Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6937/2024/1
Works approval holder	Shire of Plantagenet
ABN	29 084 782 574
Registered business address	22-24 Lowood Road MOUNT BARKER WA 6324
DWER file number	DER2016/000376
Duration	30/01/2025 to 29/01/2030
Date of issue	30/01/2025
Premises details	Mount Barker Waste Management Facility O'Neill Road, MOUNT BARKER WA 6324 Legal description - Part Lot 7546 on Deposited Plan 186612 Part Lot 350 on Deposited Plan 417644 As defined by the coordinates in Schedule 2

Prescribed premises category description **(Schedule 1, *Environmental Protection Regulations 1987*)**	**Assessed production / design capacity**
Category 64: Class II or III putrescible landfill site: premises (other than clean fill premises) on which waste of a type permitted for disposal for this category of prescribed premises, in accordance with the *Landfill Waste Classification and Waste Definitions 1996*, is accepted for burial.	10,000 tonnes per annual period

This works approval is granted to the works approval holder, subject to the attached conditions, on 30 January 2025, by:

Abbie Crawford

Digitally signed by Abbie Crawford
Date: 2025.01.30 15:18:18 +08'00'

Abbie Crawford
MANAGER, WASTE INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Works approval history

Date	Reference number	Summary of changes
30/01/2025	W6937/2024/1	Works approval granted.

Interpretation

In this works approval:

(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 works approval:

(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 works approval requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this works approval.

This works approval does not provide any implied authorisation for the clearing of native vegetation in order to meet the conditions or activities specified in this works approval. The clearing of native vegetation requires a separate Native Vegetation Clearing Permit issued under the EP Act.

Works approval conditions

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

Construction phase

Infrastructure and equipment

1. The works approval holder must:

(a) construct and/or install the infrastructure and/or equipment;

(b) in accordance with the corresponding design and construction / installation requirements; and

(c) at the corresponding infrastructure location; and

as set out in Table 1.

Table 1: Design and construction requirements

	Infrastructure	Design and construction / installation requirements	Infrastructure location
1.	Stormwater diversion drain	• Must be constructed according to the details in Figure 9; • Stormwater diversion drain to be constructed along the western boundary of Cell 1, Cell 2 and Cell 3. • Must direct surface water runoff to sediment pond.	As depicted in Figure 3
2.	Sediment pond	• Must be constructed according to the details in Figure 8; • Constructed of 300 mm compacted clay layer over a compacted subgrade layer; • Sized to accommodate a 1 in 20 year AEP rainfall event; • Must have a minimum operational volume of 4,776 m^3; and • Must have internal slopes of 1V:3H.	As depicted in Figure 8

2. The works approval holder must by 30 April 2025 submit to the CEO a Comprehensive Stability Assessment.

3. The Comprehensive Stability Assessment required by condition 2 must include as a minimum the following:

(a) All key material assumptions;

(b) Additional design scenarios including earthquake loading;

(c) Liner interface stability;

(d) Basal liner stability;

(e) Sidewall liner assessment; and

(f) Waste stability calculations.

4. The works approval holder must:

(a) construct the critical containment infrastructure;

(b) in accordance with the corresponding design and construction requirements; and

(c) at the corresponding infrastructure location,

as set out in Table 2.

Table 2: Critical containment infrastructure design and construction requirements

	Infrastructure	Design and construction requirements	Infrastructure location
1.	Landfill Cell 1	Must be constructed according to the details in Schedule 1, Figure 3, Figure 5 and Figure 6	As shown in Schedule 1, Figure 3
2.	Landfill Cell 2	Must be constructed according to the details in Schedule 1, Figure 3, Figure 5 and Figure 6	As shown in Schedule 1, Figure 3
3.	Landfill Cell 3	Must be constructed according to the details in Schedule 1, Figure 3, Figure 5 and Figure 6	As shown in Schedule 1, Figure 3
4.	Leachate Evaporation Pond	Must be constructed according to the details in Schedule 1, Figure 7	As shown in Schedule 1, Figure 3
Landfill Cell 1, 2 & 3			
5.	Site preparation / sub-base	• All general fill must meet the requirements for suitable material as per AS 3798; • All fill material to be compacted in accordance with AS 3798 to 95% of its MMDD in layers not exceeding 300 mm; • The surface shall be smooth, flat, firm and unyielding to the satisfaction of the Superintendent; • The surface shall not exhibit visible deformation, rutting, yielding and/or show signs of distress or instability during final proof rolling – The surface shall be free of debris, roots, angular material (such as sharp rocks), desiccation cracks, abrupt breaks, indentations, sudden changes in grade, defects and/or imperfections that may result in damage to the overlying materials; • No loose, coarse-grained material shall remain on the surface. If required, the surface shall be raked or graded to remove any material penetrating out of the surface greater than 10 mm; • The surface shall promote drainage and excessive water shall not be allowed to	As shown in Schedule 1, Figure 5 and Figure 6

	Infrastructure	Design and construction requirements	Infrastructure location
		pond on the surface; • The surface shall not be pebbly, tracked, rutted or otherwise disturbed by the equipment deploying overlying materials or other traffic. Pockets, holes, or discontinuities shall be repaired; • All construction stakes, hubs, or other items used for grade control shall be removed and any voids filled. Any unsuitable material shall be over-excavated to a depth of 100 mm and replaced with approved material; and • The surface shall be maintained at sufficient moisture content to prevent desiccation during the Works.	
6.	Compacted clay layer (CCL)	• The material shall be constructed in a minimum of 4 lifts with each lift having a maximum compacted thickness of 150 mm; • All compacted clay material shall be placed in compacted lifts not exceeding 150 mm at a moisture content of 0 to +3% of the optimum moisture content, to a minimum density ratio of 95% standard; • Must have a hydraulic conductivity of 1×10^{-9}; • The CCL must be free of defects; • The surface shall not exhibit visible deformation, rutting, yielding and/or show signs of distress or instability during final proof rolling; • The surface shall be free of debris, roots, angular material (such as sharp rocks), desiccation cracks and sudden changes in grade. If required, the surface shall be raked or graded to remove any material penetrating out of the surface greater than 10 mm; • The surface shall promote drainage and excessive water shall not be allowed to pond on the surfaced; • The surface shall not be rutted or otherwise disturbed by the equipment deploying overlying materials or other traffic; • The surface shall be maintained at sufficient moisture content to prevent desiccation during the Works; and • Any voids resulting in the compacted clay due to extraction from tube samples (testing requirements) shall be filled with water, and	As shown in Schedule 1, Figure 5

	Infrastructure	Design and construction requirements	Infrastructure location
		then backfilled with sodium bentonite pellets, hand rammed into the void.	
7.	Layer 2 – Geomembrane	• Must consist of 2 mm thick textured High Density Polyethylene (HDPE); • The HDPE liner must be uniform and free of defects; • Must have a minimum overlap of 100 mm between panels; • Must be installed in accordance with the manufacturers specifications; • Must not be installed in the presence of water or excessive winds (>30 kph); and • Must be installed in a manner that prevents wrinkles or folds in the liner layer.	As shown in Schedule 1, Figure 5 and Figure 6
8.	Layer 3 - Cushion/protection geotextile	• Must be woven or non-woven needle punched constructed from fibres of polypropylene or polyester; • Must be UV stabilised; • Must be delivered, storage and handed in accordance with the manufacturer's specifications and ASTM D4873; • Must be placed such that the panels are anchored at the crest of the slope and form a continuous layer down the side walls and slopes and across the base; • The arrangement of the geotextile panels shall be in accordance with the approved panel placement drawing; • Must be installed in a manner that prevents damage to the geotextile and prevent wrinkles in the liner layer; • Must be installed to allow intimate contact with the underlying geosynthetic; • Geotextile seams shall be formed by overlapping the edges of the geotextile panels by a minimum of 200 mm and thermally bonding the seam or sewing the seam together with continuous stitches located a minimum of 100 mm from the overlapped edges; • Seams shall provide seam strength which equals or exceeds 75% of parent material strength when tested in accordance with AS 3706.2 (parent material strength) and AS 3706.6 (seam strength). • Geotextile installed on slopes must be	As shown in Schedule 1, Figure 5 and Figure 6

