

Banksia Road Landfill Rehabilitation and Closure Plan

PROPOSED REHABILITATION PLAN WITH PHYTOCAP

CLEANAWAY WASTE MANAGEMENT LIMITED

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Updated Rehabilitation and Closure Plan (2020) edited in conjunction with Tonkin.

Document Control

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V5 (26 March 2021)	Updated for works approval submission

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1 INTRODUCTION

The Banksia Road Landfill Facility located at Lot 2 Banksia Road, Crooked Brook, WA (Site) is licensed under Cleanaway Solid Waste Pty Ltd (CWY) by the Western Australian Department of Water and Environment Regulation (DWER) as per licence amendment number **L8904/2015/1** amendment dated 12 May 2020. The Class III (putrescible) landfill site currently accepts municipal, commercial and industrial waste under the following categories:

TABLE A: CATEGORY AND THROUGHPUT FOR CURRENT LICENCE

Waste Type	Category	Quantity Limit Tonnes per Annual Period	Specification
Clean Fill	Category 64	350,000	None specified
Inert Waste Type 1			
Inert Waste Type 2			Plastics Only
Special Waste Type 1			Cement bonded asbestos. No fibrous asbestos shall be accepted.
Special Waste Type 2			Biomedical/clinical
Putrescible Waste			Must meet the acceptance criteria for Class III landfills.
Contaminated Solid Waste			
Liquid Waste	Category 61	3,000	TWM Processed Septage
		350,000	Cristal Pigment Slurry
		3,000	Drill Muds

1.1 PURPOSE AND SCOPE

The progressive rehabilitation is expected to commence within 6 months from the completion of disposal in that cell or part of a cell once that has reached final waste heights. The document "Banksia Road Landfill Rehabilitation and Closure Plan" defines:

- Indicative design for the landfill cap,
- Final waste height contours to be achieved,
- Indicative staging of rehabilitation,
- Post Closure Period and Monitoring Regimes, and
- Potential Post Closure Use of the Site

2 CAPPING DESIGN

The aim of a landfill cap as stated in the Environment Protection Authority Victoria Publication Number 788.3 “Siting, design, operation and rehabilitation of landfills” (VIC Landfill BPEM) released in August 2015, is to:

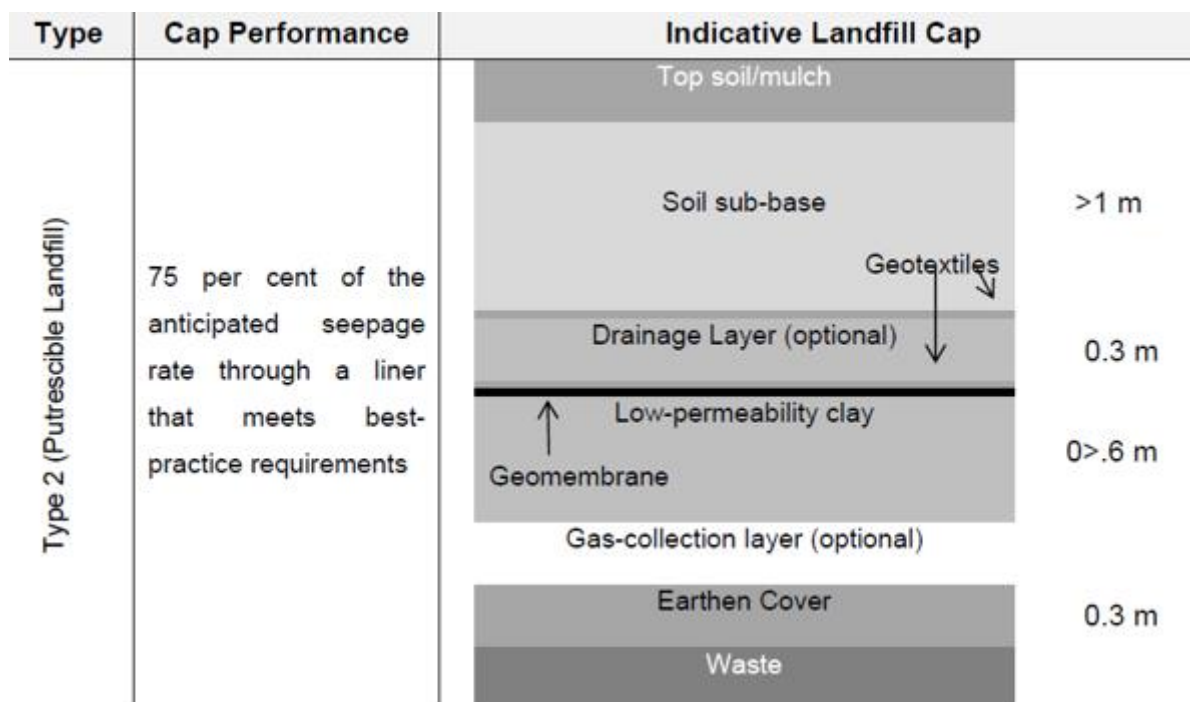
- Achieve a design seepage rate of the cap that does not exceed 75 per cent of the design seepage rate of the landfill liner,
- Provide a long-term stable barrier between waste and the environment in order to protect human health and the environment,
- Prevent the uncontrolled escape of landfill gas, and
- Providing land suitable for its intended after use.

