





Report Details

Site Waste Management Plan - Sand Quarry- 4226 Nelson Bay Rd Anna Bay

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Prepared For

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Endorsements

Function	Signature	Name and Title	Date
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Proposed Site Plans



1. INTRODUCTION

Advitech Pty Limited (trading as Advitech Environmental) was engaged by Tattersall Lander Pty Ltd, on behalf of Hay Enterprises, to undertake a series of environmental assessments in order to comply with the Secretary's Environmental Assessment Requirements (SEARs) (1172) for the establishment of a sand quarry at 4226 Nelson Bay Road, Anna Bay (Lot 591 DP1191380). The SEARs were issued on 27 October, 2017, with the requirement to:

Waste - including estimates of the quantity and nature of the waste streams that would be generated or received by the development and any measures that would be implemented to minimise, manage or dispose of these waste streams.

This report constitutes the site waste management plan (SWMP) with respect to the development.

It should be noted that this report was prepared by Advitech Pty Limited for Hay Enterprises ('the customer') in accordance with the scope of work and specific requirements agreed between Advitech and the customer. This report was prepared with background information, terms of reference and assumptions agreed with the customer. The report is not intended for use by any other individual or organisation and as such, Advitech will not accept liability for use of the information contained in this report, other than that which was intended at the time of writing.

2. PROJECT SUMMARY

The current development application is for a proposed sand quarry with the maximum operational intensity/maximum extraction rate of 50,000 m³ per annum. The development is considered necessary in order to maintain access to a high voltage electricity supply easement along the Southern boundary. Access to the electricity supply easement is considered at risk due to the ongoing encroachment of sand dunes.

Irrespective of the anticipated commercial nature of the quarry and the proposed extraction activities, from a waste generation/management perspective, the development is more akin to a residency and comparable to its neighbours along Nelson Bay Road. Therefore, it is recommended the development impact be assessed as equivalent to a residential block regarding waste collection and disposal services. Consequently, utilisation of:

- The Port Stephens LGA domestic waste collection system is considered the most appropriate solid waste disposal method; and
- Installation of an approved anaerobic/aerobic domestic waste water treatment system is considered most appropriate for grey water and black water treatment and disposal.



2.1 Operations Included

The operations/activities proposed for the site will generate both one-off waste streams in the construction/development phase and ongoing waste streams. Proposed operations/activities likely to contribute to the waste generation at the site include:

- Green waste generated during site works and construction;
- Ongoing green waste arisings;
- Sand mining operations to prevent encroach of coastal dunes onto electricity distribution easement;
- Storage of mobile equipment and auxiliary equipment; and
- General domestic wastes including packaging waste.

2.2 Operations Specifically Excluded

A number of operations/activities have been specifically excluded from the scope of this development application. They include:

- Processing and packaging of raw extracted sand materials; and
- Maintenance and repairs of heavy mobile equipment.

3. WASTE GENERATION AND TREATMENT/DISPOSAL

3.1 Waste Sources

The waste streams to be generated by the proposed development include:

- Green waste;
- 2. Construction waste;
- 3. Blackwater and greywater; and
- 4. General domestic waste.

As previously articulated, the waste streams to be generated are typical of a residential dwelling in the local Port Stephens area. Consequently, the recommended waste management services/strategies include utilisation of:

- The Port Stephens LGA domestic waste collection system is considered the most appropriate solid waste disposal method; and
- Installation of an approved anaerobic/aerobic domestic waste water treatment system is considered most appropriate for grey water and black water treatment and disposal.



3.2 Green Waste

3.2.1 Generation Pattern

Green waste from the sand quarry site is generated from the following sources:

- Clearing vegetation for the construction of the machinery shed/caretakers residence/ site
 office, intersection upgrade and haul route realignment;
- Removal of dead vegetation from within the sand extraction area; and
- Continual upkeep of the vegetation surrounding the caretaker's residence and haul route.

3.2.1.1 Construction Phase

The cleared area including the proposed building bush fire asset protect zone (APZ) covers approximately 10,000 m²; approximately 2,500 m² of this area is within the easement and is already cleared.

