Hillview Quarry – Waste Management Plan

A Submission to ADW Johnson on behalf of Coastwide Materials

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MRA Consulting Group

Prepared by

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Disclaimer

In the spirit of reconciliation MRA Consulting Group acknowledges the Traditional Custodians of country throughout Australia and their connection to land, sea and community. We pay our respects to Aboriginal and Torres Strait Islander peoples and to Elders past, present and emerging.

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Glossary

Terminology	Definition
AS	Australian Standard
C&D	Construction and Demolition
DCP	Development Control Plan
DPHI	Department of Planning, Heritage and Infrastructure
EPA	Environment Protection Authority
FOGO	Food Organics and Garden Organics
GLDCP	Great Lakes Development Control Plan 2014
GLLEP	Great Lakes Local Environmental Plan 2014
LGA	Local Government Area
MGB	Mobile Garbage Bin
WMP	Waste Management Plan
WSP	Waste Service Provider
WSRA	Waste Storage and Recycling Area

1 Introduction

MRA Consulting Group (MRA) was engaged by ADW Johnson to prepare a Waste Management Plan (WMP) to address waste generation and management related to the proposed development of a hard rock quarry at 67 Maytoms Lane, Booral NSW. The proposed Hillview Hard Rock Quarry development will extract and process up to 1.5 million tonnes of hard rock per annum for up to 30 years. Operational site infrastructure will also include the capacity to transport material off site via public roads.

The site is located approximately 8km south of Stroud and 5km northwest of Allworth on the western side of Bucketts Way in the Great Lakes Region of NSW and the Mid-Coast local government area (LGA). The larger development site is comprised of multiple land titles, which cumulatively form an area of approximately 400.3 hectares.

This WMP addresses the requirements of the Consent Authority (Council) and conforms to the waste management requirements of the following documents:

- Great Lakes Development Control Plan (GLDCP) 2013.
- Great Lakes Local Environmental Plan (GLLEP) 2014.
- NSW EPA's Better Practice Guide for Waste Management and Recycling in Commercial and Industrial Facilities (2012).
- NSW EPA's Better Practice Guide for Resource Recovery in Residential Developments (2019).

This WMP is used to deliver best practice waste management and promote sustainable outcomes. The WMP is consistent with the general objectives of Section 14 of the GLDCP, which include:

- To plan for sustainable waste management.
- To develop systems for waste management to ensure waste is transported and disposed of in a lawful manner.
- To provide guidance in regards to space, storage amenity and management of building site waste management facilities.
- To ensure waste management systems are compatible with collection services.
- To minimise risks associated with waste management at all stages of development.
- To maximise reuse and recycling of household, industrial and commercial waste.

This WMP has been prepared to inform the development design and assist in the delivery of better practice waste management, promoting sustainable outcomes at the demolition, construction, and operational phases for the development. The WMP addresses waste generation and storage associated to the excavation, construction and ongoing occupation of the proposed development.

1.1 SEARS Requirements

This WMP has been prepared in response to the Secretary's Environmental Assessment Requirements (the SEARs) SSD-70557215 (received on 3 June 2024) in regard to the waste management of the proposed Hillview Hard Rock Quarry.

Table 1 summarises the SEARs items to be addressed and outlines where in this report the waste management requirements have been met.

Table 1: Waste Management SEARs

Waste Management SEARs	
DPHI	
9. Waste management – including: • estimates of the quantity and nature of the waste streams that would be generated or received by the development;	Section 5.3.1

Waste Management SEARs	
• Details of liquid waste and non-liquid waste management, including: o the transportation, assessment and handling of waste arriving at or generated at the site;	Section 5.3.1
o any waste processing related to the proposal, including reuse, recycling, reprocessing or treatment both on- and off-site;	Section 5.3.2
o The method for disposing of all wastes or recovered materials;	Section 5.3.1
o Concrete and cement/fly ash spillage and clean up arrangements;	Concrete batching no longer forms part of this proposal.
o Identification of the history of concrete waste materials arriving on site and whether there is any likelihood of contaminated material, and if so, measures for the management of any contaminated material;	Concrete batching no longer forms part of this proposal.
o The emissions arising from the handling, storage, processing and reprocessing of waste; and	Section 5.3.3
o The proposed controls for managing the environmental impacts of these activities.	Section 5.3.1 Section 5.3.5
• Any measures that would be implemented to minimise, manage or dispose of these waste streams, in accordance with the NSW Waste Avoidance and Resource Recovery Strategy 2014-21;	Section 3.1.2
• Provide details of the type and quantity of any chemical substances to be used or stored and describe arrangements for their safe use and storage.	Section 5.3.4

It is noted that the previously proposed concrete batching plant no longer forms part of this Proposal. No concrete will be produced at the proposal site. With this considered, no assessment will be given to concrete and cement fly/ash spillage clean up arrangements, the identification of the history of concrete waste materials received onto site, or any associated contamination as initially requested to be addressed under the SEARs requirements.

2 Background

2.1 Description of Proposed Development

The proposal site is located at 67 Maytoms Lane, Booral NSW and comprises multiple land titles within the Great Lakes Local Environmental Plan (GLLEP, 2014). The larger development site is comprised of multiple land titles, which cumulatively form an area if approximately 400.3 hectares as seen in Figure 1.