The following sections provide basic details regarding the capping design, with full details being presented in the capping design report in Appendix A.

2.1 SYNTHETIC CAP DESIGN

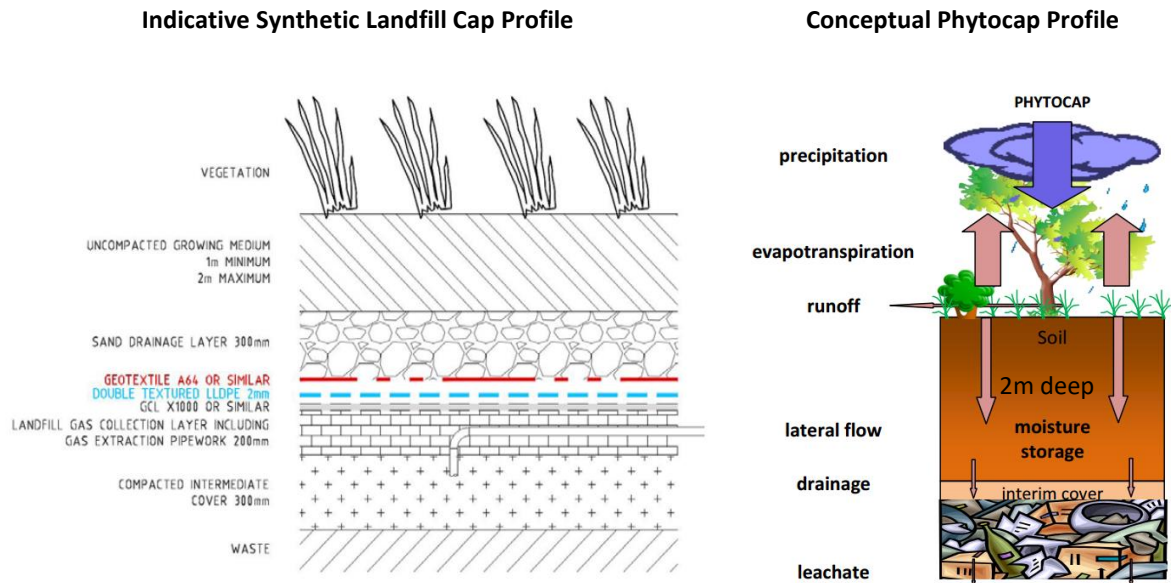
The VIC Landfill BPEM refers to the below configuration for a synthetic cap.

FIGURE A: INDICATIVE SYNTHETIC CAP PROFILE



Cleanaway undertook extensive in-situ soil investigation to consider the potential to move away from a synthetic cap and to implement a phytocap at Site. Synthetic caps provide a physical barrier to reduce the movement of moisture through the cap and into the waste. For a phytocap, as with a natural system by using in-situ available soil, the control of moisture movement is provided by the hydraulic properties of the soil and the water use requirements of the plants matching the net moisture input from climate. A schematic representation is in **Figure B**.

FIGURE B: SYNTHETIC CAP PROFILE COMPARISON TO PHYTOCAP



Source : Opal Vale Landfill Report by IW Projects

: WMAA Guidelines for the Assessment, Design, Construction and Maintenance of Phytocaps

Tonkin Consulting was engaged by Cleanaway to undertake risk assessment on the nature of soil available onsite to suit a phytocap and thereafter provide feedback on establishing a phytocap at the Banksia Road Landfill site. The risk assessment outcome was favourable to establishing a phytocap provided the identified risks were appropriately managed. Cleanaway wishes to undertake construction of phytocap and monitoring of the same to validate the performance against the capping design objectives. The initial phytocap construction and monitoring will be considered as a trial and more detail around the trial is in **Section 2.2**.

If for any unidentifiable reason the phytocap trial results in a failure, the phytocap profile will be abandoned and the synthetic cap design will be adopted for construction and performance monitoring. The trial area will also be replaced with the synthetic cap profile.

2.2 PHYTOCAP DESIGN AND TRIAL

An initial screening risk assessment was undertaken by Tonkin Consulting to ensure that a phytocap would be a suitable capping system for the Site. The screening risk assessment has identified few risks to utilising a phytocap at the Site and are listed below:

- In-situ soil assessment showed that the good establishment of vegetation (particularly grasses) requires supplementary watering to minimise drainage,
- There is also a moderate risk associated with the winter dominant rainfall. Other trials have been undertaken in higher rainfall environments but these trials have not been in a Mediterranean climate and hence have not required significant storage over winter. The addition of mulch to the topsoil and selection of plants will assist in mitigating this risk, and
- Care needs to be used in utilising organic supplements as these often increase weed competition and reduce native plant establishment. As natives are suited to low nutrient environments and the plant species selected includes leguminous species, i.e. those that fix nitrogen and make it available in the soil to other plants, the lack of topsoil is not considered to be a high risk.

Overall, there is great potential to implement phytocap by managing the above risks during design, construction and maintenance. Performance monitoring over a two year period will be undertaken to determine the performance of phytocap for the Site.