	Infrastructure	Design and construction requirements	Infrastructure location
		anchored in anchor trenches as soon as possible; • Must not be installed during heavy rain or winds; • Must be free of defects; and • Must be installed in accordance with the manufacturers specifications.	
9.	Layer 4 – Leachate collection system	Geonet drainage composite: • The geotextile component shall be a non-woven, needle-punched, polypropylene geotextile factory bonded to the geonet; • The bonding shall be uniform across the full extent of the geonet with no unbonded areas except for edges and overlaps; • The maximum unbounded area at edges and overlaps shall be 300mm from the edge of the geonet; • The surface to receive the geonet drainage composite shall provide a dry, smooth, uniform surface that is free of defects or imperfections that may result in damage to the geonet drainage composite; • The surface must be free from abrupt breaks, sharp objects, or other foreign material that may inhibit placement of the geonet drainage composite; • All construction stakes, hubs, or other items used for grade control shall be removed and any void filled with processed material; • The surface shall not be pebbly, or tracked and rutted by equipment. Pockets, holes, or discontinuities shall be repaired. No loose, coarse-grained material shall remain on the surface; • Must not be installed during heavy rain or winds; • Must be installed in accordance with the manufacturers specifications; and • The geonet drainage composite must be covered after installation within a 10 day period.	As shown in Schedule 1, Figure 5 and Figure 7Figure 6
		Leachate drainage aggregate: • Must have a hydraulic conductivity of >1x10^{-3} m/s; • Aggregate must consist of a low calcareous aggregate with a calcium carbonate content	

	Infrastructure	Design and construction requirements	Infrastructure location

		of less than 8.5% by mass;
		• Must meet the following particle size distribution:
		  ○ Passing 40 mm - 100%
		  ○ Passing 19 mm - ≤ 10%
		  ○ Passing 0.075 mm - ≤ 3%
		• Must be constructed in one lift with a minimum thickness of 300 mm.	

		Leachate collection pipework: • Must consist of perforated high density polyethylene (HDPE) pipes; • All pipes to be laid upon 10 mm of drainage layer aggregate; • Collection pipes to have a 1.5% fall to the sump; • All pipes to be laid in accordance with manufacturers specifications; • Pipes to be free of defects; and • Must be installed in a manner that prevents damage to the geotextile liner.	
		Leachate collection sump: • Must be installed in a manner that prevents damage to the geotextile liner; • Must have a 200 mm (minimum) thick concrete slab; • A concrete slab a minimum 300 mm thick must be installed locally under sump if base of excavation is on waste; • Must contain a pneumatic pump inside the primary riser pipe; • Bottom of the leachate sump to be a minimum of 3 m above the highest natural recorded groundwater level; and • Fitted with a solar telemetry system to feed real-time water level data.	
10.	Layer 5 – Separation geotextile	• Must be woven or non-woven needle punched constructed from fibres of polypropylene or polyester; • Must be UV stabilised; • The separation geotextile must extend 1 m beyond the leachate collection layer; • Sandbags or equivalent ballast shall be	As shown in Schedule 1, Figure 5, Figure 6 and Figure 7

	Infrastructure	Design and construction requirements	Infrastructure location
		used as necessary to hold the geotextile in position and prevent uplift by wind; • Must not be installed during heavy rain or winds; • Must be free of defects; • Must be installed in accordance with the manufacturers specifications; and • No vehicles to be driven over this layer.	
Leachate Evaporation Pond			
11.	Leachate Evaporation Pond	• Constructed of 300 mm compacted clay layer over a compacted subgrade layer; • Must comprise of a 2 mm HDPE geomembrane; • The HDPE liner must be free of defects; • Must be installed in accordance with the manufacturers specifications; • Must have a minimum operational volume of 15,000 m^3; • Must be constructed with a 0.5 m pond freeboard; • Must have internal slopes of 1V:2H; and • Bottom of the leachate pond to be a minimum of 2 m above the highest natural recorded groundwater level.	As shown in Schedule 1, Figure 7

5. The works approval holder must submit a Construction Environmental Management Plan (CEMP) to the CEO a minimum 30 working days prior to construction activities commencing.

6. The CEMP specified in condition 5 should include as a minimum:

(a) details of the potential sources of:

(i) dust emissions;
(ii) noise emissions;
(iii) odour emissions;
(iv) asbestos fibre emissions;
(v) contaminated stormwater emissions; and
(vi) sediment laden stormwater emissions.

during the construction works; and

(b) provide mitigation and management measures to reduce and prevent the potential emissions listed under condition 6(a).

7. The works approval holder must, in the event that Special Waste Type 1 (ACM) is excavated or uncovered during works:

(a) Immediately restrict public access to the Premises until such time as the ACM has been re-covered;

(b) Minimise further handling of the waste as far as practicable;

(c) Not re-dispose ACM within two metres of any final surface level at the premises;

(d) Take preventative measures to minimise the release of asbestos fibres including but not limited to measures such as:

(i) wet down ACM prior to handling; and
(ii) use shelter or install wind barriers.

(e) Maintain a register of ACM disturbance during construction works which shall include:

(i) a plan showing the position of ACM disturbed at the Premises;
(ii) details on the nature of the disturbed ACM (friable or non-friable, type, condition) and quantity to be handled;
(iii) the date of the disturbance;
(iv) the name of the person that discovered the waste; and
(v) the burial location of the ACM.

Construction quality assurance requirements

8. The works approval holder must undertake construction quality assurance (CQA) testing for the compacted clay layer liner installed within cells 1, 2 and 3 in accordance with the specifications outlined in Table 3.

Table 3: Compacted clay liner (CCL) CQA requirements

Item	Property	Standards	Frequency
Conformance Quality Assurance testing	Moisture content	AS 1289.5.1.1 or AS 1289.5.7.1	Greater of: 3 per 500 m^3 or 3 per lift
	Dry density	AS 1289.5.8.1 AS 1289.5.1.1 or AS 1289.5.7.1	Greater of: 3 per 500 m^3 or 3 per lift

9. The works approval holder must undertake construction quality assurance (CQA) testing for the geomembrane (HDPE) installed within cells 1, 2, 3 and the Leachate Evaporation Pond in accordance with the specifications outlined in Table 4.

Table 4: Geomembrane (HDPE) CQA requirements

Item	Property	Standards	Frequency	Minimum Value
Conformance Quality Assurance testing (sampled at the point of manufacture or on	Thickness (min. average)	ASTM D5199 (smooth) ASTM D5994	every roll	2.0 mm (smooth) 1.9 mm (textured)

Item	Property	Standards	Frequency	Minimum Value
site, as determined by the Superintendent / CQA consultant)		(textured)		
	Thickness (min.) - Lowest individual of 8 of 10 readings	ASTM D5994 (textured)		1.8 mm (textured)
	Thickness (min.) - Lowest individual of 10 readings	ASTM D5199 (smooth) ASTM D5994 (textured)		1.8 mm (smooth) 1.7 mm (textured)
	Asperity height	ASTM D7466		0.4 mm
	Density	ASTM D1505 / ASTM D792		0.94 g/cm^3
	Tensile properties (a) Yield strength (b) Break strength (c) Yield elongation (d) Break elongation	ASTM D6693		(a) 29 N/mm (b) 21 N/mm (c) 12% (d) 100%
	Tear resistance	ASTM D1004		249 N
	Puncture resistance	ASTM D4833		640 N (smooth) 534 N (textured)
	Stress crack resistance	ASTM D5397	One sample every 5,000 m^2 or every five rolls delivered to site – whichever is the greatest number of tests	600 hours
	Dimensional stability	ASTM D1204	One sample every 10,000 m^2, or resin type or manufacturing run	+2%
	Carbon Black Content	ASTM D4218	One sample every 5,000 m^2 or every five rolls delivered to site – whichever is the greatest	2.0 – 3.0 %
	Carbon Black	ASTM		Carbon black dispersion (only near