The primary components of the development are:

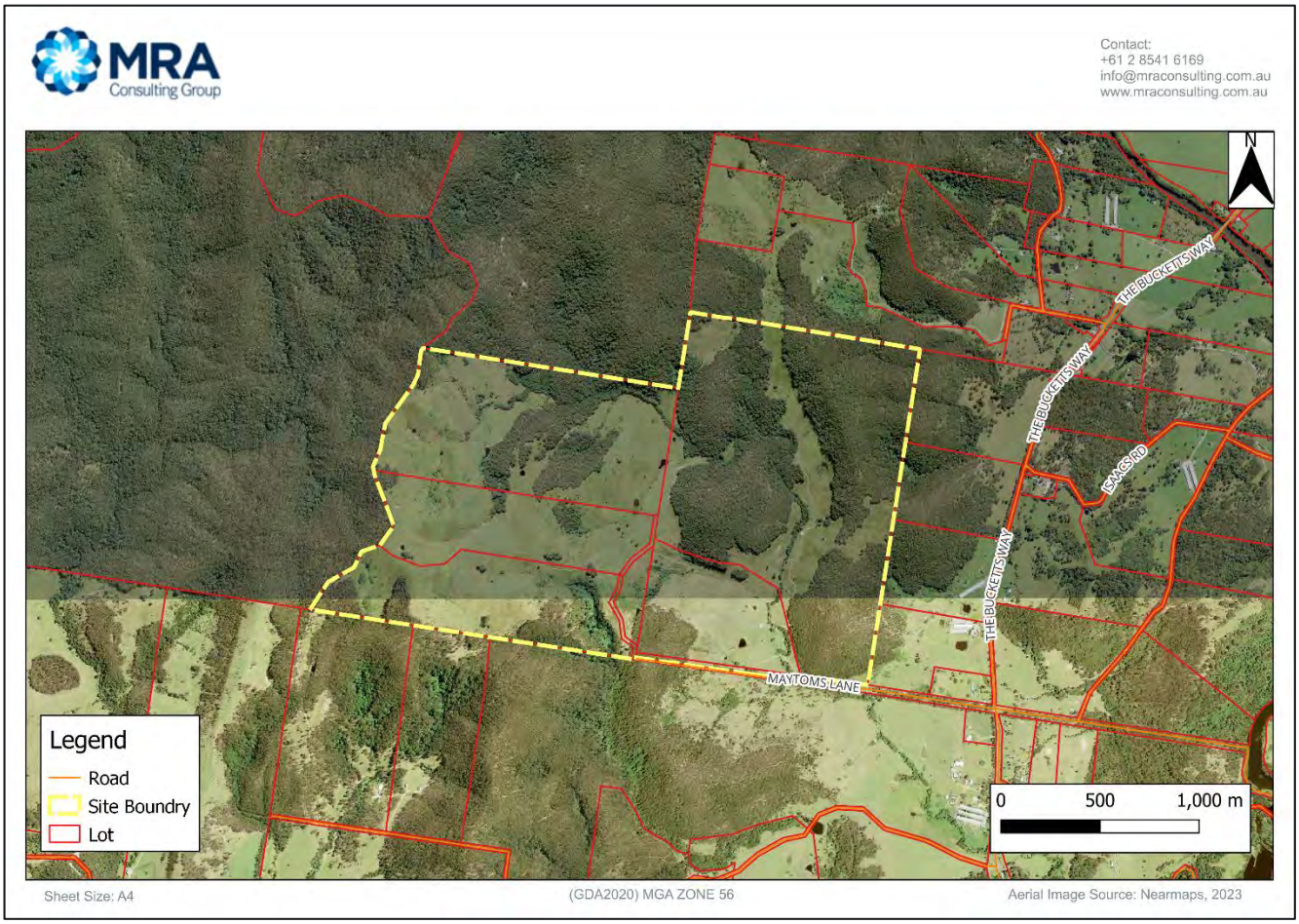
- Clearing of relatively small areas of vegetation to make way for access, construction and operational activities;
- Site preparation and earthworks;
- Road upgrade works to Maytoms Lane and the intersection with Bucketts Way to effectively cater for the anticipated traffic generation;
- Construction and use of internal access roads;
- Installation and/or upgrade of required site servicing infrastructure;
- Installation and operation of ancillary site infrastructure, including two weighbridges, crushing and screening plant, pugmill, pre-coat plant, workshop, site office and amenities, parking areas and product storage areas;
- Staged extraction of approximately 35 million tonnes (Mt) (total resource) of hard rock over a planned life of 30 years at a rate of 600,000 tpa over the first 5 years and 1.5 Mtpa for the remaining 25 years;
- Removal and stockpiling of overburden (exploration indicates very little overburden) from the quarry extraction area (not included in the extraction rate) for use during rehabilitation;
- Transportation of material off site via existing public roads; and
- Progressive rehabilitation of disturbed areas.

2.2 Site Description

The proposal site is located at 67 Maytoms Lane, Booral NSW within the Great Lakes Local Environmental Plan (GLLEP, 2014). The larger development site is comprised of eight parcels of land identified as Lot 1 DP 159902, Lot 2, 3 & 4 DP 1166923, Lot 6 DP 1094397, Lots 62 & 63 DP 95029 and Lot 64 DP 95030, which cumulatively forms an area of approximately 400.3 hectares (see Figure 1).

The site is situated within the Mid-Coast Council local government area (LGA) and is located approximately 8km south of Stroud and 5.8km northwest of Allworth and on the western side of Bucketts Way in the Great Lakes Region of NSW. The land is currently used for agriculture, with grazing being the predominate use.