Tonkin Consulting has prepared a Capping Design Report (**Appendix A**) based on the risk assessment and recommended the below as key design features for the capping profile:

- Existing 2m deep Cell 5 overburden in-situ material over final waste height as this is likely to be representative of the mixed natural profile available in the future, and
- Mulch incorporated into the surface layer to assist plant establishment.

The Capping Design Report (**Appendix A**) details on all the below aspects:

- Concept Design
 - Goals and Performance Objectives
 - Capping Designs
 - Assumptions and Inputs
 - Scenarios Considered
 - Hydraulic Performance and Risks
- Trial Design
 - Trial Objectives
 - Capping Profile
 - Trial Layout
 - Monitoring

The trial phytocap is currently being undertaken on the southern portion of Cell 5 with construction completed in 2019. The southern portion of Cell 5 has reached full waste height and has 2m thick in-situ sourced soil layer placed using a front end loader. Soil testing to determine suitability of the in-situ material was undertaken on this area and results are available in Capping Design Report. A Phytocap Technical Specification has been prepared by Tonkin Consulting to suit site specific requirements for various phytocap construction elements, vegetation selection and is attached as **Appendix B**. The technical specification allows phytocap construction in two stages, namely Stage A and Stage B. Stage A (1.3 ha) refers to the southern portion of Cell 5 and Stage B (2.7 ha) refers to the western portion of Cell 5 and Cell 1. The drawings on the same is enclosed in **Appendix B**. Capping of further stages will be undertaken after a successful trial of Stage A.

A phytocap specific performance monitoring plan has been developed and is attached as **Appendix C**. The phytocap trial as defined by Tonkin Consulting will be considered to be completed when:

- Plant roots are removing moisture to at least 0.7 m depth. This can be shown by active removal of moisture from deeper layers,
- Fair to good establishment of plants within the lysimeter and vegetated pad, i.e. greater than 40% survival and greater than 70% groundcover has been achieved,
- Self-seeding and succession of native grasses is evident,
- The performance of the cap is known as defined by one or more of the following:
 - a year wetter than the climatic average has been received but resulted in drainage at or below the performance criteria, or;

- after plants have established (see points above), a year drier than the climatic average has been received but resulted in drainage an order of magnitude above the performance criteria; or
 - a minimum of two years of data once plants have established (see points above) are used to calibrate a water balance model and then predict the water balance performance over a longer time period, and
- DWER has accepted the final monitoring report.

A final report on the performance of the phytocap will be provided within 6 months from completion of 2-year monitoring period to the DWER for review and feedback, which is expected to be following winter and spring of 2022. Should the phytocap trial be unsuccessful, the synthetic cap design will be adopted. For further details refer to the capping design report (Appendix A).

3 FINAL CONTOUR PLAN

An updated Landfill Rehabilitation Contour Plan was developed in August 2020 for the entire potential landfill footprint including consumed footprint. The contour plan shown in **Drawing F001 Rev 7** refers to the top of waste and bottom of cap. The contour plan reflects waste pre-settlement contours, this is to minimise any risk of overfill with waste. A visual amenity assessment has been completed to assess the visual impacts of the final contours.

The final capped landform will be 2m above top of waste contour if the phytocap profile was adopted. The top of final waste contour was originally submitted in 2016 and has been updated in 2020 to achieve the same objectives as the previous landform. The top of waste contour has been changed to provide batter grades of 1:3.5 instead of 1:4. The objective of the finished phytocap profile on the updated top of final waste contour is to achieve finished slopes of:

- 5 % on the top platform,
- A maximum of 1:3.5 grade (approximately 30%) on the batter slopes.

The finished capped contour will be maintained by filling and shaping to prevent ponding of stormwater which may occur as the underlying waste settles. The maximum height of the final capped contour will be RL 151 (prior to settlement) and aligns with the topography of the adjacent state forest.

4 CAPPING STAGING PLAN

Cleanaway has developed a whole of life model to understand future landfill cell construction and landfill cap staging plan shown in **Drawing F001 Rev 7** based on the below assumptions:

- Receive up to 350,000 tonnes of landfill waste per annum,
- Achieve a landfill density of 0.94 tonne per m³, and
- Progressive rehabilitation of landfill cells in part or in full after reaching final waste contour.

The objective of the landfill cap staging plan is to meet DWER's operating licence L8904/2015/1 condition 1.3.6(c) *rehabilitation of a cell or phase takes place within 6 months after disposal in that cell or phase has been completed.*

The area deemed as potential landfill footprint including consumed footprint is 47.9ha. The total footprint is estimated to generate approximately 19.2 million m³ of airspace, of which approximately 15.9 million m³ is remaining as of November 2020 based upon the November 2020 Aerial Budget Model figures. The landfill, based on the above stated assumptions, is expected to receive waste until approximately 2048.