Item	Property	Standards	Frequency	Minimum Value
	Dispersion	D5596	number of tests	spherical agglomerates) for 10 different views: 9 in categories 1 or 2 and 1 in category 3
	Oxidation Induction Time (OIT) (a) standard OIT Or – (b) High pressure OIT	ASTM D3895 ASTM D5885	One sample every 10,000 m^2, or resin type or manufacturing run	100 min 400 min
	Oven aging at 85°C (min. average) (a) standard OIT and (b) high pressure OIT	ASTM D5721 ASTM D3895 ASTM D5885	One sample every 10,000 m^2, or resin type or manufacturing run	55% retained at 90 days 80% retained at 90 days
	UV resistance (min. average) (20) (a) high pressure OIT (21)	50% retained after 1600 hours	One sample every 10,000 m^2, or resin type or manufacturing run	50% retained after 1600 hours
Start-up test weld	Welding equipment	N/A	Checked daily at start of works, and whenever the welding equipment is shut-off for more than one hour. Also, after significant changes in weather conditions	N/A
	Weld conditions	N/A	Test weld strips will be required whenever personnel or equipment are changed, after any period of machine shutdown, every four hours of operation and/or wide temperature fluctuations are experienced.	N/A

Item	Property	Standards	Frequency	Minimum Value
			Minimum 1.35m continuous seam	
Destructive seam testing	Peel strength	ASTM D6392	1 test per 150 m (or part thereof)	N/A
	Shear strength	ASTM D6392	1 test per 150 m (or part thereof)	N/A
Non-destructive weld testing	Vacuum box	ASTM D5641	All seams shall be tested by at least one of these three test methods as appropriate	No imperfections
	Air pressure	ASTM D5820		Minimum 210 kPa Maximum 250 kPa Maximum pressure difference 10 kPa
	Spark test	ASTM D6365		210 kPa 250 kPa 10 kPa
Visual inspection of geomembrane	Tears, punctures, abrasions, cracks, indentations, thin spots, or other faults in the material	N/A	Every roll	Free of faults or defects
Leak detection survey	Leak detection survey across all geomembrane lined areas that have had leachate aggregate installed	ASTM D7007	Once the geomembrane has been installed and the drainage aggregate has been placed on top of the geomembrane, but before the separation layer has been installed	Identify and repair and test/resurvey all identified leaks in the lining system

10. The works approval holder must undertake construction quality assurance (CQA) testing for the cushion/protection and separation geotextiles installed within cells 1, 2 and 3 in accordance with the specifications outlined in Table 5.

Table 5: Cushion/protection and separation geotextile CQA requirements

Item	Property	Standards	Frequency
Conformance Quality Assurance testing (sampled at the point of manufacture or on site, as determined by the Superintendent / CQA consultant)	Thickness	AS 3706.1	One sample per 2,500 m^2
	Mass per unit area	AS 3706.1	
	Tensile strength	AS 3706.2b	One sample per 5,000 m^2
	Tear strength	ASTM D4833 AS 3706.3	
	Burst strength	ASTM D6241 AS 3706.4	
Visual inspection of geotextile	Color, thickness, tears, holes, punctures, needle - punching, presence of needles or broken needles, and other faults in the material	Visual only	Each roll during placement

Compliance reporting

11. The works approval holder must within 30 calendar days of an 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 an Environmental Compliance Report on that compliance.

12. The Environmental Compliance Report required by condition 11, must include as a minimum the following:

(a) certification by a suitably qualified civil or geotechnical engineer that the items of infrastructure or component(s) thereof, as specified in condition 1, have been constructed in accordance with the relevant requirements specified in condition 1;

(b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 1; and

(c) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

13. The works approval holder must within 60 calendar days of the Critical Containment Infrastructure identified by condition 4 being constructed:

(a) undertake an audit of their compliance with the requirements of condition 4; and

(b) prepare and submit to the CEO a Critical Containment Infrastructure Report on that compliance.

14. The Critical Containment Infrastructure Report required by condition 13 must include as a minimum the following:

(a) a CQA Validation Report certified and written by the independent third party civil or structural engineer that completed the CQA that includes, but is not limited to;

(i) certification by a suitably qualified civil or geotechnical engineer that each item of critical containment infrastructure or component thereof, as specified in condition 4 has been built and installed in accordance with the requirements specified in condition 4;

(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 conditions 4, 8, 9 and 10;

(iv) an assessment of test results against minimum values in condition 9 as relevant; and

(v) documentation of all repairs conducted during the installation and testing of each item of infrastructure.

(b) as constructed plans and a detailed site plan showing the location and dimensions for each item of critical containment infrastructure or component thereof, as specified in condition 4;

(c) photographic evidence of the installation of the infrastructure; and

(d) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person.

Time limited operations phase

Commencement and duration

15. The works approval holder may only commence time limited operations for an item of infrastructure identified in condition 1 where the Environmental Compliance Report as required by condition 11 has been submitted by the works approval holder for that item of infrastructure.

16. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 17 (as applicable):

(a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 15 for that item of infrastructure; or

(b) until such time as a licence for that item of infrastructure is granted in accordance with Part V of the *Environmental Protection Act 1986*, if one is granted before the end of the period specified in condition 13(a).

Infrastructure requirements

17. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 6 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 6.

Table 6: Infrastructure and equipment requirements during time limited operations

Site infrastructure and equipment	Operational requirement	Infrastructure location
Stormwater diversion drains	Diversion drains must direct stormwater to the sediment basin. Sized to accommodate a 1 in 20 year AEP rainfall event Must be maintained to be free of defects	As shown in Schedule 1, Figure 8
Sediment pond	Must be maintained to be free of defects. Must be capable of managing a 1 in 20 year AEP rainfall event	As shown in Schedule 1, Figure 8

Compliance reporting

18. The works approval holder must submit to the CEO a report on the time limited operations within 30 calendar days of the completion date of time limited operations or 30 calendar days before the expiration date of the works approval, whichever is the sooner.

19. The works approval holder must ensure the report required by condition 18 includes:

(a) a summary of the time limited operations;

(b) a summary of the environmental performance of the infrastructure;

(c) a review of performance and compliance against the conditions of the works approval; and

(d) where the design specifications and the conditions of this works approval have not been met, what measures will the works approval holder take to meet them, and what timeframes will be required to implement those measures.

Records and reporting (general)

20. The works approval holder must record the following information in relation to complaints received by the works approval 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 works approval holder to investigate or respond to any complaint.

21. The works approval holder must maintain accurate and auditable books including the following records, information, reports, and data required by this works approval:

(a) the works conducted in accordance with conditions 1, 4, 8, and 9; and

(b) complaints received under condition 20.

22. The books specified under condition 21 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 works approval holder for the duration of the works approval; and

(d) be available to be produced to an inspector or the CEO as required.

Definitions

In this works approval, the terms in Table 7 have the meanings defined.