Figure 1: Site Location



Source: SixMaps 2023

2.3 Zoning and Land Use

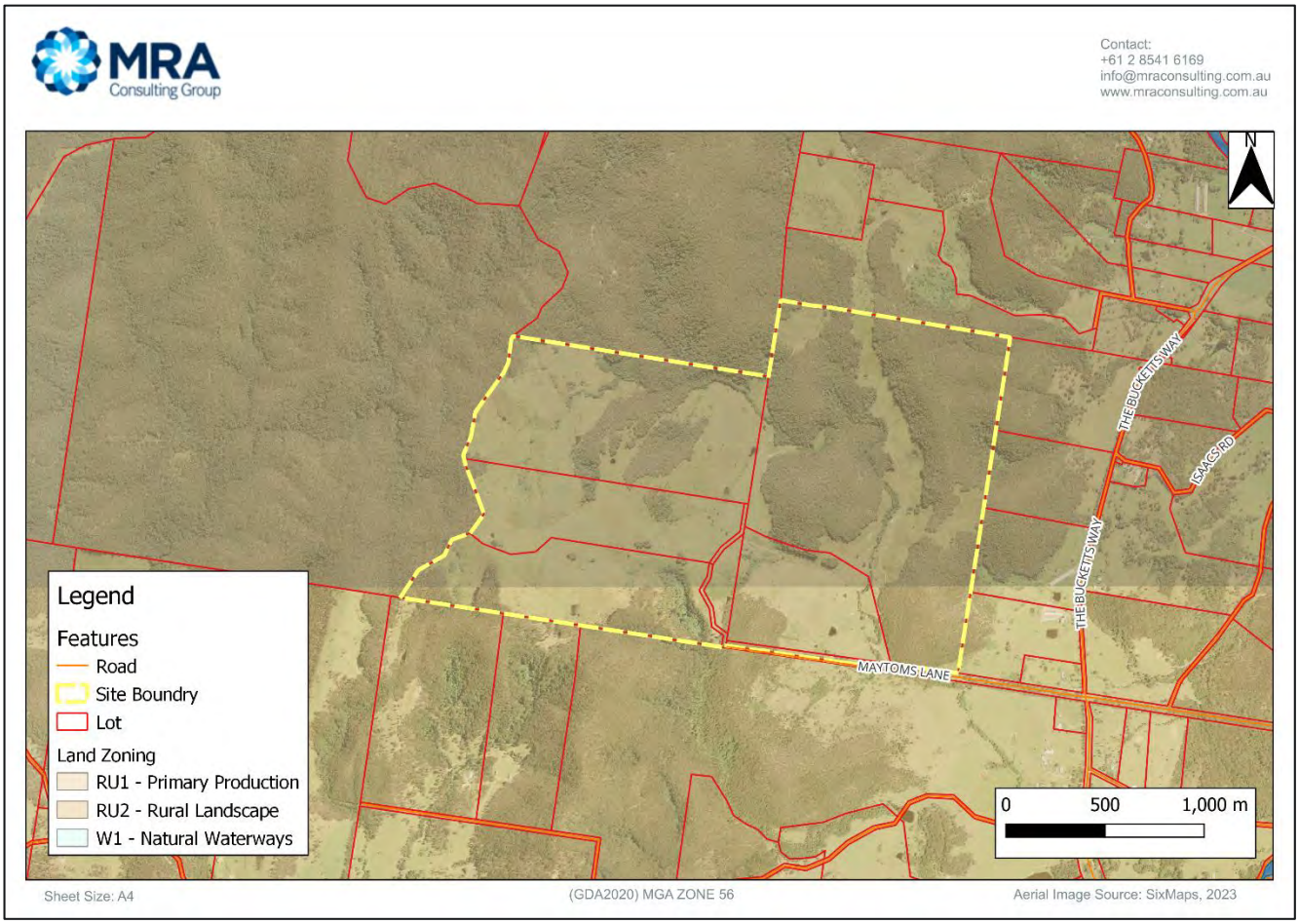
The site is zoned in the Great Lakes LEP 2014 as **RU2 – Rural Landscape.** Objectives of this zone include:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To maintain the rural landscape character of the land.
- To provide for a range of compatible land uses, including extensive agriculture.
- To provide for rural tourism in association with the primary industry capability of the land which is based on the rural attributes of the land.
- To secure a future for agriculture in the area by minimising the fragmentation of rural land and loss of potential agricultural productivity.

Extractive industries, Open cut mining, and Rural industries are permitted with consent in this zone.

All land adjoining the site is also zoned as RU2 – Rural Landscape. The Karuah Nature Reserve 1.5 km to the south is zoned as C1 – National Parks and Nature Reserves and the Karuah River 2.5 km to the east of the site is zoned as W1 – Natural Waterway.

Figure 2: Zoning and land use



Source: Department of Planning and Environment, Environment Planning Instrument – Land Zoning, 2023.

2.4 Assumptions

This report is a Waste Management Plan (WMP), forming part of the development documentation and assumes:

- Drawings and information that have been used in waste management planning for this WMP are the final reference/indicative development plan;
- The NSW EPA's *Better Practice Guide for Waste Management and Recycling in Commercial and Industrial Facilities* (2012) outlines waste generation rates and services available for new developments which have been considered in the preparation of this report alongside other empirical data; and
- This WMP is a living document and therefore, waste management equipment and systems described in this report are subject to change based on future operations and available technology.

3 Legislation and Policy Context

The requirements of the following legislation will be adhered to during the construction and operation of the Proposal to ensure the effective waste management on-site:

- Protection of the Environment Operations Act 1997 (POEO Act).
- Protection of the Environment Operations (Waste) Regulation 2014.
- Waste Avoidance and Resource Recovery Act 2001.
- NSW Waste and Sustainable Materials Strategy 2041.