The landfill is expected to be capped over 10 rehabilitation stages as shown in **Table B** below. Estimation of waste volumes beyond 5 years is uncertain due to increased recycling rates and initiatives in reducing waste disposed to landfill. For this plan, we have used a disposal rate of 350,000 tonnes/annum to estimate the period in which capping is likely to commence for Rehabilitation Stages 7-10. All capping campaigns are assumed to commence in summer to limit wet weather delays and allow for vegetation planting in autumn or winter. Performance monitoring report post completion of Stage A of the Phytocap Trial will be provided to the DWER upon completion of first 2 years of monitoring phytocap efficiency and it is assumed that the trial will have reached a satisfactory conclusion in this timeframe to enable capping of further stages.

TABLE B: LANDFILL CAPPING EVENTS

Rehabilitation Stage	Cells	Cell sequence	Hectares	Commence Capping
1	5	Constructed	4.40	February 2023
2	1, 2	Constructed	2.60	Dec 23-Mar 24
3	12A	2	2.20	Jan 25 -Mar 25
5	Part 3/4, Part 4B, Part 12	Constructed	4.50	Dec 25-Mar 26
6	6, Part 7, Part 3/4	Constructed	3.90	Dec 26-Mar 27
4	Part 7, Part 3/4, Part 4B, Part 12, Part 15	Constructed	3.13	Dec 27-Mar 28
7	8, 9, 10, Part 7	1, 2	6.93	Dec 31-Mar-32
8	Part 15, 16, 17	3	6.22	Dec 39-Mar 40
9	11, 13, 14	4	6.45	Dec 44-Mar 45
10	18, 19, 20	5	7.35	Dec 50-Mar 51

5 POST CLOSURE PERIOD AND MONITORING REGIME

Post closure period refers to environmental performance monitoring duration after placing the final tonne of waste into the landfill cell, to consume total airspace. Post closure period is expected to be a minimum of 50 years from completion of final capping event and the below aspects will be monitored:

- Groundwater quality,
- Landfill gas migration,
- Landfill settlement due to waste subsidence,
- Landfill cap free drainage capability,

- Leachate pond levels and leachate collection system equipment,
- Stormwater management,
- Vegetation health and coverage, and
- Buffer zones maintenance.

5.1 GROUNDWATER QUALITY

The parameters and frequency of groundwater monitoring will reflect current or future requirements in Table 2.4.1 of the DWER operating licence L8904/2015/1 Amendment issued 12 May 2020. **Table C** below shows the current monitoring requirements for the site. If the assessment of groundwater quality over a certain period during post closure reveal stable conditions, then a revised list of parameters and monitoring frequency will be proposed to the DWER for approval. The requirement to submit groundwater quality monitoring results to the DWER continues following closure.

TABLE C: MONITORING REQUIREMENT OF GROUNDWATER QUALITY

Monitoring point reference and location	Parameter	Units	Sample Type	Frequency
Bore 1 Bore 3 Bore 4 Bore 5 Bore 6 Bore 7 Bore 8 Bore 9 Bore 10	Standing water level	m (AHD)	Spot Sample	Six Monthly
	pH	pH unit		
	Electrical conductivity ¹	µS/cm		
	Redox potential	Eh		
	Chemical oxygen demand	mg/L		
	Nitrate-nitrogen			
	Ammonia-nitrogen			
	Total nitrogen			
	Total phosphorus			
	Total dissolved solids			
	Total organic carbon			
	Dissolved oxygen ¹			

Monitoring point reference and location	Parameter	Units	Sample Type	Frequency
	Major cations and anions: calcium, magnesium, potassium, sodium, chloride, bicarbonate and sulphate			
	Heavy Metals: Aluminium, Arsenic, Cadmium, Chromium, Copper, Iron (total) Lead, Manganese, Mercury, Nickel, Selenium and Zinc			
	PFAS: Perfluorooctane sulfonate; Perfluorooctanoic acid; 6:2 Fluorotelomer sulfonate; 8:2 Fluorotelomer sulfonate, Perfluoroheptanoic acid; Perfluorobutane sulfonate; Perfluorobutanoic acid; Perfluorohexanoic acid; Perfluorohexane sulfonate; Perfluoropentanoic acid; Perfluorooctane sulfanamide; Perfluorodecane sulfonate; Perfluorononanoic acid; Perfluorodecanoic acid; Perfluoroundecanoic acid; Perfluorododecanoic acid; Perfluorotridecanoic acid; Perfluorotetradecanoic acid; N-Methyl-heptadecafluorooctane sulfanamide; N-Eethyl-heptadecafluorooctane sulfanamide; N-Methyl-heptadecafluorooctane sulfanomidoethanol; and, N-Eethyl-heptadecafluorooctane sulfanomidoethanol.	µg/L	Spot Sample	Annual

Monitoring point reference and location	Parameter	Units	Sample Type	Frequency
	Organics: Phenols, Polyaromatic hydrocarbons (PAH), Organochlorine pesticides, Organophosphate pesticides (Demeton-S-Methyl, Diazinon, Dimethoate, Fenamiphos, Fenthion, Malathion and Parathion), Polychlorinated biphenyls (PCB), Atrazine, BTEX (benzene, toluene, ethylbenzene, xylenes), Total Petroleum Hydrocarbons and Trichloroethylene/ Perchloroethylene	mg/L	Spot Sample	Annual

5.2 LANDFILL GAS MIGRATION

In 2013, a LFG extraction system was installed under Works Approval W5301/2012/1. A submission for the expansion of the landfill gas collection system at the landfill has been lodged with the DWER in 2020. This submission is to install gas extraction wells across filled areas of the landfill to provide active landfill gas management. The landfill gas migration detection regime during post closure will reflect the monitoring program stated in Section 6 of the Landfill Gas Management Plan.