Table 7: Definitions

Term	Definition
annual period	a 12 month period commencing from 1 January until 31 December of the immediately following year.
ACM	Means asbestos containing material
AS 1289	means the Australian Standard AS1289 *Methods of testing soils for engineering purposes*
AS 1289.2.1.1	means the Australian Standard AS 1289.2.1.1 *Methods of testing soils for engineering purposes Soil moisture content tests*
AS 1726	means the Australian Standard AS 1726 *Geotechnical site investigations*
AS 3706.1	means the Australian Standard AS 3706.1 *Geotextiles – Methods of test General Requirements, sampling, conditioning, basic physical properties and statistical analysis*
AS 3706.2	means the Australian Standard AS 3706.2 *Geotextiles – Methods of test Determination of tensile properties – wide strip and grab method*
AS 3706.3	means the Australian Standard AS 3706.3 *Geotextiles – Methods of test Determination of tearing strength – Trapezoidal method*
AS 3706.4	means the Australian Standard AS 3706.4 *Geotextiles – Methods of test Determination of burst strength – California bearing ratio – Plunger method*
AS 3706.5	means the Australian Standard AS 3706.5 *Geotextiles – Methods of test Determination of puncture resistance – Drop cone method*
AS 3798	means the Australian Standard AS 3798 *Guidelines on earthworks for commercial and residential development*
ASTM D792	means the ASTM international *Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement*
ASTM D1004	means the ASTM international *Standard Test Methods for Tear Resistance (Grave Tear) for Plastic Film and Sheeting*
ASTM D1505	means the ASTM international *Standard Test Methods for Density of Plastics by the Density-Gradient Technique*
ASTM D1777	means the ASTM international *Standard Test Method for Textile*

Term	Definition
	Materials
ASTM D3895	means the ASTM international *Standard Test Method for Oxidative-Induction Time of Polyolefins by Differential Scanning Calorimetry*
ASTM D4218	means the ASTM international *Standard Test Method for Determination of Carbon Black Content in Polyethylene Compounds by the Muffle-Furnace Technique*
ASTM D4595	means the ASTM international *Standard Test Method for Tensile Properties of Geotextiles by the Wide-Width Method*
ASTM D4833	means the ASTM international *Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products*
ASTM D5596	means the ASTM international *Standard Test Method for Microscopic Evaluation of the Dispersion of Carbon Black in Polyolefin Geosynthetics*
ASTM D5641	means the ASTM international *Standard Test Method for Geomembrane Seam Evaluation by Vacuum Chamber*
ASTM D5820	means the ASTM international *Standard Test Method for Pressurized Air Channel Evaluation of Dual-Seamed Geomembranes*
ASTM D5885	means the ASTM international *Standard Test Method for Oxidative Induction Time of Polyolefin Geosynthetics be High-Pressure Differential Scanning Calorimetry*
ASTM D5887	means the ASTM international *Standard Test Method for Measurement of Index Flux Through Saturated Geosynthetic Clay Liner Specimens Using a Flexible Wall Permeameter*
ASTM D5890	means the ASTM international *Standard Test Method for Swell Index of Clay Mineral Component of Geosynthetic Clay Liners*
ASTM D5891	means the ASTM international *Standard Test Method for Fluid Loss of Clay Component of Geosynthetic Clay Liners*
ASTM D5993	means the ASTM international *Standard Test Method for Measuring Mass per Unit Area of Geosynthetic Clay Liners*
ASTM D5994	means the ASTM international *Standard Test Method for Measuring Core Thickness of Textured Geomembranes*
ASTM D6241	means the ASTM international *Standard Test Method for Measuring Static Puncture Strength of Geotextiles and Geosynthetic-Related Products Using a 50 mm Probe*
ASTM D6392	means the ASTM international *Standard Test Method for*

Term	Definition
	Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods
ASTM D6496	means the ASTM international *Standard Test Method for Determining Average Bonding Peel Strength Between Top and Bottom Layers of Needle-Punched Geosynthetic Clay Liners*
ASTM D6693	means the ASTM international *Standard Test Method for Nonreinforced Polyethylene and Nonreinforced Flexible Polypropylene Geomembranes*
ASTM D7007	means the ASTM international *Standard Test Method for Locating Leaks in Geomembranes Covered with Water or Earthen Materials*
ASTM D7466	means the ASTM international *Standard Test Method for Measuring Asperity Height of Textured Geomembranes*
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
critical containment infrastructure	means the items of infrastructure listed in condition 4.
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.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V Division 3 of the EP Act.
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.
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or installed in accordance with the works approval.
EP Act	*Environmental Protection Act 1986* (WA).
EP Regulations	*Environmental Protection Regulations 1987* (WA).

Term	Definition
MMDD	means Modified Maximum Dry Density
premises	the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map (Figure 2) in Schedule 1 to this works approval.
prescribed premises	has the same meaning given to that term under the EP Act.
suitably qualified civil or geotechnical engineer	means a person who: (a) holds a Bachelor of Civil or Geotechnical Engineering recognised by the Institute of Engineers; and (b) has a minimum of five years of experience working in a supervisory area of geotechnical engineering; and (c) is employed by an independent third party external to the works approval holder's business.
waste	has the same meaning given to that term under the EP Act.
works approval	refers to this document, which evidences the grant of the works approval by the CEO under section 54 of the EP Act, subject to the conditions.
works approval holder	refers to the occupier of the premises being the person to whom this works approval has been granted, as specified at the front of this works approval.