3.1.1 Waste Avoidance Resource Recovery (WARR) Act 2001

The WARR Act aims to encourage the efficient use of resources and reduce environmental harm in accordance with the principles of ecologically sustainable development. The WARR Act serves the following functions:

- Promotes waste avoidance and resource recovery;
- Provides for the development of the WARR Strategy;
- Defines the functions of the EPA;
- Establishes a scheme to promote extended producer responsibility in place of industry waste reduction plans; and
- Establishes a Container Deposit Scheme to promote reuse and recovery within the beverage industry.

3.1.2 NSW Waste and Sustainable Materials Strategy 2041

The SEARs require the description of any measures that would be implemented to minimise, manage or dispose of these waste streams, in accordance with the NSW Waste Avoidance and Resource Recovery Strategy 2014-21. It is noted that the NSW Waste Avoidance and Resource Recovery Strategy 2014-21 has now been superseded by NSW Waste and Sustainable Materials Strategy 2041. The proposal has been assessed in line with this strategy.

The proposed on-site waste management of the Hillview Quarry support the goals of the NSW Waste and Sustainable Materials Strategy 2041.

Waste generated by the proposal will be managed and minimised by retaining any resources that have value to be reused on-site such as wastewater, soil, vegetation mulch and overburden. These will be used for on-site operations and progressive future rehabilitations across the lifecycle of the Proposal.

Management of wastes that are hazardous or have potential to cause environmental harm such as oils or greases, tyres, batteries and sewage will be stored in designated areas, under cover, in tanks if necessary, and will be collected by an appropriately licensed contractor before being transferred to an appropriately licensed facility for recycling or disposal.

The operational waste management practices implemented at the Proposal site serve state and federal targets to divert waste from landfill and improve resource recovery rates in line with the goals of the NSW Waste and Sustainable Materials Strategy 2041.

3.1.3 Protection of the Environment Operations Act 1997 and Regulation 2014

The NSW Environmental Protection Agency (NSW EPA) is the state government agency responsible for enforcing waste avoidance and resource recovery strategies as a method of ensuring ecological sustainability. These strategies will be implemented throughout the lifecycle of the Hillview Hard Rock Quarry. The objectives of these strategies include:

- Minimise the consumption of natural resources;
- Encourage resource recovery, including reuse, recycling and energy recovery;
- Provide for continual reduction in waste generation; and
- Minimise the final disposal of waste.

The Waste Management Hierarchy is to be incorporated into the waste reductions and resource recovery strategies of the Proposal. The principles of the hierarchy in order of priority are as follows:

1. Avoid;
2. Reuse;
3. Recycle/reprocess; and
4. Dispose.

The purpose of the development is not to process waste but handles waste as an ancillary component of primary activities.

Operations of the Hillview Quarry will strive to prioritize waste avoidance and best the practice in extraction and processing of materials on site to ensure maximum efficiency in the use of available resources and minimal waste generation.

It is noted that waste on site is to be managed in accordance with the requirements outlined throughout the POEO Act 1997, include the correct transportation of produced wastes to a licensed facility (Section 143) and the disposal of waste without causing harm to environment (Section 115).

4 Construction Waste

Construction activities at the site will generate a range of construction and demolition (C&D) wastes. Throughout the development process, all materials will be reused and recycled where possible, minimising the disposal (landfilling) of materials other than those that are contaminated or unsuitable for reuse or recycling processes.

Waste storage during construction operations will involve some stockpiling and separation of reusable material, as well as placement of skip bins for the separation of construction materials for recycling. A skip bin for residual waste or contaminated material will also be made available at the site for disposal where necessary. Skip bins may require alternative placement across construction operations to facilitate the safe and efficient storage of materials and will be retained within property boundaries to avoid illegal dumping.

A waste storage area shall be designated by the construction contractor and shall be sufficient to store the various waste streams expected during operations. Waste storage areas will be kept clear to maintain vehicular access and shall also be kept tidy to encourage separation of waste materials and for WHS reasons.

Waste management principles, management measures and facilities in use on the site shall be included as part of the site induction for all personnel working on the site.

4.1 Construction

The development includes the following construction works:

- Site preparation and earthworks;
- Road upgrade works to Maytoms Lane and the intersection with Bucketts Way to effectively cater for the anticipated traffic generation;
- Construction and use of internal access roads;
- Installation and/or upgrade of required site servicing infrastructure;
- Installation and operation of ancillary site infrastructure, including two weighbridges, crushing and screening plant, pugmill, pre-coat plant, workshop, site office and amenities, parking areas and product storage areas;

Table 2 outlines indicative volume to weight conversion factors for common construction materials.

Table 2: Building waste material by percentage and conversion factor for volume and weight

Building waste material	Tones per m^3	Waste as % of the total material ordered
Soil/aggregate	1.4 - 1.6	-
Bricks	1.2	5-10%
Concrete	1.5	3-5%
Tiles/ceramics	0.5 - 1	2-5%
Timber	0.3	5-7%
Plasterboard	0.2	5-20%
Metals	0.15 – 0.9	-

Source: Green Building Code of Australia C&D Waste Criteria.

Table 3 outlines the expected construction waste quantities for materials through construction of the proposed new development in addition to the appropriate management methods for each material type.

The information below presents multiple options for materials reuse, recycling and disposal where applicable (e.g. return to manufacturer, recycled at construction and demolition (C&D) processor, or disposed to landfill if contaminated).