5.3 LANDFILL SETTLEMENT DUE TO WASTE SUBSIDENCE

Waste subsidence can create internal stress on cap due to differential settlement across the final capped landform. This will lead to zones of tension cracking, allowing escape of landfill gas through the cracks and percolation of stormwater into the landfill. The cracks can be detected by virtue of landfill gas surface monitoring regime and visual inspection. The widening of cracks will be minimised with identified vulnerable areas being reworked by the addition of soil and re-establishing revegetation. The greater rooting depth allows erosion control to be easier on phytocaps.

5.4 LANDFILL CAP FREE DRAINAGE CAPABILITY

Cleanaway will undertake annual aerial survey of the site during post closure period to determine the settlement areas. The survey will be used to identify the low spots and works required to maintain the cap as free draining.

5.5 LEACHATE POND LEVELS AND LEACHATE COLLECTION SYSTEM EQUIPMENT

Leachate is managed by pumping to leachate storage ponds. Leachate head within the landfill cells with Airwell pumps is measured by bubbler instrumentation. The volume generated is derived from pump data and/or flow meters. Sprinklers are installed in the leachate ponds to assist evaporation during appropriate weather conditions. Leachate levels are to continue to be managed and a balance between generation and evaporation is to be maintained.

5.6 STORMWATER QUALITY

Stormwater at the site is separated from leachate and is directed to a series of culverts, drains, sedimentation basins and stormwater ponds. Site stormwater ponds, culverts and drains have been designed to comply with the requirements of the Licence and retain all stormwater on site.

Regular inspection and maintenance of the stormwater control structures is undertaken to maintain the function of the stormwater management system. Maintenance includes any necessary repairs to infrastructure and regular silt removal from drainage structures.

5.7 VEGETATION HEALTH AND COVERAGE

A Landscaping Plan (**Appendix D**) has been prepared for the site which identifies several zones, being:

- Zone 1 – an infrastructure zone near the landfill perimeter and includes access roads and tracks and stormwater drains.
- Zone 2 – a grassed area on the upper crest of the landfill and the Tronox ponds area for use as passive recreation. Trees, shrubs and native gardens may be included in this space.
- Zone 3 – The western batter slopes of the landfill will be planted to native trees, shrubs and grasses to provide a visual screen and blend the visual amenity to the eastern & southern boundaries with the Dardanup Conservation Park vegetation and landfill topography.
- Zone 4 – Buffer zone around the landfill comprised of native vegetation, including trees, shrubs and groundcover species to link with adjacent areas.
- Zone 5 - a wetland zone around the stormwater basins and leachate ponds, consisting of native shrubs and groundcovers

The Landscaping Plan also nominates species for use within these zones and methods of sowing, establishment and maintenance. It is noted that weed suppression during vegetation establishment is of critical importance.

Vegetation health and coverage will be monitored as per the recommendation in Table 9.2 of the Waste Management Association of Australia's *Guidelines for the Assessment, Design, Construction and Maintenance of Phytocaps as Final Covers for Landfills*. A copy of Table 9.2 is enclosed as **Appendix E**.

Tree and shrub density should achieve a minimum of 1 plant/15 m² and groundcover should have a minimum coverage of 75%. Where bare patches > 4m² or vegetation establishes poorly (refer to Appendix C), species shall be replanted with the same or similar species using tubestock for small area or broadscale seeding for larger areas, as advised by a vegetation contractor.

5.8 SEPARATION DISTANCE MAINTENANCE

DWER has prepared *Guidance for the Assessment of Environmental Factors, Separation Distances between Industrial and Sensitive Land Uses*, (WA EPA, 2005) which nominates a 500 m separation distance between a Class III Landfill and any sensitive land use. A draft update to this guideline published in September 2015 nominates a 1000 m buffer zone between a Class III Landfill and any sensitive land use. This guideline is to be used when assessing a proposed new development, and any encroachment to this buffer zone by a new development requires assessment to satisfy the planning authorities that any proposed new development or rezoning will not be adversely impacted by its proximity to the landfill site. The VIC Landfill BPEM stipulates a 500m buffer from buildings or structures to be maintained during the post closure period. This is in line with the WA EPA Separation Distance Guidance.

6 POTENTIAL POST CLOSURE USE OF THE SITE

Landfills may be used for a variety of final uses from no public access grasslands to commercial uses. Any development on the landfill must consider the capping design used and ensure that the human and environmental health is not compromised by exposing waste or increasing the generation of landfill gas or leachate. The settlement of waste during the early post-closure phase can also limit the location and type of development. The waste settles differentially resulting in cracking and deformation of structures, such as concrete slabs and buildings. Access for maintenance of post-closure infrastructure (landfill gas extraction, leachate collection, stormwater management) and for monitoring of surface integrity, groundwater, leachate and stormwater is required and final land uses must include consideration of these requirements.