END OF CONDITIONS

Schedule 1: Maps

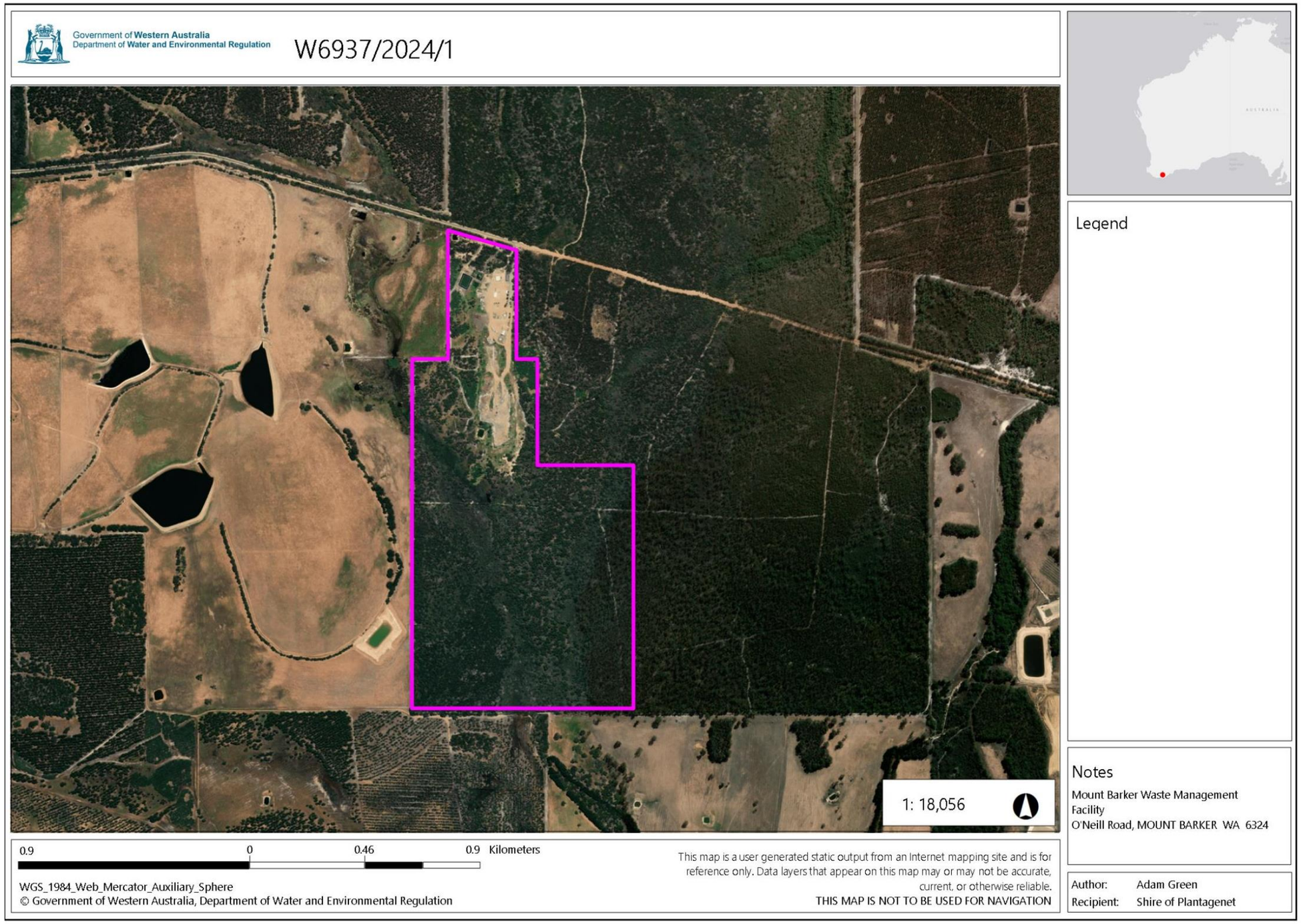


Figure 1: Map of the boundary of the prescribed premises

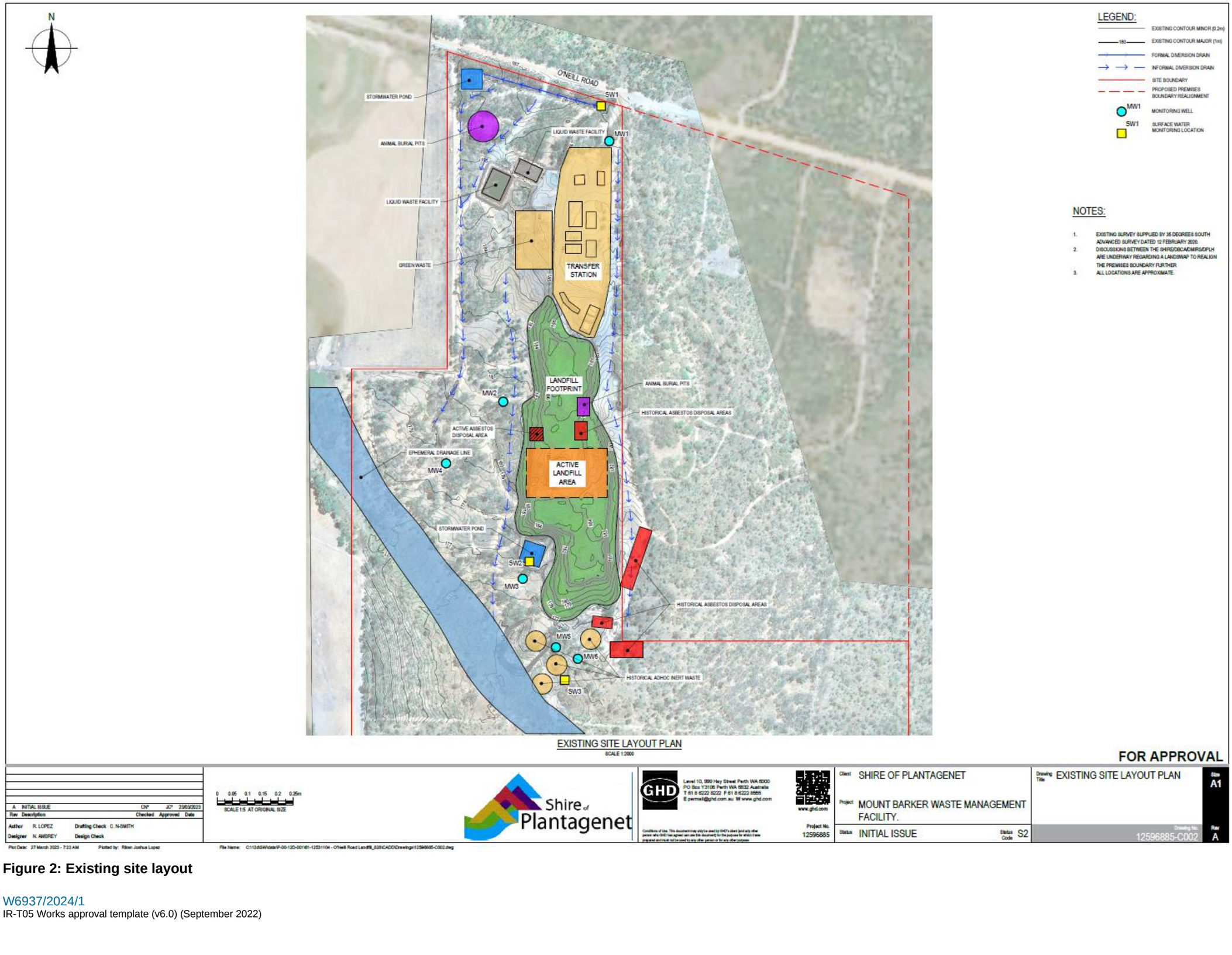


Figure 2: Existing site layout

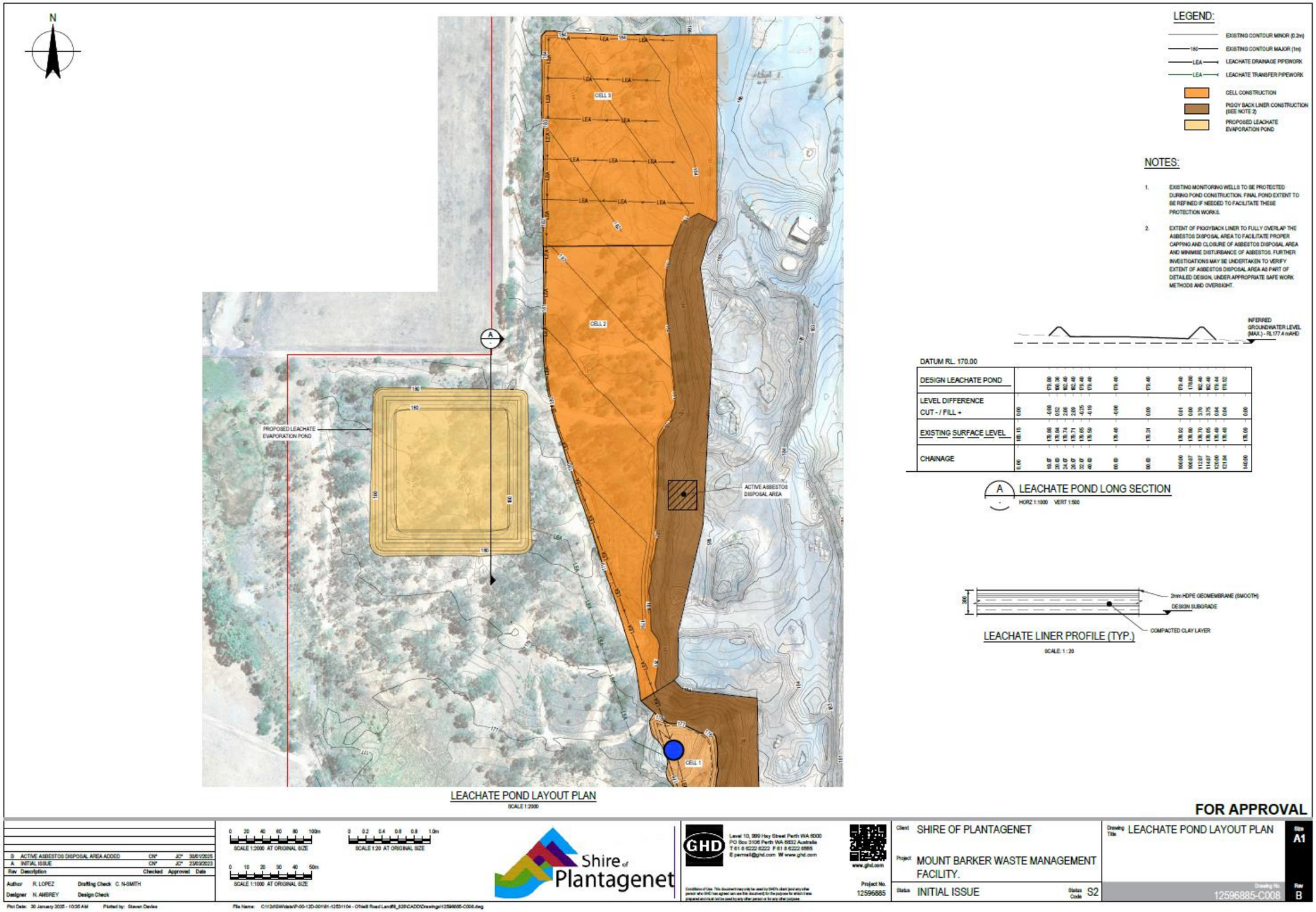