The following assumptions have been utilised in order to estimate the potential mass of green waste to be generated prior for the construction phase of the project:

- It is estimated up to 100 trees will be removed from the 7,500 m² area;
- The average diameter of each tree removed is 300 mm to 350 mm; and
- The average height of each tree removed is 10 metres to 12 metres and weighs approximately 1,000 kg.

3.2.1.2 Anticipated Annual Arising

According to the 2010/2011 Waste Generation and Resource Recovery in Australia (WGGRA) database, the garden organics disposal rate is 50 kg/person/year. Assuming there will be between 1 and 2 residents living on-site, 50 - 100 kg/year (0.12 - 0.45 m³/year¹) of garden organic waste is likely to be generated. Given, the land lot is approximately 13 hectares, the anticipated volume of garden organic waste is readily managed onsite.

3.2.2 Proposed Treatment/Disposal Method

Any vegetation removed for the construction of the caretaker's residence/site office/machinery shed; intersection upgrade and site access improvements will be mulched on site and spread for soil improvement purposes outside of the identified APZ.

Consequently, the estimated mass of mulch produced during the construction phase clearing operations is 100 tonnes. Once mulched and spread to a depth of around 100 mm, this quantity of mulch would be spread over an area of approximately 3,000² m² on the site as a one off soil improvement activity.

It is anticipated that a maximum of 100 kg/year (0.45 m³/year) of green waste will be generated and managed onsite. If generated during a single pruning/garden maintenance event, this quantity would cover 50 m² of garden area with mulch to a depth of only 9 mm per annum.

It should be noted that two on call clean ups of bulky waste and/or green waste and monthly green waste drop-off services are also available each year if required for residents in the Port Stephens local government area.

² The uncompacted bulk density of mulch is approximately 330 kg/m³.



¹ Density of garden waste organics varies from 227 kg/m³ to approximately 450 kg/m³.

3.3 Construction Waste

3.3.1 Generation Pattern

Construction waste from the sand quarry site will be generated from the construction of the machinery shed/caretakers residence/site office, intersection upgrade and haul route realignment.

3.3.2 Proposed Treatment/Disposal Method

A nominated contractor/builder will be responsible for the construction of the machinery shed/caretakers residence/site office. The construction waste management is managed by the nominated contractor/builder. It is expected the contractor will consider the following measures:

- Ordering the right quantities of materials (Purchasing Policy);
- Prefabrication of materials;
- Re-using formwork;
- Modular construction and basic designs to reduce the need for off-cuts;
- Minimising site disturbance and limiting unnecessary excavation;
- Careful source-separation of off-cuts to facilitate re-use, resale or efficient recycling;
- Choice of landscaping to reduce green waste outside of the designated APZ area; and
- Co-ordination and sequencing of various trades.

The following assumptions have been utilised in order to estimate the potential mass of construction waste to be generated during the construction phase of the project:

- It is estimated approximately 2 20% of all materials ordered will end up as waste materials (2.5% will be used for this estimate given much of the construction material mass will be the concrete slab(s) and prefabricated steel sections, etc.) (WALGA, 2014);
- The floor area for the residence and the machinery shed combined is to be 800 m²; and
- The mass of single storey domestic type constructions (including foundations)³ is approximately 1,000 kg/m² of floor area.

The total mass of waste construction materials to be delivered to the Port Stephens Resource Recovery Centre is therefore estimated to be around 20 tonnes.

A minor quantity of incidental construction waste (labels, plastic bags, fixture packaging, cardboard boxes, etc) will also be generated. This will report to an on-site skip bin (to be collected by a contracted bin hire company).

³ See http://old.seattletimes.com/html/asktheexpert/2002122968_homehay19.html



3.4 Blackwater and Greywater

3.4.1 Generation Pattern

Blackwater and greywater from the sand quarry site will be generated from the following sources:

- Blackwater from portable toilets provided during the construction of the caretaker's residence;
- Blackwater from toilets in the caretaker's residence; and
- Greywater from the bathroom, kitchen and laundry in the caretaker's residence.

The average water consumption of Australian residents is around 340 litres/person/day⁴ (varying from a minimum of around 100 litres/person/day up to 900 litres/person/day in some areas) and much of this ultimately reports as blackwater and greywater.