The post closure use of the site is expected to be open space utilisable as a natural reserve for passive recreational purposes. The land use surrounding the site is predominantly agricultural and nature reserves, including the Dardanup Conservation Park which abuts the southern boundary. Tourism in the Shire of Dardanup is predominantly related to the natural environment, including the Ferguson Valley and Crooked Brook Forest¹. The site is also located on the western edge of the Whicher Scarp which is visible from the surrounding areas. Development of the site as a natural reserve for passive recreation will support the adjacent Conservation Park and provide a development sympathetic to the natural character of the Shire of Dardanup.

Other potential alternatives for the site may include:

- agricultural land. The site could be used for grazing, however closed landfills are typically unsuitable for cropping due to potential LFG effects;
- a waste precinct (non-landfill operations) such as use as a waste transfer station or composting facilities subject to appropriate approvals. These works are most likely to occur on the eastern portion of the site as higher rates of waste settlement during the early post closure phase increase the maintenance requirements for hardstands, concrete slabs and structures, such as sheds;
- a renewable energy precinct. Solar farms have been installed on closed landfills elsewhere for the generation of renewable energy without additional land clearing for construction;
- active recreational space (e.g. sporting or other community facilities). Closed landfills can be used for active recreation, such as mountain bike trails, sports ovals, etc. Care must be taken to ensure stormwater is carefully controlled to prevent surface erosion from compromising the integrity of the cap. In addition, the increased potential public liability can be a barrier to acceptance;

The development of the site for passive recreation will not preclude the later development of the site for these other uses, subject to the need for the development and gaining appropriate approvals.

¹ <https://www.dardanup.wa.gov.au/our-shire/tourism/>

7 CLEANAWAY CONTACT DETAILS

Please contact the below person for any clarifications (in order of preference):

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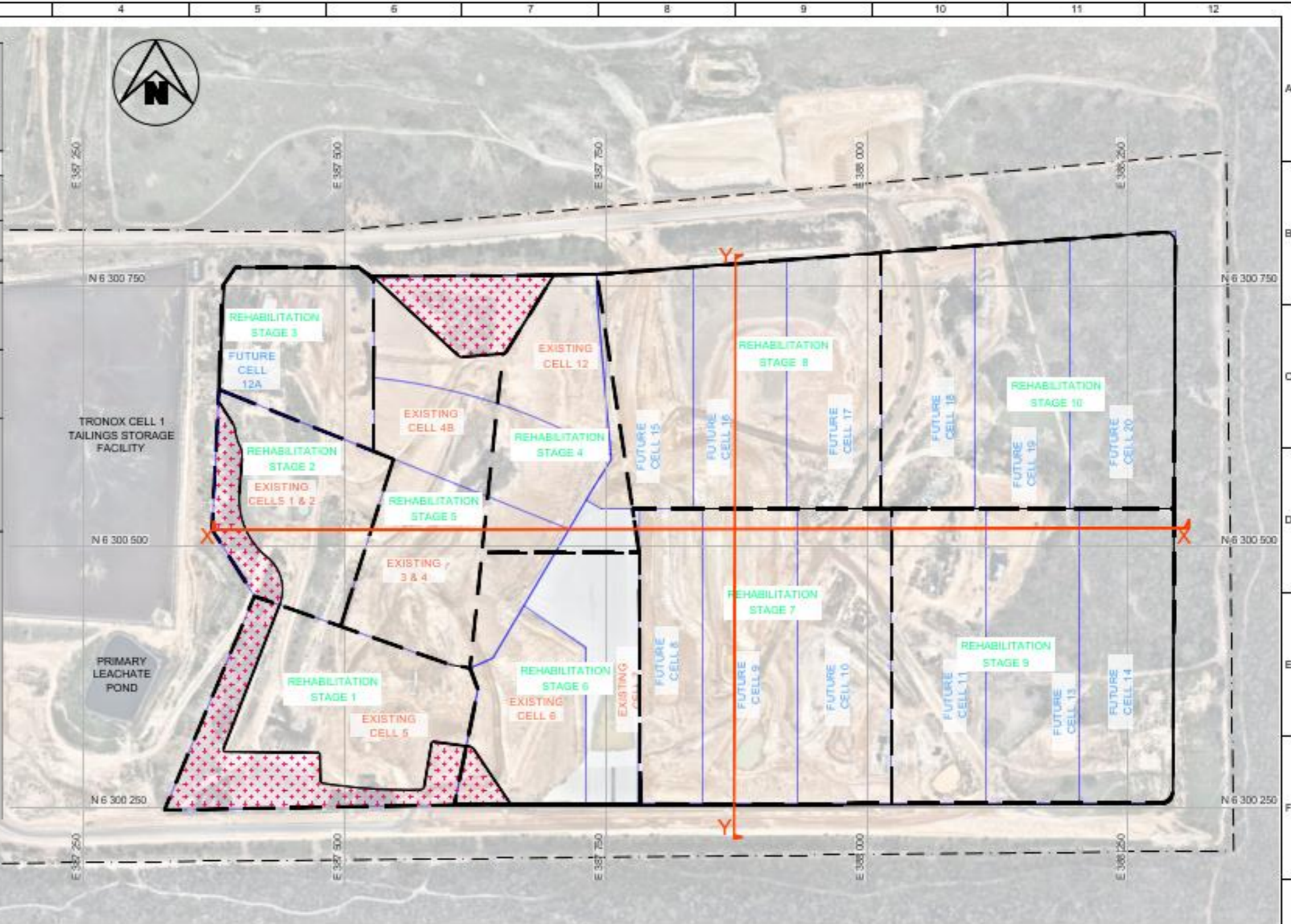
8 DRAWINGS