Figure 3: Cell layout plan

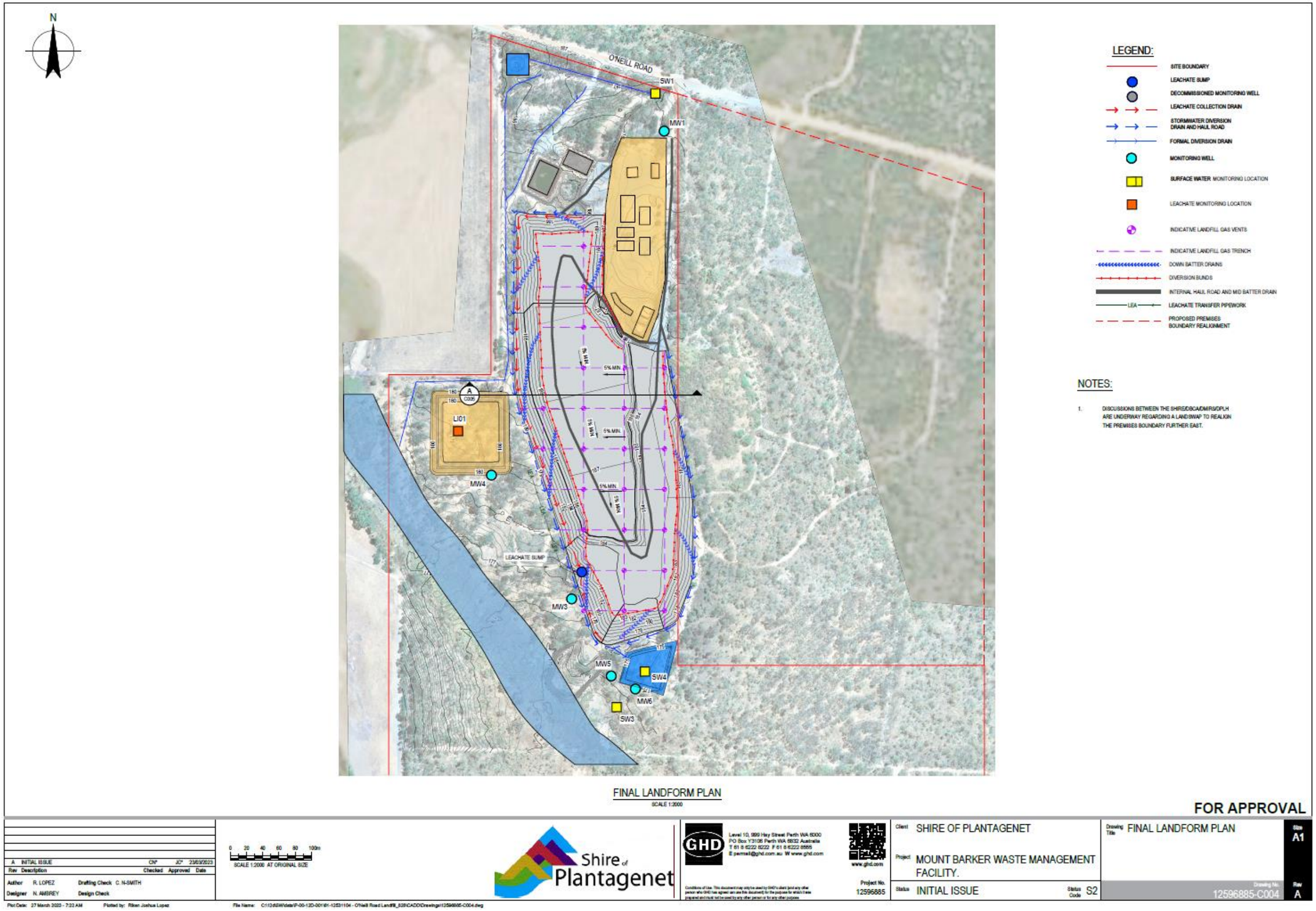


Figure 4: Final landform plan

Schedule 2: Drawings

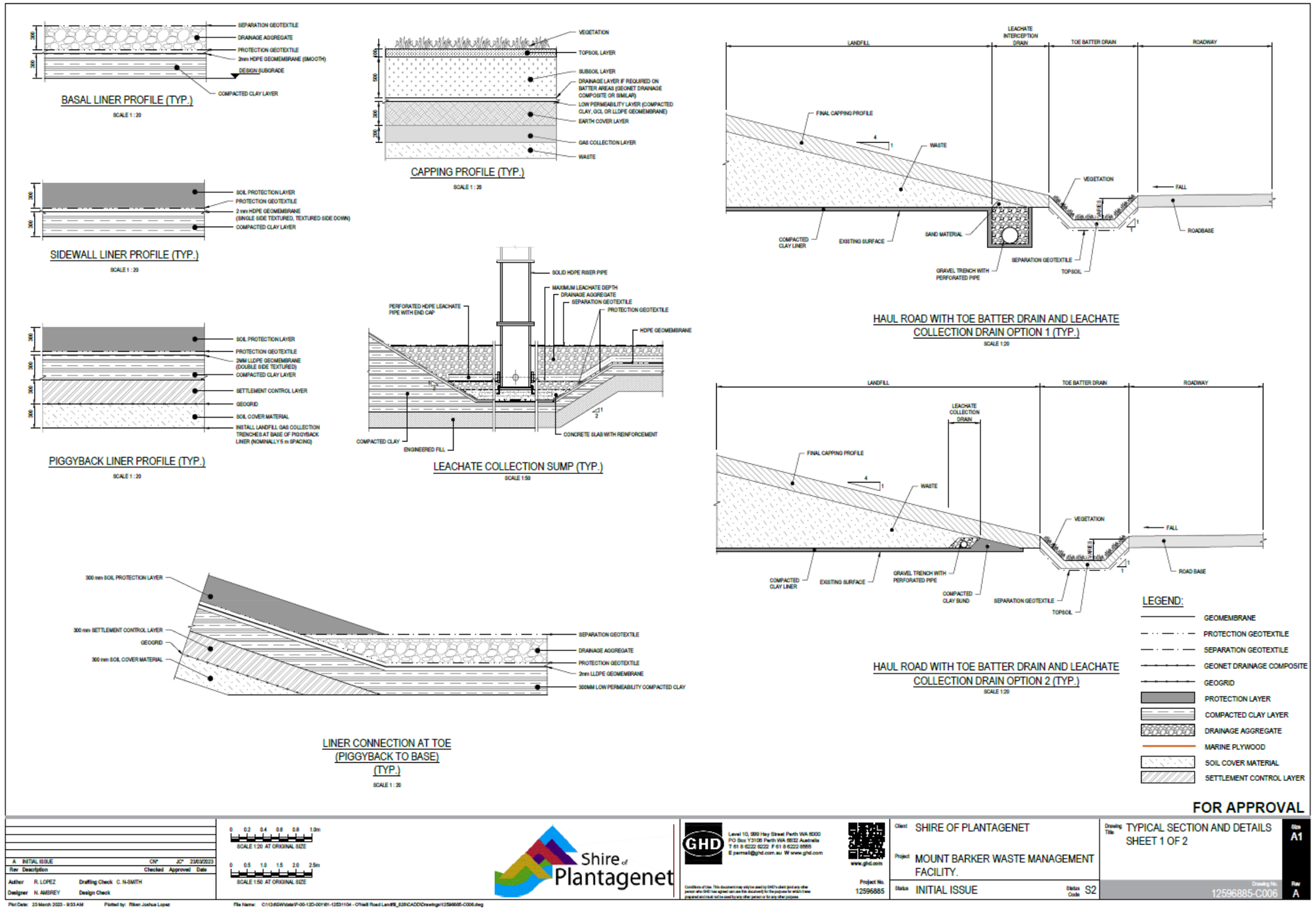
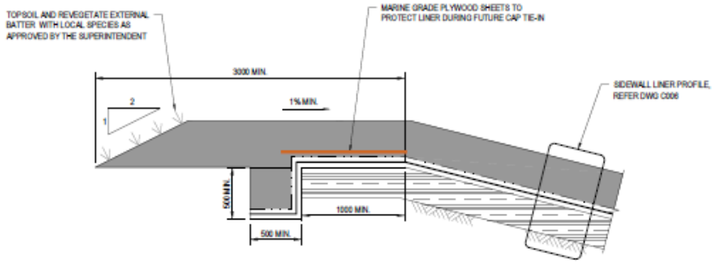
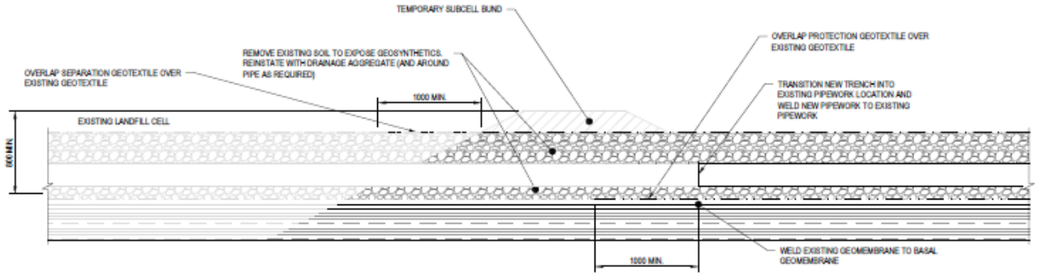