Table 3: Construction waste material by volume

Type of waste generated	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
Excavation material	✓	✓	-	On site: testing (if necessary) for contamination and stockpiling of material for reuse as fill material. Reuse onsite for backfilling or landscaping. C&D processor: reuse/ recycling of VENM and ENM Landfill if contaminated.
Concrete	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. C&D processor: crushing and recycling for recovered products (aggregates).
Bricks/pavers	✓	✓	-	On site: cleaned and separated wherever possible for reuse or to enhance resource recovery. C&D processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products.
Tiles (Interior)	✓	✓	-	On site: cleaned and separated wherever possible for reuse or to enhance resource recovery. C&D processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products.
Timber (engineered/ treated)	-	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse. C&D processor: recovery and recycling for recovered product (e.g. mulch) or organics processing.
Metals (ferrous and non-ferrous)	-	✓	-	Onsite: to be separated wherever possible to enhance resource recovery. C&D processor: metals recovery and recycling.

Type of waste generated	Reuse	Recycling	Disposal	Methods for reuse, recycling and disposal
Plasterboard	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse.
Glass	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse where possible. Glass recycler: recovery and recycling.
Fixtures and fittings	✓	✓	-	On site: reuse wherever possible or return to manufacturer. Reuse: surplus and offcut material returned to manufacturer for reuse where possible. C&D processor: recovery and recycling.
Floor coverings	✓	✓	-	On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse where possible. C&D processor: recovery and recycling.
Garden organics (Vegetation)	✓	✓	-	Garden organic waste from landscaping. Organics processor: storage on-site (from minor excavations) processing for recovered product (e.g. mulch or other blended recovered fines) or organics treatment.
Containers (cans, plastic, glass)	-	✓	-	Commercial contractor: recycling.
Paper/ cardboard	-	✓	-	Commercial contractor: segregation of paper, cardboard or other streams.
Residual waste (general refuse)	-	-	✓	Separate recyclables where possible and disposal at principal licensed waste facility.
Hazardous/ special waste (e.g. spills and contaminated wastes)	-	-	✓	Management by a licensed asbestos and site hygienist should hazardous or special waste be found at the site.

4.2 Waste Contractors and Facilities

To ensure best practice waste management, appropriate contractors and facilities have been proposed based on their location and service offerings (Table 4).

Table 4: Waste service contractors and facilities

Role	Details
Recommended Waste Collection Contractor	The following are local skip bin operators for consideration in the management of excavation and construction waste for the site: • Junkyard Skips • Central Waste Skips • No Bull Skips & Excavations • 1300 Skip Bins Newcastle and Lake Macquarie Or another supplier as elected by the building contractor.
Principal Off-Site Recycler	The following are local C&D processing facilities for consideration in the management of C&D waste generated at the site: • Tuncurry Waste Management Centre • Taree Waste Management Centre • Bulahdelah Waste Management Centre Or another appropriate facility as elected by the waste management contractor.
Principal Licensed Landfill Site	• Taree Waste Management Centre Or other appropriate facility as elected by the waste management contractor.

4.3 Site Documentation

This WMP will be retained on-site during the excavation and construction phases of the development, along with other waste management documentation (e.g. contracts with waste service providers).

Responsibility for the WMP, waste documentation and processes during the excavation and construction phases will be with the site manager or builder.

A logbook that records waste management and collection will be maintained on site, with entries including:

- Time and date of collections;
- Description of waste and quantity;
- Waste/processing facility that will receive the waste; and
- Vehicle registration and company name.

Waste management documentation, the logbook and associated dockets and receipts must be made available for inspection by an authorised Council Officer at any time during site works.

5 Operational Waste Management

5.1 Overview

Operational waste management requirements for the site arise from the daily operating activities and general attendance by facility staff. Primarily, this refers to the daily activities of site management, demountable office use and quarry extraction and processing.

It is noted that the quarry is to operate according to the following hours of operation – with typical office hour range of between 8am to 6pm:

- Extraction an processing operations — Monday to Saturday 6:00am to 10:00pm
- Internal product transfers to stockpiles — Monday to Saturday 6:00am to 12:00am (midnight)
- Haulage from and to the development site — Monday to Saturday 7:00am to 6:00pm
- Blasting activities — Monday to Friday 9:00am to 4:00pm
- Maintenance activities — 24 hours 7 days a week

Waste management strategies related to site operations have been established according to the Great Lakes Development Control Plan 2014 and NSW EPA Guidelines.

5.2 Site Waste Management (Generated onsite)

5.2.1 Overview and Waste Generation

The following space calculations are based on bin dimensions sourced from the NSW EPA's *Better Practice Guide for resource recovery in residential developments* (2019).

Table 5: Standard bin sizes and dimensions

Bin Capacity (L)	Height (mm)	Depth (mm)	Width (mm)	Footprint (Approx. m^2)
1,100L	1,470	1,245	1,370	1.74
660L	1,250	850	1,370	1.16
240L	1,080	735	580	0.43
120L	940	530	485	0.33

This WMP predominately relies on waste generation data derived from similar projects and developments, in conjunction with the Great Lakes DCP 2014 and other guidance documents.

Waste generation for the proposed development is estimated based on the expected waste generated by the general day-to-day activities of the proposed development, including but not limited to demountable office and amenities use. The waste generation summary for the proposed development is outlined in Table 6.