- 8.1 DRAWING F001 REV 7: REHABILITATION STAGING PLAN - OVERALL LAYOUT - TOP OF WASTE LEVEL RL149M CONTOUR
- 8.2 DRAWING DNP – 620 REV C2: LANDFILL FACILITY - OVERALL LAYOUT - TOP OF WASTE CONTOUR PLAN

9 APPENDICES

- 9.1 APPENDIX A: CAPPING DESIGN REPORT
- 9.2 APPENDIX B: PHYTOCAP TECHNICAL SPECIFICATION
- 9.3 APPENDIX C: PHYTOCAP TRIAL MONITORING PLAN
- 9.4 APPENDIX D: LANDSCAPING PLAN
- 9.5 APPENDIX E: TABLE 9.2 OF WMAA GUIDELINE FOR PHYTOCAP

Rehabilitation Stage	Capping Area	COMPLETION DATE
No.	m ²	Date
1	44,000	2023
2	26,000	2024
3	22,000	2025
5	45,000	2026
6	39,000	2027
4	31,250	2028
7	69,250	2032
8	62,150	2040
9	64,500	2045
10	73,500	2051



Legend

- APPROXIMATE CAPPING BOUNDARY
- - - SITE BOUNDARY
- Area with red stars: AREA AT FINAL COVER HEIGHT LEVEL (500mm ABOVE TOP OF WASTE)
- Orange box: EXISTING CELL
- Blue box: FUTURE CELL



**MASTERPLAN DRAWING
MARCH 2021**

7	08.11.20	F.A.	S.C.	B.G.	AMENDED PER SHIRE COMMENTS 2-12/20
6	06.11.20	F.A.	S.C.	B.G.	POINT CHANGE FUTURE AND EXISTING CELLS
5	04.09.20	F.A.	S.C.	B.G.	CAPPING COMPLETION DATES ADDED
4	03.09.20	F.A.	S.C.	B.G.	CAPPING STAGES 6,5 & 6 REVISD AND CELL 1 & 2 EXTERIOR BOUNDARY CORRECTED
3	07.08.20	F.A.	S.C.	B.G.	APPROVED CONCEPT LAYOUT
2	06.08.20	F.A.	S.C.	B.G.	BATTER SLOPE REVISED TO 1 IN 3.5
1	05.06.20	DR	ERN	LDP	GOLDER ASSOC 2018 BANKS RD PLN APPENDIX 2.6.6
REV	DATE	BY	CHKD	APPD	REVISION

