack resistance	ASTM D5397	
		Standard Oxidative Induction Time	ASTM D8117	
		High pressure Oxidative Induction Time	ASTM D5885	
3	Start-up test welds	(a) The works approval holder must ensure that start-up test welds are undertaken using the trial weld seams listed below, at the corresponding frequency and tested using the corresponding test method listed below.		
		Trial weld seam	Frequency	Test method
		Trial weld seam with a minimum continuous seam length of 1.0 m and width of 300 mm	Daily at the start of works, whenever the welding equipment is shut-off for more than 1 hour and after significant changes in weather conditions	Four 25 mm wide samples cut using a calibrated die cutter from a, tested for shear and peel strength using a calibrated hand tensiometer to determine whether the test welds have passed or failed
		Trial weld seam with a minimum continuous seam length of 1.5 m and width of 300 mm	Whenever personnel or equipment are changed and/or wide temperature fluctuations are experienced.	Four 25 mm wide samples cut using a calibrated die cutter from a, tested for shear and peel strength using a calibrated hand tensiometer to determine whether the test welds have passed or failed
4	Destructive weld testing	(a) The works approval holder must undertake destructive weld testing for the property listed below, using the corresponding test method and testing frequencies listed below.		
		Property	Test method	Testing frequency
		Weld seam peel and shear strength	ASTM D6392 conducted onsite using a calibrated tensiometer	Every weld
			ASTM D6392 conducted offsite at a NATA accredited laboratory	Every 150 m for fusion welds and every 120 m for extrusion welds
5	Non-destructive weld testing	(a) The works approval holder must undertake non-destructive weld testing for the properties listed below, using the corresponding test method and testing frequencies listed below.		
		Property	Test method	Testing frequency
		Continuity of field seams	ASTM D5820 air pressure test	All seams over full length
			ASTM D5641 vacuum box test	
		Weld quality	Visual observation of a consistent 'squeeze out' on the weld edge indicating that the correct temperature and pressure were used during installation	All fusion welded seams over full length
			Visual observation of the weld	All extrusion welded seams

Item		Requirements		
			appearance being smooth, uniform and free of streaks and lumps, in addition to having no obvious scoring, notches or deep scratches introduced by surface grinding	over full length