Table 6: Site operational waste generation

Waste Stream	Waste Classification	Estimated Waste Generation
General Waste	General Solid Waste	2 x 240L bins per week, OR $2m^3$ per month

Waste Stream	Waste Classification	Estimated Waste Generation
Mixed Recycling	General Solid Waste	1 x 240L bins per fortnight
Cardboard	General Solid Waste	2 x 240L bins per week, OR 2m^3 per month

5.2.2 Other Waste Streams

Bulk Waste

Space should be allocated for the temporary storage and consolidation of bulk wastes unsuitable for general waste and recycling bins. Items such as pallets, crates and broken furniture are typical bulk wastes and, given appropriate management of the space, can be stored in a small area prior to being collected. The facilities management or site waste caretaker will be responsible for access to the bulk waste cage and will monitor and schedule collections for this waste stream. A private waste service provider will be engaged for the collection of bulk wastes.

Specialist Waste

A range of specialist wastes unsuitable for disposal in general waste bins may be generated as a result of typical operation of this development. Materials such as paints, cleaning chemicals, batteries, e-waste, and lightbulbs will be stored temporarily before appropriate disposal by a suitably qualified waste contractor. The site waste caretaker will be responsible for the management of specialist wastes and the scheduling of collections.

5.2.3 Waste Storage Requirements

Based on waste generation rates outlined in Table 6, Table 7 outlines the bin requirements for the proposed development.

Table 7: Bin Retention Requirements

Waste Stream	Weekly Waste Generation (L)	Bins Required / Collection Frequency	Floorspace Required (m^2)
General Waste	480	1 x 660L bin / Collected Weekly, or 1 x 2m^3 bulk bin / collected monthly	2
Mixed Recycling	120	1 x 240L bin / Collected Fortnightly	0.5
Cardboard	480	1 x 660L bin / Collected Weekly, or 1 x 2m^3 bulk bin / collected monthly	2

Considering the scale of the proposed development and the number of bins required to manage waste, a flexible collection arrangement is proposed to service the site as waste generation may fluctuate through operations. Additional bins or increased servicing frequency may be applicable upon commencement of operations, and ample space is available at the site to accommodate changes to the waste management requirements of the proposed development.

The site operator will be able to regularly observe bin fullness to ensure that bins are maintained and serviced frequently and organise additional collections as needed. This will also prevent overspill into waste management areas and ensure the area is kept tidy.

5.2.4 Waste Storage Requirements

Temporary Waste Storage

Assorted general waste and recycling bins will be distributed in the work areas and office/management areas for the temporary collection of waste, and consolidated within the waste management areas as required by staff and cleaners.

Larger bins will be provided in work areas for the temporary storage of scrap metals and timber materials, such as tippler bins, which will be transported as required to larger skip bins within the waste management area.

Waste Management Area

A dedicated area for the storage of mobile and bulk bins will be located to the north-west of the site, adjacent to loading areas and carparking. This area will be adequate to hold the expected waste volumes at the site, including the provision of safe handling and manoeuvring space around bins.

5.3 Process Waste Management

5.3.1 Waste streams

The Proposal will generate only limited volumes of both production and non-production wastes (during construction and operational phases). Table 8 summarises the approximate predicted waste streams and proposed management methods. These volumes are an estimate only and will be confirmed through the development of the Waste Management Plan, to be developed should the Project be approved. The Waste Classification Guidelines – Part 1: Classifying Waste (NSW EPA, 2014) identifies six waste categories which include:

1. Special Waste;
2. Liquid waste;
3. Hazardous waste;
4. Restricted solid waste;
5. General solid waste (putrescible); and
6. General solid waste (non-putrescible).

Wastes anticipated to be generated by the Proposal have been classified according to these waste categories.

Table 8: Predicted Waste Streams

Material	Waste Classification	Approx. volume per annum	Storage/Use/Disposal
Vegetation	General solid waste (non-putrescible)	40,000 t	Soils to be retained on site for future rehabilitation works. Trees and vegetation are intended to be mulched / chipped for retention and use on site.
Soil	General solid waste (non-putrescible)	15,000 – 20,000 t	Soils are to be retained on site for future rehabilitation works.
Overburden	General solid waste (non-putrescible)	75,000 – 100,000 t	Excavated overburden material will be retained on site for use in future rehabilitation works.
General Waste	General solid waste (non-putrescible)	Up to 30m^3	Stored in covered bins or skips located within office and workshop areas as required. Where located in open areas, the

Material	Waste Classification	Approx. volume per annum	Storage/Use/Disposal
General Recyclables	General solid waste (non-putrescible)	Up to 25m^3	bins would be fitted with animal-proof lids. Collected on a regular basis by a licensed waste contractor and transported to a licensed waste disposal/recycling facility.
Waste oil/grease	Liquid waste	400 L	Placed within bunded tank(s) within the workshop area. Where required, smaller, temporary storage containers may be positioned closer to work areas, with the contents of those containers transferred to a larger storage tank prior to collection. Collected on a regular basis by a licensed waste contractor and transported to an appropriately licensed facility for recycling.
Batteries	Hazardous waste	5-10	Used batteries would be placed within a covered and marked storage area until removed from site. Used batteries would be collected for recycling on a regular basis by an appropriately licensed contractor.
Tyres	Special waste	5-15	Tyres would be placed within a marked storage area until removed from site or used for another purpose. Used tyres would be collected on a regular basis by a licensed contractor and transported to a licensed recycling facility.
Scrap Metals	General solid waste (non-putrescible)	Up to 24 t	Scrap metals would be contained within a marked storage area until removed from site. Collected on a regular basis by a licensed contractor and transported to an appropriately licensed facility for recycling.
Sewage	Liquid waste / General solid waste (putrescible)	Up to 10 kL	System proposed by Decentralised Water includes on site management with a 400m^2 land application area.
Wastewater	Liquid Waste	Up to 10 kL	Wastewater will be retained on site and stored in tanks for re-use within the operations, primarily for dust control. The proposal will also be utilising the existing dam present on the site.