TOP OF WASTE REMAINS AT 189m RL
2020 OWNER WORKS APPROVAL SUBMISSION: CELLS 5 & 6

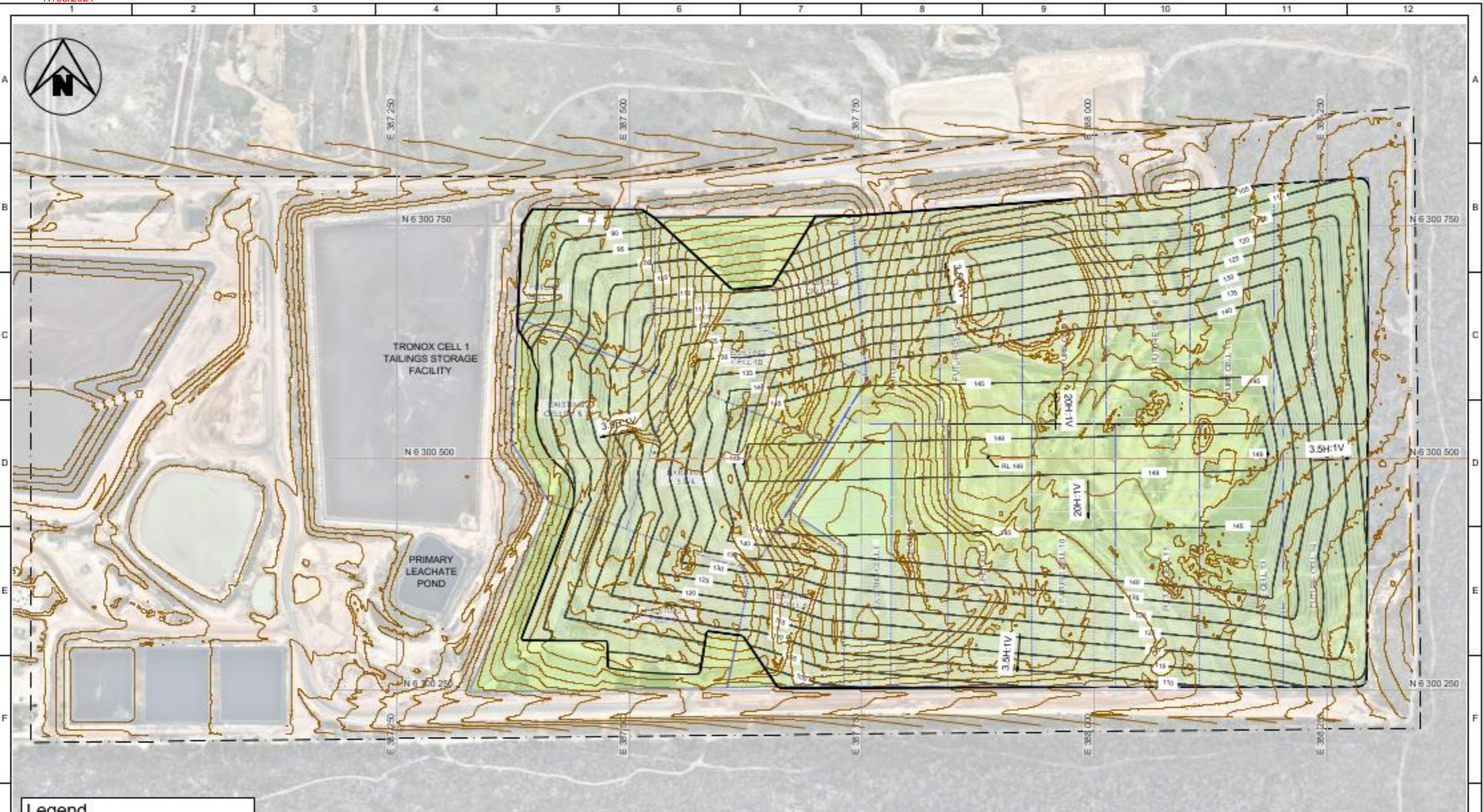


**Banksia Road Landfill
Dardanup WA**
Lot 2 Banksia Road,
Dardanup WA 6236
Australia

PROJECT: BANKSIA ROAD LANDFILL MASTERPLAN			
PROJECT NO: 182388		CONTROL: -010	
DRAWN: P.AMATE	DRAWING CHECK: SALLY CARLTON	APPROVED: S. CARLTON	APPROVED: B.GRIFFIN
DESIGNED: P.AMATE	DESIGN CHECK: SALLY CARLTON	DATE: 08-08-20	DATE: 17-08-20

REHABILITATION STAGING PLAN OVERALL LAYOUT TOP OF WASTE LEVEL RL149m CONTOUR			
SCALE: AS SHOWN	DRAWING NO: F001	REV: 7	

DATE: 08/08/2021 7:45:08 AM LOGIN NAME: ISAMK LOCATION: L:\DARDANUP\CDM\BANKSIA ROAD\BANKSIA RD - JAN 21.dwg



Legend			
	GRASSLAND (FUTURE CAPPED AREAS)		
	CAPPING CONTOUR LEVEL		
	EXISTING SURFACE CONTOUR		
	SITE BOUNDARY		

NOTE:
THE SURFACE SHOWN ON THIS PLAN IS THE TOP OF WASTE RL149m CONTOUR. (UNDERSIDE OF CAP DESIGN) LEVELS AS PER F001 REV2 UNO.



**MASTERPLAN DRAWING
JANUARY 2021**

REV	DATE	BY	CHKD	APPD	REVISION
C5	20.01.21	F.A.	S.C.	B.G.	AMENDED PER SHIRE COMMENTS MADE 2-12-20
C4	15.09.20	F.A.	S.C.	B.G.	Call 1 & 2 exterior boundary corrected
C3	17.08.20	F.A.	S.C.	B.G.	APPROVED CONCEPT LAYOUT
C2	26.08.20	F.A.	S.C.	B.G.	REVISED STAGING SEQUENCE
C1	28.06.20	F.A.	S.C.	B.G.	CONCEPT PLAN

REV	DATE	BY	CHKD	APPD	REVISION



**Banksia Road Landfill
Dardanup WA**
Lot 2 Banksia Road,
Dardanup WA 6236
Australia

PROJECT: BANKSIA ROAD LANDFILL MASTERPLAN			
DRAWN: F.ABATE	DRAWN/CHECKED: SALLY CARLTON	REVISIONED: S.CARLTON	APPROVED: B.GRIFFIN
DESIGNED: F.ABATE	DESIGN REVIEW: SALLY CARLTON	DATE: 06-08-20	DATE: 17-08-20

REHABILITATION PLAN OVERALL LAYOUT - TOP OF WASTE RL149m CONTOUR PLAN as per DRAWING F001			
SCALE: AS SHOWN	PROJECT: DARD-620	REV: C5	

DATE: 08/2021 13:23 PM; LOU NAME: FRANK; LOCATION: C:\DARDANUP\CAD\Drawings\BANKSIA ROAD\BANKSIA ROAD-08.dwg; JAPAN 1.dwg