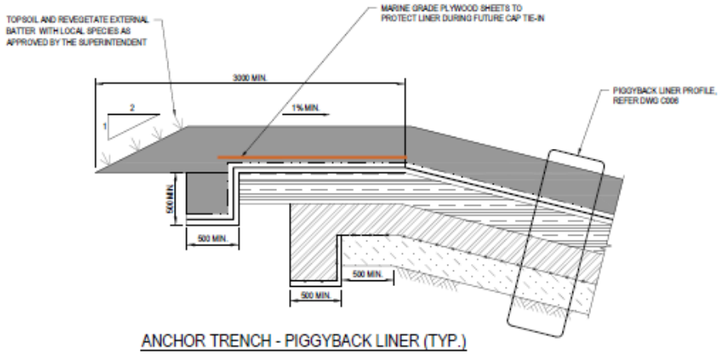
Figure 5: Landfill cell design specifications



ANCHOR TRENCH - SIDEWALL LINER (TYP.)



BASAL LINER TIE-IN BETWEEN EACH CELL (TYP.)
(AT LEACHATE COLLECTION PIPEWORK)



ANCHOR TRENCH - PIGGYBACK LINER (TYP.)

LEGEND:

- GEOMEMBRANE
- PROTECTION GEOTEXTILE
- SEPARATION GEOTEXTILE
- GEONET DRAINAGE COMPOSITE
- GEOGRID
- PROTECTION LAYER
- COMPACTED CLAY LAYER
- DRAINAGE AGGREGATE
- MARINE PLYWOOD
- SOIL COVER MATERIAL
- SETTLEMENT CONTROL LAYER

FOR APPROVAL

Rev	Description		Checked	Approved	Date
A	INITIAL ISSUE	CN*	JC*		23/03/2023

Author R. LOPEZ | Drafting Check C. N-SMITH | Designer N. AMBREY | Design Check

Plot Date: 23 March 2023 - 9:33 AM | Plotted by: Riken Joshua Lopez | File Name: C:\12dSWdata\P-00-12D-0016\01-12D1104 - O'Neill Road Landfill_528\CADD\Drawings\12596885-C007.dwg

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Client: SHIRE OF PLANTAGENET
Project: MOUNT BARKER WASTE MANAGEMENT FACILITY.
Status: INITIAL ISSUE | Status Code: S2

Drawing Title: TYPICAL SECTION AND DETAILS SHEET 2 OF 2
Size: A1
Drawing No.: 12596885-C007
Rev: A