5.3.2 On-site Waste Processing

Waste processing on site will consist of the mechanical processing resulting in size reduction of excavated materials and overburden. This process will involve the breaking down of excavated rock materials into smaller aggregate sizes to be stored in designated stockpile locations around the site to be retained for future rehabilitation and fill.

Vegetation that is designated for removal from the Proposal site is also to be mulched, with trees to be chipped. All vegetation processed will be retained and re-used on the site.

5.3.3 Waste Management Emissions

The main source of emissions to air from waste at the Proposal is likely to be generated from the processing of excavated materials and overburden, or the chipping or mulching of vegetation. These activities have the potential to result in the generation of dust particles.

Dust suppression systems are intended to be employed on-site to supress and manage any dust emissions generated through on-site processing activities. Wastewater on site is to be retained with the intention to supply these systems.

Emissions to air for the management of waste is addressed in the overall air quality assessment prepared by Advitech Pty Limited.

5.3.4 Chemical Substances

The Proposal site will require fuels to be stored on site for use by machinery and vehicles. A summary of chemical substances, their quantity, and a description of arrangements for their safe use in storage is provided in Table 1 of the Advitech *SEPP (Resilience and Hazards) – Screening Assessment*, summarised in Table 9.

Table 9: Details of Chemical Substances Stored and Used on Site

Table 1: Maximum quantities of Materials Classified as DG to be stored within the Site

Storage Location	DG Class / Packing Group (PG)	Description	Maximum Quantity to be stored
Hazardous Goods Container	2.1	Flammable gases	50 kg
	9 PG III	Miscellaneous	5 kg
Above ground tank	3 PG III	Flammable liquids, Category 1	33,000 L / 29 t
Hazardous Goods Container		Flammable liquids	10 kg
Mobile Plant	8 PG III	Corrosive substances	26 kg
Contractors Vehicles	9 PG III	Miscellaneous	10 kg

Source: Advitech 2024, Table 1 SEPP HOD Report.

5.3.5 Mitigation measures

The Hill View Hard Rock Quarry will generate only small quantities of waste. Where possible these waste materials will be recycled. Waste materials that cannot be recycled will be removed by suitably licenced contractors and disposed of at a licenced landfill.

The following measures will be implemented to ensure that wastes are appropriately managed for the life of the Proposal:

- Waste streams will be classified and managed in accordance with the principles of the waste management hierarchy and EPA guidelines.
- All waste or redundant materials generated by the project would be reused or recycled where feasible and reasonable.
- All wastes will be stored in appropriate containers/receptacles that are lidded where practical, within designated waste storage areas.
- All wastes will be collected for reuse/recycling/disposal by appropriately licensed waste contractors.

- Transport of wastes to recycling or waste disposal facilities would be undertaken by appropriately licensed waste contractors.
- Overburden would be re-used at the site for fill or bunding or will be stored at the site for reuse during rehabilitation.
- Any waste oils, greases and lubricants would be stored in designated drums prior to their removal for recycling or disposal.
- Any soils contaminated through fuel or chemical spills would be excavated and transported to a licensed waste facility and the resulting excavation would be filled with suitable clean soil.
- Any weed species that area cleared for the proposal would be disposed of at a licensed green waste disposal facility or landfill.
- General wastes will be segregated into recyclable and on-recyclable streams through the provisions of appropriate split receptacles bins.
- Site inductions for employees and contractors will include waste management information.
- Appropriate signage will be provided at all waste storage areas to clearly identify waste segregation and recycling procedures.

6 Waste Management Systems

6.1 Deliveries, Collection Method, and Loading Areas

A private waste contractor will be the waste service provider (WSP) for the site and will utilise a rear or side loading waste collection vehicle. The collection point for the WSP and areas for handling and loading are as follows:

- Collection and loading will occur in the loading areas within the site;
- Clear, safe, accessible and convenient space for handling of MGBs and equipment and loading of collection vehicles; and
- Identifiable areas where pedestrians, visitors and site staff can recognise and avoid any risk associated with moving vehicles, and bin moving and handling.

The site will be accessed from Maytoms Lane and the internal haul road by waste collection vehicles.

Waste will be collected from the designated waste storage location.

Table 10 below outlines relevant requirements and specifications related to the use of collection points and loading areas.

Table 10: Collection points and loading areas requirements and specifications

Component	Requirement	Specification
Collection point	Allow safe waste collection and loading operations	- Adequate clearance and manoeuvring space; - Sufficient clearance for the safe handling of materials and equipment; - Maximum distance of 15 m of bin bay to collection point; and - Sectioned loading bay does not require reversing, nor impede upon traffic and pedestrian safety.
Vehicle manoeuvring and loading space	Truck space for adequate lift clearance, manoeuvring and operation for a contractor collection vehicle	- Collection from each site use loading area by a front or rear lift collection vehicle; - Adequate loading bay dimensions to not impede lift clearance; - Operational clearance for truck manoeuvring in a forward direction; and - The provision of space clear of vehicle parking spaces.
Operating times	Appropriate collection times to limit noise and traffic disturbance	- Collection times will be arranged during off-peak times to ensure minimal disturbance to pedestrians and visitors.

6.2 Waste Management System and Responsibilities

Management will engage site cleaning staff to enact and monitor day to day waste management operations. Should there be any issues that impact on the operational efficiency, safety and suitability of waste management, the site staff and cleaning staff will inform management.