3.4.2 Proposed Treatment/Disposal Method

All black water produced from portable toilets during the construction operations will be collected by a hired contractor on a regular basis.

The caretaker's residence will have an on-site septic system to accommodate any blackwater and greywater produced. Effluent (treated wastewater) from septic tanks will be released onto the property through absorption trenches. The septic system will be regularly inspected by the resident and routinely emptied of sludge as required⁵.

The septic tank system to be installed will be suitably sized to cater for all anticipated site activity.

The proposed development will not add any wastewater treatment demand on the local sewerage network.

3.5 Domestic Waste

3.5.1 Generation Pattern

Domestic waste from the sand quarry site is generated from the following sources:

- Household domestic waste from the caretaker's residence; and
- General waste from site office lunch room.

It is estimated approximately 600 kg/person/year of domestic waste will be produced (*Hunter Councils Waste Avoidance and Resource Recovery Strategy 2014-2021*). Assuming there will be 1-2 residents living onsite, 12 - 23 kg/week of waste will be generated. Approximately 52% of the waste generated is considered to be recyclable.

3.5.2 Proposed Treatment/Disposal Method

All general and household wastes will be either disposed in the 240 litre red bin for weekly collection or recycled in the 240 or 360 litre yellow bin for fortnightly collection by Port Stephens Council.

It should be noted two on call clean ups of bulky waste and/or green waste are available each financial year for residences in the Port Stephens local government area.

⁵ See https://www.olg.nsw.gov.au/sites/default/files/Easy-septic-guide.pdf



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⁴ See http://www.rwcc.nsw.gov.au/save-water/average-water-use

4. CONCLUSION

Advitech expects the quantity of waste generated at the 4226 Nelson Bay Rd, Anna Bay (Lot 591 DP1191380) can be adequately managed onsite or through the local Council waste collection services.

5. REFERENCES

The following information was used in the preparation of this report:

- 1. Department of Sustainability, Environment, Water, Population and Communities, 2014. *Waste Generation and Resource Recovery in Australia (WGGRA) database.*
- 2. Hunter Councils Inc. Environment Division, 2014. *Hunter Regional Waste Avoidance & Resource Recovery Strategy 2014-2021*, Hunter Councils, NSW Thornton.
- 3. NSW Department of Local Government, 2000. *The Easy Septic Guide*. Developed by Social Change Media for the New South Wales Department of Local Government.
- 4. Port Stephens Council, *Resident Services Rubbish and Recycling*, http://www.portstephens.nsw.gov.au/live/resident-services/rubbish-and-recycling,
- 5. Tattersall Lander, 2018. *Proposed Sand Mine Drawings Lot 591 DP 119380 4226 Nelson Bay Road, Anna Bay.*
- 6. Western Australian Local Government Association (WALGA), 2014. *Construction Waste Management Plan Guidelines: A Resource for Western Australian Local Government, Developers, Property Owners and Builders.*





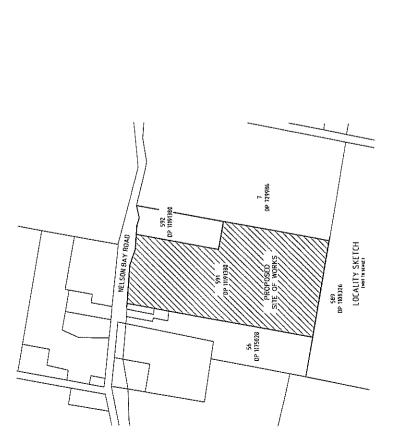
Appendix I

Proposed Site Plans

PROPOSED SAND MINE

BEING A CARETAKERS RESIDENCE & MACHINERY SHED AND ANCILLARY DEVELOPMENT

4226 NELSON BAY ROAD, ANNA BAY LOT 591 DP 119380



	Revision	TENTS A	V	*	ε	E V	" A A
Schedule of Drawings	Description	TITLE PAGE, LOCALITY SKETCH & TABLE OF CONTENTS	OVERALL LAYOUT	STAGING PLAN		SITE SECTION	SITE SECTION ADJOINING MINING OPERATIONS
	File Number	21800001	21800002	21800003	-	21800004	21800004
	Sheet	-	2	~		4	7 5

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