Figure 6: Landfill cell design specifications

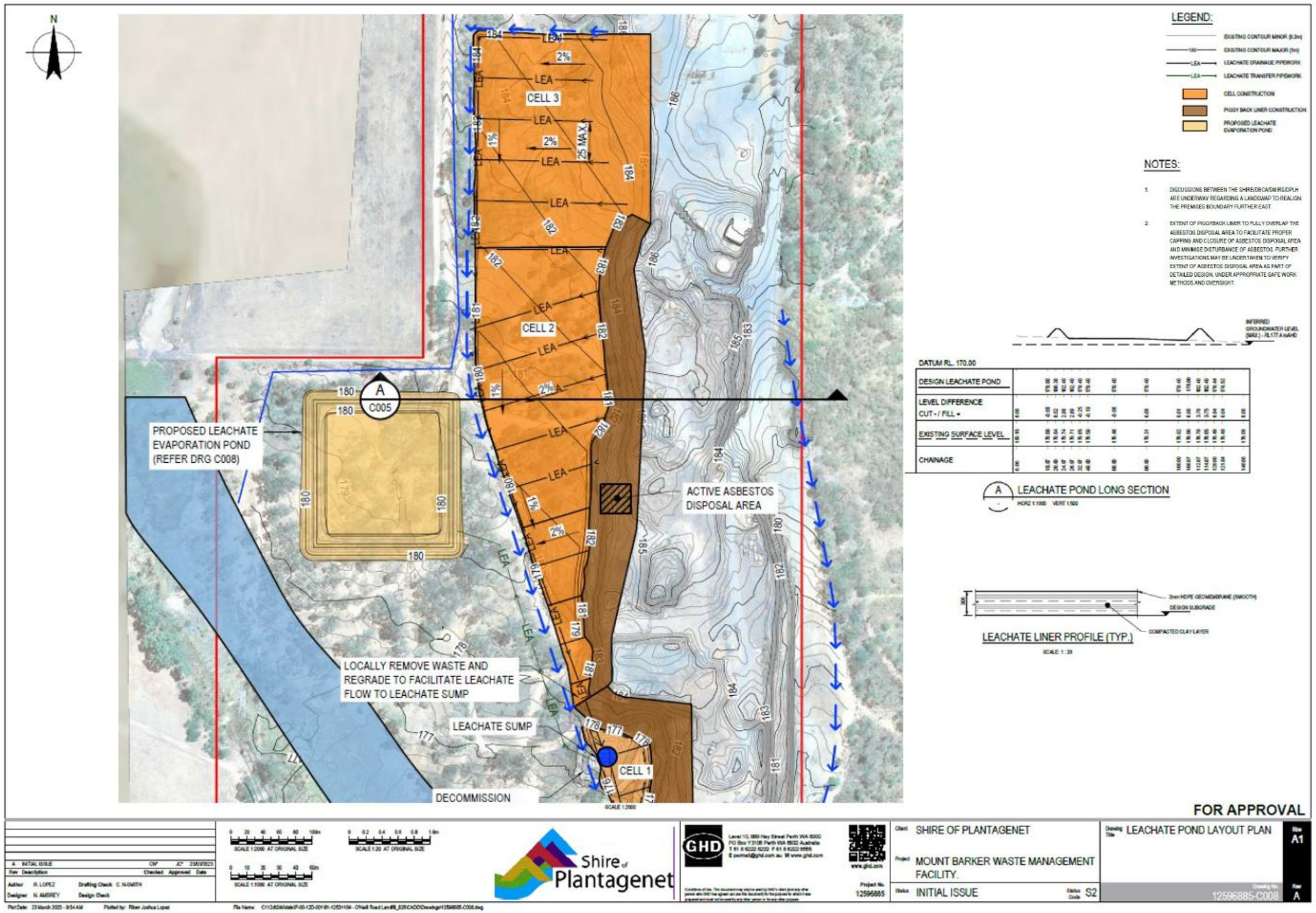


Figure 7: Leachate pond design specifications

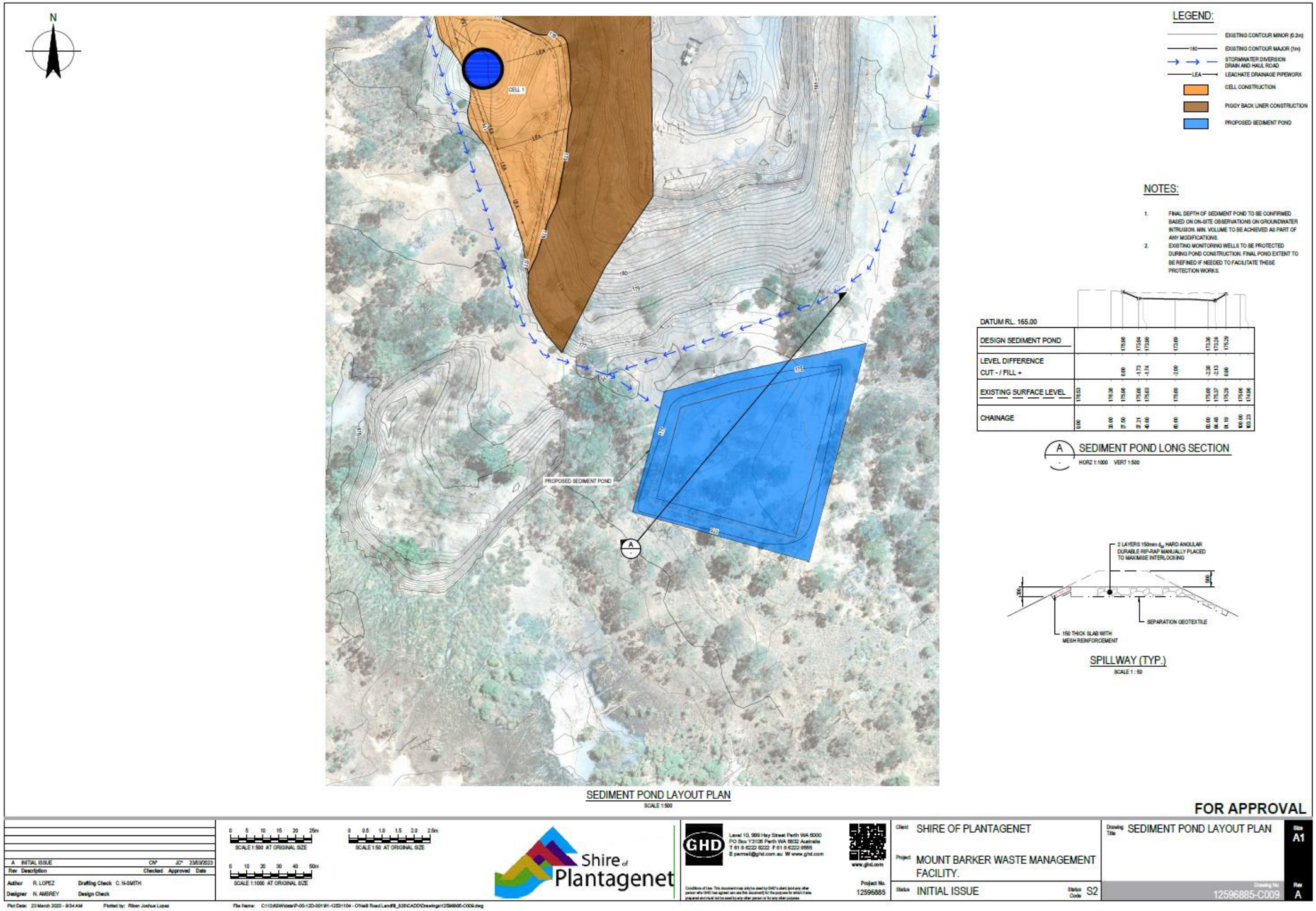
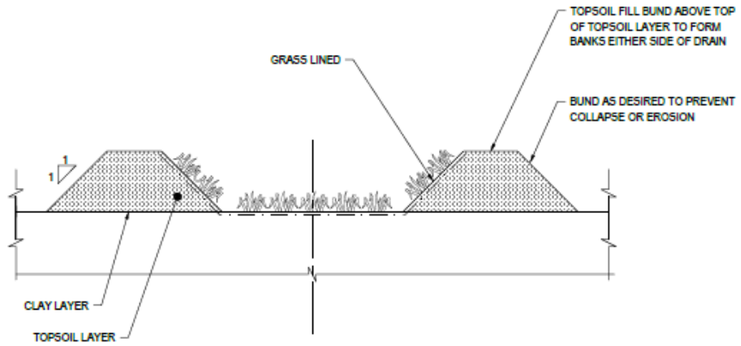
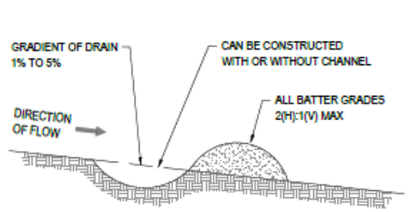


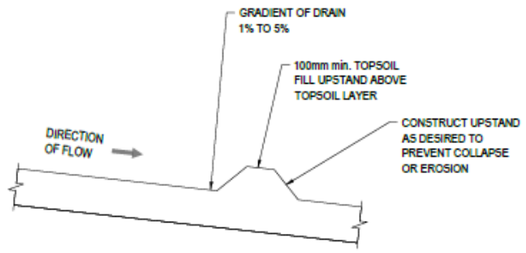
Figure 8: Sediment pond design specifications



DOWN BATTER DRAIN
(TYP.)
SCALE 1:20



DIVERSION BUND - TYPE 1
(TYP.)
SCALE 1:20



DIVERSION BUND - TYPE 2
(TYP.)
SCALE 1:20

FOR APPROVAL

A	INITIAL ISSUE	CN*	JC*	23/03/2023			
Rev	Description		Checked	Approved	Date		
Author	R. LOPEZ	Drafting Check	C. N-SMITH				
Designer	N. AMBREY	Design Check					

Plot Date: 23 March 2023 - 9:34 AM Plotted by: Riken Joshua Lopez

0 200 400 600 800 1000mm
SCALE 1:20 AT ORIGINAL SIZE

File Name: C:\12dSDW\data\P-00-12D-00191-12531104 - O'Neill Road Landfill_S2\CADD\Drawings\12596885-C010.dwg

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Project No. 12531104

Client: SHIRE OF PLANTAGENET

Project: MOUNT BARKER WASTE MANAGEMENT FACILITY.

Status: INITIAL ISSUE Status Code: S2

Drawing Title: SURFACE WATER MANAGEMENT SECTIONS AND DETAILS

Size: A1

Drawing No.: 12596885-C010

Rev: A

Figure 9: Stormwater management infrastructure design specifications

Schedule 3: Premises boundary

The corners of the premises boundary are the coordinates listed in Table 8.

Table 8: Premises boundary coordinates (GDA2020)

	Easting	Northing	Zone
1.	563911.354	6163786.551	Zone 50
2.	564028.833	6163785.774	Zone 50
3.	564031.491	6164195.212	Zone 50
4.	564254.909	6164130.586	Zone 50
5.	564252.314	6163784.540	Zone 50
6.	564320.364	6163784.137	Zone 50
7.	564318.548	6163445.383	Zone 50
8.	564632.235	6163442.976	Zone 50
9.	564626.776	6162669.212	Zone 50
10.	563903.329	6162674.520	Zone 50