Site Management is responsible for:

- Using this waste management plan to inform waste management operations, design and infrastructure;
- Providing educational materials and information to site personnel on sorting methods for recycled waste, awareness of waste management procedures for minimisation and recovery;
- Making information available to visitors and workers about waste management procedures;

- Appropriate signage in waste service areas and all waste management areas;
- Using contracts to define the allocation of responsibilities with cleaners and building;
- Holding a valid and current contract with licensed collector(s) for waste and recycling collection and disposal;
- Encouraging waste avoidance and achievement of resource recovery targets;
- Providing operational management for delivery of waste objectives;
- Ensuring regular reinforcement of source separation and effective use of waste facilities;
- Organising waste, recycling and bulky pick-ups by elected contractor for the building.
- Organising, maintaining and cleaning the waste rooms and service rooms;
- Arranging access to waste rooms and bins on collection days and to liaise with the WSP for operational issues;
- Cleaning of all bins;
- Monitoring any vermin and pest issues and arranging appropriate controls (traps or fumigating) and maintenance of doors or other points of potential entry;

The building management and site cleaning staff are also responsible for ensuring that workplace safety requirements according to WorkCover NSW Occupational Health and Safety are upheld.

6.3 Waste Storage Areas Specifications

The waste management area will provide storage that has adequate capacity to receive and store the maximum likely generation of waste and recycling between collection times. The waste management areas will be constructed to improve amenity, minimise odour, protect surrounding areas and promote user safety. Waste room specifications include:

- Signage for safety and waste bin identification;
- Safety precautions, staff training and signage for plant;
- Floors constructed approved solid, impervious material that can be cleaned easily;
- Grading and draining to an approved drainage fitting to facilitate bin washing;
- Doorway ramp (if not level);
- Adequate supply of water with hose cock as close as practicable;
- Suitable construction including limited entry paths to prevent vermin;
- Ventilation in accordance with Australian Standards;
- Security and lighting.

6.4 Signage and Education

Signage that promotes resource recovery, waste minimisation, safety and amenity follows the Australian Standard for safety signs for the occupational environment (Standards Australia, 1994).

Signage will be designed to consider language and non-English speaking backgrounds, vision impairment and accessibility. Illustrative graphics must form a minimum 50% of the area of the signage. Signage is to be prominently posted in the waste room indicating:

- Details regarding acceptable recyclables;
- Recyclables are to be decanted loose (not bagged)
- *No standing* and *danger* warnings apply to the area surrounding the waste storage area;
- Contact details for arranging the disposal of bulky items;
- The area is to be kept tidy.

Standard signage requirements and guidance for application apply (see Appendix A).

6.5 Prevention of Pollution and Litter Reduction

To minimise dispersion of litter and prevent pollution (to water and land via contamination of runoff, dust and hazardous materials), building management and the site cleaning staff will also be responsible for:

- Maintenance of open and common site areas;
- Ensuring waste room is well maintained and kept clean;
- Securing the waste storage area from vandalism and the escape of litter;

- Identification and appropriate disposal of goods with hazardous material content (paints, e-waste, fluorescent tubes);
- Taking action to prevent dumping and unauthorised use of waste areas; and
- Requiring contractors to clean up any spillage that may occur during waste servicing or other work.

7 References

Great Lakes Local Environmental Plan 2014.

Great Lakes Development Control Plan 2014.

NSW EPA. (2012). *Better practice guidelines for waste management and recycling in commercial and industrial facilities*. Retrieved from https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/managewaste/120960-comm-ind.pdf

NSW EPA. (2016). *Recycling signs, posters and symbols*. Retrieved from http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm.

NSW Legislation. (2008). *Liverpool Local Environmental Plan.* Retrieved from https://legislation.nsw.gov.au/view/html/inforce/current/epi-2008-0403#pt-cg1.Zone_IN2

Standards Australia. (1994). *AS 1319: Safety signs for the occupational environment, Homebush, NSW: Standards Australia.*

Standards Australia. (2008). *AS 4123: Mobile waste containers.*

Appendix A Standard Signage

Waste Signage

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by the NSW Office of Environment and Heritage (NSW OEH 2008b).

Standard symbols for use in signage, bin facade and educational materials are promoted through the NSW Environment Protection Authority. They are available for download from the NSW EPA website (NSW EPA 2016b), in black and white and colour versions. The Australian Standard series AS 4123 (Part 7) details colours for mobile waste containers (Standards Australia 2008).

Figure 3: Examples of standard signage for bin uses

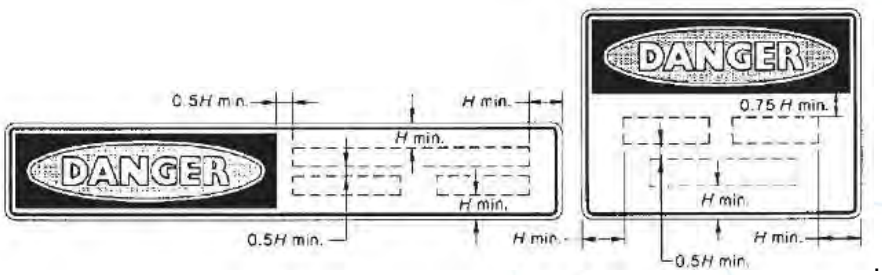
Safety Signs

The design and use of safety signs for waste and recycling rooms and enclosures should comply with AS 1319 (Standards Australia 1994). Safety signs should be used to regulate, and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Below are some examples. Clear and easy to read 'NO STANDING' and 'DANGER' warning signs must be fixed to the external face of each waste and recycling room where appropriate.

Figure 4: Example and layout of safety signage

(d) Horizontal

FIGURE D5 TYPICAL ARRANGEMENTS OF DANGER SIGNS



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